



January 2017

Alternations In Murui: A Morphological Approach

Amy Ruth Havlicek

Follow this and additional works at: <https://commons.und.edu/theses>

Recommended Citation

Havlicek, Amy Ruth, "Alternations In Murui: A Morphological Approach" (2017). *Theses and Dissertations*. 2229.
<https://commons.und.edu/theses/2229>

This Thesis is brought to you for free and open access by the Theses, Dissertations, and Senior Projects at UND Scholarly Commons. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of UND Scholarly Commons. For more information, please contact zeinebyousif@library.und.edu.

ALTERNATIONS IN MURUI:
A MORPHOLOGICAL APPROACH

by

Amy Havlicek
Bachelor of Arts, Covenant College, 2009

A Thesis
Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Arts

Grand Forks, North Dakota
December
2017

© 2017 Amy Havlicek

This thesis, submitted by Amy Havlicek in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

Dr. Stephen A. Marlett, Chair

Dr. John M. Clifton

Dr. Mark E. Karan

This thesis meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

Grant McGimpsey
Dean of the School of Graduate Studies

Date

PERMISSION

Title ALTERNATIONS IN MURUI: A MORPHOLOGICAL APPROACH
Department Linguistics
Degree Master of Arts

In presenting this thesis in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised my thesis work or, in his absence, by the chairperson of the department or the dean of the Graduate School. It is understood that any copying or publication or other use of this thesis or part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of North Dakota in any scholarly use which may be made of any material in my thesis.

Signature ___Amy Ruth Havlicek_____

Date ___11/29/2017_____

CONTENTS

LIST OF FIGURES	viii
LIST OF TABLES	ix
ABBREVIATIONS	xi
ACKNOWLEDGMENTS	xii
ABSTRACT	xiii
CHAPTER	
1. INTRODUCTION: THE PROBLEM	1
1.1. Overview of thesis	2
1.2. Murui and the Witotoan language family	3
1.3. Information about the Murui	4
1.4. Amazon rubber boom 1850-1933	6
2. PREVIOUS RESEARCH	8
2.1. Aschmann's reconstruction of Proto Witotoan	8
2.2. A tagmemic analysis of Murui	9
2.3. A pattern of alternations in the Witotoan languages	11
2.4. Summary	12
3. DATA AND METHODOLOGY	13
3.1. Data	13
3.2. Introduction to word and paradigm morphology	14

3.3. A word-based approach to Murui	16
4. SOME FEATURES OF MURUI	19
4.1. Consonants and vowels	19
4.2. Diphthongs and long vowels in Murui	21
4.3. Syllable structure	23
4.4. Morphological characteristics of Murui	25
4.5. Active indicative suffix allomorphs	30
4.6. Summary	33
5. A WORD-BASED ANALYSIS	34
5.1. Agreement in Murui	34
5.2. Murui verb classes	42
5.3. Passive	47
5.4. Causative	50
5.5. Summary	55
6. NON-DIAGNOSTIC FORMS	57
6.1. Future tense	58
6.2. Negative	61
6.3. Negative passive	63
6.4. Negative future	64
6.5. Directionals	66
6.6. Desiderative	73
6.7. Summary	76
7. PETERSEN DE PIÑEROS' ANALYSIS OF MURUI	77
7.1. Petersen de Piñeros' moraic analysis	77

7.2. Summary	87
8. CONCLUSIONS	88
APPENDICES	90
REFERENCES	116

LIST OF FIGURES

Figure	Page
1. Map of the Putumayo river and the Witotoan language area	4

LIST OF TABLES

Table	Page
1. Some third person singular active and passive forms	1
2. S. Burtch's analysis of the five verb classes in Murui	10
3. Class-identifying information in Murui	17
4. Phonemes of Murui	20
5. Contrast between diphthongs and vowel sequences	22
6. Syllable structure	24
7. Minimal structure of verb forms in Murui	26
8. Murui verb structure	27
9. Verb structure of [ekonote] 'open'	29
10. Verb structure of [tuede] 'fell (a tree)'	30
11. Allomorphs of the active indicative suffix	32
12. Agreement suffixes	35
13. Paradigm for [dotade] 'throw.out:ACT.IND:3SG'	35
14. Variation in some second and third person verb forms	37
15. Agreement in passive voice	41
16. Principal parts: third singular active indicative forms	43
17. Person and number in Murui	44
18. Principal parts in transitive and intransitive verbs	46

19. Third person singular active and passive forms	47
20. Diagnostic forms that identify class membership	51
21. Non-causative verbs and their causative counterpart	52
22. Causative passive forms	53
23. Class-identifying information of class I and II verbs	56
24. Class I and II non-diagnostic forms	57
25. Third person singular nonfuture and future	59
26. Third person singular non-negative and negative nonfuture forms	62
27. Third person singular passive and negative passive forms	64
28. Andative directional allomorphs [-aĩ] ~ [-haĩ] ~ [-θaĩ]	68
29. Venitive directional allomorphs: [-aũbi] ~ [-haũbi] ~ [-θaũbi]	70
30. Desiderative allomorphs [-aka] and [-iaka] in third person nonfuture and future verbs	74
31. Alternations driven by mora (Petersen de Piñeros 1994:34)	78
32. Roots and mora in Murui	79
33. Petersen de Piñeros' evidence for long and short diphthongs	80
34. Verbs divided by moras in the root (Petersen de Piñeros 1994:34)	82
35. Contrast between the transcriptions of Petersen de Piñeros (1994:34) and S. Burtch (1978) and S. Burtch (1983)	84
36. Verb roots and their moras (Becerra & Petersen de Piñeros 2012:49-50)	85

ABBREVIATIONS

1	first person
1SG	first person singular
1PL	first person plural
2	second person
2SG	second person singular
2PL	second person plural
3	third person
3SG	third person singular
3PL	third person plural
ACT.IND	active indicative
AND	andative
CAUS	causative
DES	desiderative
DUR	durative
FUT	future
IMP	imperative
NEG	negation, negative
PASS.IND	passive indicative
VEN	venitive

ACKNOWLEDGMENTS

This thesis would not have been possible without the support of many individuals. I wish to thank my chair, Dr. Stephen Marlett for his help in developing this topic and for his guidance, patience and encouragement during the research and writing of this thesis. I also wish to thank Dr. John Clifton for his guidance and encouragement during the writing process. A special thank you to Dr. Mark Karan for serving on my committee at the last minute and for his encouraging and helpful comments on my drafts. I also need to thank my former committee member Dr. Albert Bickford for sharing his knowledge of morphology with me and for serving on my committee for several years. I would like to thank Bryan and Shirley Burtch. Their work among the Murui people is the reason that I can write this thesis.

Thank you to my friends who have listened to my ideas and encouraged me during the writing of this thesis. I am deeply grateful to my family for all of their love and support during this process, especially my father, Dr. Timothy Steele. Your comments and insight were invaluable. Thank you for cheering me on during the hard times and for offering a listening ear for my analysis. Finally, I wish to thank my husband, Corey, for his unfailing love and support, and for taking care of our son so that I had time to write this thesis. I could not have done this without him.

ABSTRACT

Murui is a Witotoan language spoken in Colombia and Peru. This thesis focuses on alternations of voiced and voiceless alveolar and velar stops in Murui that occur at some morpheme boundaries in verbs. The alternations of the voiced and voiceless alveolar stops occur in the active indicative suffix allomorphs [-duw] ~ [-tuw] ~ [-d] ~ [-t] and the alternations of the voiced and voiceless velar stops occur in the passive indicative suffix allomorphs [-ka] ~ [-ga]. These stops may also become voiced or voiceless when other suffixes are present in the verb. I focus my analysis on the inflectional morphology of active and passive non-causative and causative verb forms. I discuss the inflectional morphology of future, negative, andative, venitive, and desiderative verb forms, and I claim that my analysis applies to other verb forms in Murui as well.

The data for this thesis is found in a word list compiled by Shirley Burtch and found in S. Burtch (1978). I use a model of word-based morphology for my analysis. In this model of morphology word forms are put into paradigms and the recurring morphological patterns of a language are visible through these paradigms. I use four-part proportional analogies to deduce unknown verb forms from known verb forms.

I make two claims. First, I claim there are two verb classes in Murui. Class I verbs have the voiced allomorphs of the active indicative suffix [-duw] ~ [-d] and the voiceless allomorph of the passive indicative suffix [-ka]. Class II verbs have the voiceless allomorphs of the active indicative suffix [-tuw] ~ [-t] and the voiced allomorph of the passive indicative suffix [-ga]. I claim that the principal parts of the verb classes are the third singular active indicative forms and I show that each verb form is deducible through proportional analogy to the principal parts of each verb class.

Secondly, I claim that when other suffixes precede the active and passive indicative suffixes, the suffix which immediately precedes the active or passive indicative suffixes

in the verb structure determines the voicing of the stops in these suffixes. When a suffix precedes the active and passive indicative suffixes it may condition the voicing of the stops so that the two verb classes are no longer distinguishable. I conclude that these alternations are not phonological but morphological and I contrast my analysis with a previous analysis of Murui done by Petersen de Piñeros (1994). I claim that the morphological analysis is the better analysis for these alternations in Murui and I draw attention to the fact that this pattern of alternations is also seen in other Witotoan languages.

CHAPTER 1

INTRODUCTION: THE PROBLEM

In this thesis I analyze a part of the inflectional morphology of verbs in Murui, a Witotoan language spoken in Colombia and Peru, specifically the alternations of voiced and voiceless alveolar and velar stops in certain suffixes. There are four allomorphs of the active indicative suffix [-tuw] ~ [-duw] ~ [-t] ~ [-d] and two allomorphs of the passive indicative suffix [-ka] ~ [-ga]. These alternations are shown in Table 1.

Table 1. Some third person singular active and passive forms

Gloss	‘fell (tree)’	‘lick’
Active	tuede	mete
Passive	tueka	mega

I claim that these alternations are morphological rather than phonological and I divide these alternations into two categories, alternations that identify the verb classes and alternations that do not identify the verb classes. I claim that there are two verb classes and the alternations in the active indicative suffix and passive indicative suffix in non-causative and causative verbs are markers of class membership. These are the class-identifying alternations. Class I verbs have the [-duw] ~ [-d] active indicative allomorphs, the passive indicative allomorph [-ka], the causative indicative allomorphs [-tuw] ~ [-t], and the causative passive indicative allomorph [-ga]. Class II verbs have the [-tuw] ~ [-t] active indicative allomorphs, the passive indicative allomorph [-ga], the causative active indicative allomorphs [-duw] ~ [-d], and the causative passive indicative allomorph [-ka].

I claim that certain suffixes that precede the active indicative and passive indicative suffixes condition the voicing of the stops in these suffixes so that the voicing is identical

in both verb classes. As a result, verb forms with these suffixes have lost all obvious signs of class membership. I discuss five suffixes that condition the voicing of the stops in the active and passive indicative suffixes: future, negative, desiderative, andative, venitive, and causative. In chapter 7 I show that an analysis of the prosodic structure of the verb roots does not account all of the alternations in the Murui data and it is not a natural phonological process.

I use word-based morphology as described by Blevins (2016) and (2006) for my analysis. A theory of word-based morphology claims that unknown word forms can be deduced through analogy to other word forms. Through word-based morphology, I identify the principal parts in Murui and show how the active indicative suffix allomorphs act as markers of the verb classes. The principal parts are used as models from which each form in a paradigm is deduced through proportional analogy. I claim that the alternations that are seen in the verbs when other suffixes are added are morphological, and that the suffix that precedes the active and passive indicative suffix determines the voicing of the stops in these suffixes.

1.1 Overview of thesis

This thesis contains eight chapters. In chapter 1 I discuss the language area where Murui is spoken, and offer some linguistic information about Witotoan language family. I also survey the historical context of the Murui people. In chapter 2 I discuss the previous research on the Witotoan language family and on Murui. I also present the phonological and morphological work done by Bryan and Shirley Burtch, the SIL linguists who collected the data I used for my research. In chapter 3 I describe my data and provide an overview of word-based morphology. In chapter 4 I list some basic features of Murui that are relevant to my discussion. In chapter 5 I present my analysis of the alternations using word-based morphology. I show how the two conjugation classes in Murui are identified through principal parts and how the verb forms are capable of being deduced by means of proportional analogy to the principal parts. In chapter 6 I show five morphological forms that neutralize the distinction between the two verb classes and I discuss why these forms are not indicators of verb class membership. I claim the voicing of the stops in the active

and passive indicative suffixes in these forms is conditioned by the preceding suffix. In chapter 7 I mention the moraic-driven analysis proposed by Petersen de Piñeros (1994) and claim that this analysis does not account for all of the alternations seen in the Murui corpus. Finally, in chapter 8 I discuss my conclusions and highlight some implications for future research into the Witotoan languages.

1.2 Murui and the Witotoan language family

Witoto Murui, ISO 639-3 code [huu], is part of the Witotoan language family. The six languages in the Witotoan language family are Bora, Muinane, Nipode, Minica, Ocaina, and Murui. Aschmann (1993:1) says that there are two branches in the Witotoan family: Bora-Muinane and Huitoto-Ocaina. He groups Bora and Muinane in the Bora-Muinane branch and Murui, Nipode, Ocaina, and Minica together in the Huitoto-Ocaina branch.¹ Murui and Minica are alike phonologically except that Minica has a velar nasal, a glottal stop and contrastive accent, which are not found in Murui (1993:14). Murui has been described as non-tonal.

Witotoan languages are referred to in several ways in the literature. The terms Witotoan and Huitotoan are used to describe the language family. Witoto, Huitoto and Uitoto are used to describe an unspecified Witotoan language or Witotoan tribe. Both Huitoto and Uitoto reflect the Spanish spelling of the language. The term Huitoto is also used to describe the Huitoto-Ocaina branch of the language family. In most of the previous research about the Witotoan languages, Huitoto is used as the name of the language and the specific language names are referred to as dialects of Huitoto. The plural terms Witotos and Huitotos are often used when referring to the Witotoan people rather than the languages.

The Witotoan languages and people may be referred to by their names without any reference to the Witotoan language family (i.e. Murui, Muinane, Nipode, Minica, Ocaina) or they are seen with the word Witoto preceding the language name (i.e. Witoto Murui). The Murui people refer to their language as Bue ['bu.e] (S. Burtch 1978:152). Different

¹ The Muinane on the Bora side of the family is a separate language from Witoto Muinane (also referred to as Nipode in this thesis) (Simons & Fennig 2017).

greetings distinguish the different Witotoan languages. “The Murui say bue while other Witotoan languages use the expressions nipóde, minica, mica, and nifode” (B. Burtch 2008/1975:iii). Stanfield (1998:216) says these names represent different clan names rather than tribal names. He goes on to say: “most of the tribal names for Putumayans were coined by whites or Indian enemies. For example, the Carijona used their word for enemy or slave, itoto, to refer to the Huitoto” (1998:216). Bue is used by Becerra & Petersen de Piñeros (2012) in their description of the Murui language. In this thesis I use the name Murui for the language and the people and I use the name Witotoan to refer to the language family.

1.3 Information about the Murui

Murui is spoken along the Putumayo and Ampiyacu rivers in Peru and in parts of Colombia (B. Burtch 2008/1975:iii). Other Witotoan languages are spoken in this same area. The Witotoan language area is shown on the map in figure 1.²



Figure 1. Map of the Putumayo river and the Witotoan language area

Witotoan languages are considered to be western Amazonian languages and are grouped together with the languages of the northern foothills in the Amazon. Two of the closest surrounding languages to Murui are Tucanoan and Arawakan. It is believed that there has been a high level of contact with the nearby languages in the Amazon. According to Seifart (2007:426), the Witotoan languages share linguistic characteristics that may be the

² Public Domain, <https://commons.wikimedia.org/w/index.php?curid=390637>

result of areal diffusion. Payne (1985:531) says, "... the western Amazon region deserves serious study relative to features which may identify it as a linguistic area in the technical sense."

The Murui rely on agriculture and fishing to supply their basic needs. Burtch & Burtch (1975:17) say that chicken and fish are a large part of the Murui diet. Yucca is a type of root used for food that is common in the Amazon (Stanfield 1998:6) and is referred to frequently in S. Burtch (1978). Groups in the Amazon often live together in communal houses. Hardenburg (1912:156) says that multiple families would live together in the same house. S. Burtch (1983:2:159) shows a picture of the communal houses used by the Murui. She says that the communal houses are called *malocas*. According to Stanfield (1998:6), "each maloca could fit 50-200 people."

Although the Murui have been described as peaceful people, Hardenburg (1912:158) describes the different weapons used by the different Witotoan tribes for fishing, hunting and warfare. There is evidence that tribal warfare frequently broke out among the different groups in the Putumayo. As Stanfield (1998:6) says:

Huitoto (Witoto), also referred to as the Murui or Muiname [sic], were and still are the largest ethnic group in the Putumayo. Their traditional enemies, the strong and powerful Bora (Miraña), occasionally raided Huitoto villages for booty and captives.

According to Crevels (2012:211), "the Huitoto who live in Peru today descend from a group of Huitoto that had been forced to move from Colombia to Peru during the rubber boom at the beginning of the twentieth century." Current estimates are that there are approximately 1300 Murui speakers (Simons & Fennig 2017). Murui speakers are bilingual in Murui and Spanish and there is evidence that speakers prefer to use Spanish over Murui (Simons & Fennig 2017). Murui, Minica and Muinane Witoto are all considered to be endangered. These three languages have a combined total of 7,343 remaining speakers (Crevels 2012:197).

1.4 Amazon rubber boom 1850-1933

The Amazon rubber boom took place in Ecuador, Colombia, Peru, and Brazil. The predominant rubber barons during these years were Rafael Reyes, Benjamín Larraniaga, Crisóstomo Hernández, and Julio César Arana (Stanfield 1998:26). During the years 1879-1912, the Colombian and Peruvian governments were negotiating control of the territory along the Putumayo river between their countries. “This agreement called for the withdrawal from the Putumayo of ‘all garrisons, and all civil, military, and customs authorities’ from both countries” (Stanfield 1998:112). This agreement was meant to end the territorial conflicts between the two countries, but the conflicts over rubber distribution and ownership of the rubber trees did not end. Julio César Arana discovered a gap in legal jurisdiction in the Putumayo territory and his company, the Peruvian Amazon Rubber Company,³ claimed ownership of the area. The Peruvian Amazon Rubber Company controlled all the rubber trees and the rubber that was exported from the area. The Murui and other Witotoan groups were controlled by Arana's men. Due to the high international demand for rubber and the fact that neither Peru nor Colombia had jurisdiction over the area along the Putumayo, Arana's men mistreated the Witotoan groups without fear of punishment from the Peruvian and Colombian governments or from Arana. The circumstances of the working conditions are described by Stanfield (1998:47):

Most rubber-collectors never escaped indebtedness to their patróns [sic], who advanced them goods. Wealth flowed from the top of the aviamento [sic] chain, leaving many workers impoverished, ill-nourished, and exploited. The patrón threatened violence, at times resorting to beating and whipping to enforce labor demands and to demonstrate his dominance.

Under this system the Witotos were subjected to cruel living conditions. If the Witotos did not supply enough rubber, they were punished (Collier 1968:113). Due to the horrors of the labor conditions, thousands of Witotos were killed during the rubber boom. “As a direct consequence of the rubber industry, the exploitation of rubber resulted in the almost

³ The Peruvian Amazon Rubber Company was later known as the Peruvian Amazon Company (PAC) (Stanfield 1998:122).

complete disappearance of the Witotos. Their population went from approximately 30.000 Witotos to less than 2.000” (Burgos 1994:21).

CHAPTER 2

PREVIOUS RESEARCH

All previous research of Murui has included some discussion of the voicing alternations of the active and passive indicative morphemes. Petersen de Piñeros (1994) and Becerra & Petersen de Piñeros (2012) claim that the alternations in Murui and Witoto Mìka Doode (also known as Mica)¹ are the result of a difference in the number of moras in the verb roots. B. Burtch & Wise (1968) describe the active indicative suffixes as terminal suffixes and show evidence of the alternations, but they do not provide an analysis of the alternations themselves. S. Burtch (1983) divided the verbs into five different verb classes and gave the forms of the active and passive indicative suffixes that are present in each class. In this chapter I discuss these previous analyses of the alternations in Murui and similar alternations that occur in the other Witotoan languages.

2.1 Aschmann's reconstruction of Proto Witotoan

The first attempt to show the historical and linguistic relationships between the Witotoan languages is by Aschmann (1993). He reconstructs the proto language, Proto Witotoan, and claims that there are two branches in this language family: Proto Bora-Muinane and Proto Witoto-Ocaina. According to Aschmann (1993), Murui is from the Witoto-Ocaina branch of the family along with Nìpode, Mìnica and Ocaina. He lists sixteen phonemes for Murui: /p, b, φ, β, m, t, d, θ, r, n, ɲ, tʃ, dʒ, k, g, h/ and six vowels /a, e, i, o, u, i/, but he says that the /p/ is a rare phoneme with limited distribution (1993:14).

Aschmann (1993) does not give an analysis for the alternation of [t] ~ [d], but he acknowledges that there is an alternation that occurs with these consonants. He claims that the alveolar consonants in Proto Witoto-Ocaina underwent multiple splits over time.

¹ Simons & Fennig (2017) list Mica as a dialect of Murui. They are mutually intelligible and only differ in lexical and phonological aspects according to Becerra & Petersen de Piñeros (2012:20).

Aschmann noted the alternations, but excluded the occurrences of the suffixes from the analysis of [d] since they obscured the distribution of the [d]. He writes: “more than half of the occurrences of /d/ in Huitoto in the word list are in adjective-verb suffixes /-de/ or /-re-de/. I have excluded these suffixes in making the phoneme counts and totals, since they would obscure the historical correspondences” (Aschmann 1993:5). His examples of the [t] ~ [d] alternations are shown in (1).

- (1) Murui -*de*, -*te*, -*re-de*
 Minica -*de*, -*te*, -*re-de*, -*re-ra*
 Nipode -*de*, -*de*, -*re-de*
 Muinane -*no*, -*ño*, -*ne*, -*ñe*, -*zi*
 Bora -*ne(e)*, -*n^ye(e)*

Example (1) shows that there is an alveolar alternation that occurs in three of the six Wito-toan languages (Ocaina is not included in this list). Achmann's reconstruction successfully shows the phonological relationship between the Witotoan languages. The evidence from (1) suggests that the pattern of alternations seen in Murui is a characteristic of the Wito-toan language family.

2.2 A tagmemic analysis of Murui

Bryan and Shirley Burtch used tagmemic theory to analyze the morphology and syntax of Murui. They divided the verbs into five classes which they describe as two transitive verb classes, two intransitive verb classes and one stative verb class (S. Burtch 1983:2, 132). Table 2 shows these five verb classes with the active and passive indicative suffixes and the imperative suffixes that appear in each class.

Table 2. S. Burtch's analysis of the five verb classes in Murui

Mood/Voice	ACT.IND	PASS.IND	IMP
Class I Transitive	-duw	-ka	
Class II Transitive	-tuw	-ga	-no, -ne, -ɲo
Class III Intransitive	-duw -tuw		-ne
Class IV Intransitive	-tuw		-ɲo
Class V Stative*	-duw -tuw		

*(S. Burtch 1983:132) says this verb class occurs with the [-duw] allomorph more often than the [-tuw] allomorph.

Table 2 shows how the verb classes are characterized by the different suffixes. Class I consists of transitive verbs that have the [-duw] form of the active indicative suffix. This class has the [-ka] form of the passive indicative suffix and does not have an imperative suffix. Class II verbs are transitive verbs that have the [-tuw] allomorph of the active indicative suffix and the [-ga] allomorph of the passive indicative suffix. These verbs have the imperative suffixes [-no] ~ [-ne] ~ [-ɲo]. Class III verbs are intransitive with the [-duw] or [-tuw] active indicative allomorphs. These verbs have one form of the imperative suffix [-ne]. Class IV verbs are also intransitive with the [-tuw] active indicative suffix. The imperative form used with these verbs is [-ɲo] (S. Burtch 1983:132).

B. Burtch & Wise (1968) say the four classes of transitive and intransitive verb roots are distinguished by the occurrence of what they call thematic suffixes. They analyzed the morphemes by assigning a tagmeme number to each suffix. The tagmeme numbers correspond to a position in the tagmeme chart. The tagmeme chart for Murui created by B. Burtch & Wise (1968) has thirteen suffix positions. Each position in the chart is associated with multiple suffixes. Some of these suffixes can move to a new position in the verb structure or be repeated. They use the term "terminal suffix" for the active indicative and passive indicative suffixes and represent these suffixes with a four-digit number (e.g. 1111). They use the term "thematic suffixes" to describe other suffixes in Murui. The thematic suffixes are represented by a three-digit number (e.g. 111).

B. Burtch & Wise (1968:24) say that there are two allomorphs of the active indicative suffix, [-tuw] and [-duw], and they describe the suffixes that require a certain allomorph of it. The verb classes they refer to are the verb classes established by S. Burtch (1983). They refer to the suffixes by their tagmeme number. I have indicated the suffixes they refer to by placing the suffixes in square brackets with their meanings.² The “allomorph of -tī of 1111 [-tuw ‘active indicative’ AH] occurs when a member of class II or class IV and some class III verb roots immediately precede, or it occurs when thematic suffix 111 [-ta ‘causative’ AH], 181 [-kabi ‘habitual repetitive’ AH], 241 [-θuw ‘plural’ AH], or 261 [-i ‘future’ AH] immediately precedes. Allomorph -dī [-duw ‘active indicative’ AH] occurs elsewhere” (1968:24). They do not discuss possible causes for the alternations between [-tuw] and [-duw].

2.3 A pattern of alternations in the Witotoan languages

This pattern of alternations of alveolar and velar stops has been described in three of the languages from the Witoto-Ocaina branch of the Witotoan family. These languages are Murui, Minica, Muinane, and one dialect of Murui called Mika Doode.³ Minica, ISO 639-3 code [hto] (also known as Meneca and Minica), has two allomorphs of the active indicative suffix, [-tuw] ~ [-duw], and two allomorphs of the passive indicative suffix, [-ka] ~ [-ga]. These are the same alternations seen in Murui. In Minica, the passive allomorph [-ka] is more common than [-ga] (Minor & Minor 1982:83). Minor & Minor (1976) do not give an analysis for why these alternations occur in the active and passive indicative suffixes. As in Murui, Minica deletes the third person singular agreement when the passive indicative suffix is present in the verb.

In Muinane, ISO 639-3 code [hux] (also known as Muinani, Nipode and Nipode), there are similar cases of allomorphy with the active and passive indicative suffixes. The data was gathered during the years 1952-1954 and from 1956-1960 by Eugene Minor (Loos

² The symbol [i] is used by B. Burtch & Wise (1968) for the high back unrounded vowel [u]. This vowel is also transcribed as the symbol [i] by S. Burtch (1978), S. Burtch (1983) and B. Burtch (2008/1975).

³ Von Kinder (1936) presents a grammar of a Witotoan language. In this grammar he discusses the verb conjugations and different aspects of the pronunciation and the grammar of the language. He gives a substantial word list with the different forms of each word. There is evidence that the alveolar alternations are present in this language as well. The text is unclear about which Witotoan language the data is from (Von Kinder 1936:VIII).

& Minor 1963:37-38). In Muinane, Loos & Minor (1963) say that there are four active indicative allomorphs, [-du] ~ [-ʔdu] ~ [-de] ~ [-ʔde], CONNECTIVE, and two passive indicative allomorphs, [-ka] ~ [-ga], PASSIVE COMPLETIVE. Muinane has two verb classes but the organization of the classes has not been determined (1963:57-58). The alveolar alternations seen in Muinane are the same alternations of the active indicative suffix in Murui, but Loos & Minor (1963) use the transcription [-ʔdu] instead of [-tu]. In Muinane, the passive allomorphs are identical to the passive allomorphs in Murui. As in Murui, the velar stops in the passive allomorphs alternate in voicing.

Mika Doode has the same active and passive alternations as Murui. In Mika Doode, Petersen de Piñeros (1994) claims that alternations seen in the active and passive indicative allomorphs are determined by the number of moras in the verb roots. One and three mora roots have the [-tu] and [-ga] allomorphs and bimoraic roots have the [-du] and [-ka] allomorphs. She is the first to suggest an analysis for these alternations and she claims that her analysis may apply to other Witotoan languages. I discuss how her analysis applies to the Murui data in chapter 7.⁴

2.4 Summary

Aschmann's reconstruction of Proto Witotoan is the first attempt to show the phonological relationship between all of the Witotoan languages. He notes that the alveolar and velar stops alternate in three of the languages in the Huitoto-Ocaiana branch of the Witotoan language family. These alternations may be a linguistic characteristic of the language family. The first phonological analysis of these alternations was by Petersen de Piñeros (1994).

⁴ Original: "Aunque los trabajos de los citados autores tratan las variantes dialectales bue y minika, respectivamente, es muy probable que la aparición de di/ti obedezca a la misma regla en todas las variantes dialectales del uitoto como se desprende de las investigaciones adelantadas, bajo nuestra dirección, por Gladys Osorio y Mirta Pérez (1991:49) y Daniel Monje (tesis en preparación) sobre el mika raite y el nipode, respectivamente" (Petersen de Piñeros 1994:33).

CHAPTER 3

DATA AND METHODOLOGY

In this chapter I discuss the data I used for my research (section 3.1) and I present an overview of word-based morphology (section 3.2). I rely heavily on the description of classical word and paradigm theory by Blevins (2016) in my discussion of word-based morphology. I compare a word-based model of morphology to other models within the general word and paradigm approach. I describe the importance of analogy and show how new word forms are deduced through analogy from known word forms. Finally, I discuss the notion of diagnostic forms and their role in identifying verb classes. I conclude this chapter with my application of word-based morphology in Murui (section 3.3).

3.1 Data

The primary data for this thesis is a list of 1300 word forms compiled by S. Burtch (1978). The word list includes verbs, nouns, adjectives, question words, and numerals. It was meant to be an exercise for phonology students, so some verbs have complete paradigms while others have only one or two forms. I focus my analysis on the inflectional morphology of the verbs in this list. There are no available recordings of this data and I have not elicited data from other speakers. I use the transcriptions by S. Burtch (1978) for my analysis. The verbs from this list are found in Appendix A and Appendix B. The Spanish glosses of these verbs were done by Bryan and Shirley Burtch. I translated the Spanish glosses into English using Kellogg (1999). In my analysis I follow the glossing conventions in the Leipzig Glossing Rules (Comrie et al. 2015).

Other sources of data are a phonology of Murui by B. Burtch (2008/1975), a collection of Murui texts compiled by B. Burtch (1985), and a two-volume dictionary of Murui compiled by S. Burtch (1983). Bryan and Shirley Burtch were SIL linguists who began living and working among the Murui people in 1955. They collected data during the years

they spent among the Murui and they did phonological and morphological analyses of the Murui language.

3.2 Introduction to word and paradigm morphology

There are two types of morphological theories according to Blevins (2006:533): constructive and abstractive. Constructive approaches build word forms from their roots and stems, and they store roots, stems and morphemes in the lexicon. Blevins (2006:533) says that a constructive approach “isolates recurrent bases and exponents within a system, encapsulates each of these elements in an individual rule or entry that represents their grammatical properties, and then derives surface word forms from these simple elements by rules or other combinatoric principles.” The rules that he mentions are the spell-out rules and realization rules seen in the stem and paradigm models of Word and Paradigm morphology.

In contrast, an abstractive approach, such as a word-based model, stores word forms in the lexicon (Blevins 2006:537). He says “the key assumptions of an abstractive approach are that exemplary paradigms and principal part inventories contain word forms, and that grammatically distinctive patterns are resident in these actual forms” (2006:544). A word-based model does not build word forms from individual morphemes. Instead, a word-based model of morphology treats words as “the basic elements of a system, and regards roots, stems and exponents as abstractions over a set of full forms” (Blevins 2006:531).

There are several different branches of word and paradigm morphology, as noted by Blevins & Ackerman (2015:4):

However the modern WP tradition that grew out of the work of Matthews (1965, 1972) is less uniformly word-based. This tradition includes, among other approaches, the Extended WP model (Anderson 1982)/A-Morphous Morphology (Anderson 1992), Paradigm Function Morphology (Stump 2001), and the family of realization-based and lexeme-based approaches (Zwicky 1985; Aronoff 1994; Beard 1995).

A word-based model of morphology is theoretically closer to the classical word and paradigm model of morphology that is used for analyzing the morphology of classical languages.

Blevins (2006:537) says, “unlike many contemporary approaches, traditional models do not impose a radical separation of ‘data’ and ‘patterns’, but represent the morphological patterns of a language by actual forms that display those patterns.” The inflectional classes are identifiable through the morphological patterns seen in the word forms. Once these morphological patterns are known, they can be used to deduce other word forms through proportional analogies from the principal parts of a paradigm. The concept of proportional analogies is discussed by Blevins (2016) and (2006) and is his interpretation of the proportional analogies used by Paul (1920) and Matthews (1991).¹ A word-based model is different from word and paradigm models which build word forms from stems and exponents using realization rules. Blevins (2006:534) refers to the theories that build word forms from stems and exponents as “stem and paradigm models.” He considers the theories of Anderson (1992) and Aronoff (1994) to be stem and paradigm models.

One implication of building word forms from pieces, such as in a stem and paradigm model, is that the relationship between the word forms and their paradigm cells is lost (Blevins & Ackerman 2015:15). A word-based theory is dependent on the relationship between the cells in a paradigm for word formation. Blevins & Ackerman (2015:23) say, “instead of disassembling a language into inventories of ‘atoms’ that can be combined to build larger units, WP [word and paradigm AH] analyses focus on the implicational structure defined over networks of interrelated elements.”

Analogy is important in word-based morphology because word-based morphology focuses on the relationships between the cells of a paradigm. Blevins (2016:80) says, “the patterns exhibited by exemplary paradigms are extended by matching ‘principal parts’ against cells in exemplary paradigms, and deducing additional forms by analogy to the forms that realize other exemplary cells.” Proportional analogies are used by Blevins (2016:98) to show the relationships between the cells of a paradigm and to demonstrate how new word forms are deduced through analogy to the known paradigm cells. He gives the formula for a four-part analogy used by Matthews (1991) to show how word forms can be deduced: “ $a : b = c : X$, in which a , b and c are all given, and the analogical

¹ See Matthews (1972) for his application of word and paradigm morphology on the inflectional morphology of Latin and Matthews (1991) for a discussion of the classical word and paradigm model.

step involves ‘solving for X.’” The relationship in this formula is between the cells of a paradigm, not the individual word forms.

The principal parts are the key for deducing every possible word form and are established by creating exemplary paradigms. Blevins (2016:86) cites Hale and Buck (1903:77) saying, “certain forms of the verbs are known as the Principal Parts, because they furnish the key to the inflection of any given verb.” When word forms are put into paradigms, the morphological patterns become visible and the principal parts are identified. According to Blevins (2016:100), “because analogical principles deduce rather than build novel forms, they can exploit any predictive patterns, without attaching grammatical significance to the segmentations that are of predictive value.”

There are two criteria for establishing principal parts: they must be used frequently and they must identify class membership (Blevins 2016:87). He says, “principal parts will, in effect, emerge from the language model that a speaker constructs based on frequency and patterns of co-occurrence” (2016:89). The process of deciding which forms are principal parts is difficult. Blevins (2016:89) says that in choosing principal parts the, “value of a principal part correlates with its relative informativeness, not with its status as a citation form or reference form.”

3.3 A word-based approach to Murui

For my analysis I use four-part proportional analogies to show how unknown word forms can be deduced from known forms. Blevins (2016:99) says, “four-part analogies represent the smallest proportional deduction, as at least three known forms are needed to identify a fourth.” It is possible to deduce unknown forms through analogy from the principal parts. Blevins (2006:533) describes the benefit of a principal parts analysis: “within a traditional WP model, principal parts identify the class of an item, and thereby associate it with exemplary paradigms that permit the analogical deduction of other forms.” He also claims that the principal parts can be models for the analogies (2006:538).

I use Blevins’ terminology “minimal verb structure” to describe the minimal structure of basic verb forms in Murui. The term minimal verb structure is used by Blevins

(2006:558) to describe Georgian verbs in their simplest form with no class-specific variation shown in the verb. Although there is class-specific information shown in the allomorphs of the active indicative suffix, the third person singular nonfuture active forms are the basic verb forms with the minimal verb structure in Murui. I consider these forms to be the principal parts.

I have chosen the third person singular nonfuture active indicative forms as the principal parts because they provide the most information for deducing the other forms in a paradigm, they occur most frequently, and they show the most variation in the active indicative suffix allomorphs. This variation is shown in the verbs in Table 3. Table 3 has three verbs with the active indicative allomorph [-d] and two verbs with active indicative allomorph [-t].

Table 3. Class-identifying information in Murui

Class I	ekade	‘give food’
Class I	gade	‘go down (river)’
Class I	ϕuunode	‘try’
Class II	mete	‘lick’
Class II	huute	‘plant yucca’
Class II	bite	‘come’

The final part of a word-based theory that I use for my analysis is the notion of “diagnostic forms”. The term diagnostic forms is used by Blevins (2016:78) to describe word forms that identify conjugation classes. Following Blevins, “a form is of diagnostic value to the extent that it has a distinctive (morphologically conditioned) shape corresponding to each class” (2016:80). Diagnostic forms can be principal parts but that is not a requirement. I also consider the passive and causative forms to be diagnostic forms since these forms identify the verb classes but they do not occur frequently enough to be principal parts. I use the term “non-diagnostic” forms for the future, negative, andative, venitive, and desiderative verb forms. These forms do not have any class-identifying information

in their morphology. While it is possible to deduce these forms from the principal parts, it is not possible to use a reverse analogy to deduce the principal parts from these forms.

Finally, I use the concept of reverse proportional analogies in my analysis in order to show how the diagnostic forms may be used to deduce the principal parts of a verb class. I also use reverse proportional analogies to show that the principal parts can not be deduced from the non-diagnostic forms.

CHAPTER 4

SOME FEATURES OF MURUI

In this chapter I discuss some of the basic features of Murui. Stress in Murui is non-phonemic. B. Burtch (2008/1975:iii) says “the first syllable of every word receives primary stress and a high intonation. The third syllable receives secondary stress and a slightly raised intonation.”¹ Murui has been described as a nominative-accusative language (Wise 1999:320).

4.1 Consonants and vowels

I assume the phonology of Murui by B. Burtch (2008/1975) for my analysis. His phonology of Murui is similar to the phonology proposed by Petersen de Piñeros (1994). The phonemes of Murui are presented in Table 4.

¹ B. Burtch (2008/1975:iii) says, “La primera sílaba de cada palabra lleva el acento con la entonación elevada. La tercera sílaba lleva un acento ligero con la entonación un poco elevada.”

Table 4. Phonemes of Murui

Plosives	b t d k g
Affricates	tʃ dʒ
Nasals	m n ɲ
Fricatives	ɸ β θ h
Flap	r
Vowels	a e i o u
Diphthongs	au ai ui oi ou ue ua ei
Triphthongs	uau

In his phonology B. Burtch (2008/1975:9) says, “a non-phonemic glottal stop occurs after a word is spoken in isolation but this glottal stop disappears in rapid speech”.²

The six vowels found in Murui are common among northwestern Amazonian languages. Dixon & Aikhenvald (1999:8) say, “the high unrounded central vowel *i* is frequent. A typical Amazonian vowel system has five members: *i*, *e*, *a*, *i*, *u/o*.” Aschmann (1993:124) says “the Witotoan languages have an astonishing propensity for generating and retaining the high back unrounded vowel /*i*/, both as a pure vowel and in diphthongs such as /*ai*/. This is a strong areal tendency in Northwestern South America generally.”

The high back unrounded vowel in Murui has been transcribed in two different ways in the literature about Murui, /*i*/ and /*i*/. S. Burtch (1983:1:12) says that “/*i*/ is a back vowel, like the *u* in Spanish, but with the lips in the position to pronounce *i*, it is a high, back, unrounded vowel.”³ There is also a velar approximant that occurs as a transition following this vowel that is transcribed throughout the Murui corpus in S. Burtch (1978). Phonetically, this transition is more expected with the vowel /*u*/ rather than the vowel

² Original: “una oclusiva glotal, que no es fonémica se encuentra después de palabras aisladas. En el habla rápida hay tendencia a no usar la oclusiva glotal en las juntas de palabras” (B. Burtch 2008/1975:9).

³ Original: “*i* es una vocal posterior, como la *u* del castellano, pero con los labios en posición para pronunciar la *i*, es decir, es una vocal alta, posterior, no redondeada ” (S. Burtch 1983:1:12).

/i/. Because of the velar approximant and the descriptions of this vowel found in B. Burtch (2008/1975:9) and S. Burtch (1983:1:12), I transcribe this vowel as /ɯ/.⁴

4.2 Diphthongs and long vowels in Murui

Diphthongs and long vowels are present in Murui and they contrast with sequences of non-geminate vowels in Murui. As mentioned in Table 4, the following diphthongs occur in Murui: [aɯ], [ai], [ui], [oi], [ou], [ue], [ua], and [ei]. I represent diphthongs with a tie bar (e.g. [aɯ̯]). This is not a standard convention of the IPA but it is helpful for distinguishing between diphthongs and other sequences of vowels. Table 5 shows the contrast between vowels in hiatus and diphthongs.

⁴ The phonemic transcriptions of /i, e, a, o, u, i/ were used in S. Burtch (1978). B. Burtch (2008/1975) transcribed the vowels /e/ and /o/ as [ɛ] and [ɔ].

Table 5. Contrast between diphthongs and vowel sequences

Diphthongs	Gloss	Vowel sequences	Gloss
ru̠i.ka	‘opposite band across the river’	ru.i.ka	‘roast meat:PASS.IND[3SG]’
a̠i.me.ta̠i.te	‘hungry:ACT.IND:3SG’	ma.i.ka	‘sick:PASS.IND[3SG]’
ha̠i.o	‘snake’	ha.i.a.ka.du̠.kue	‘go:DES:ACT.IND:1SG’
ba.no̠i	‘liver’	no.i.de	‘bathe.oneself:ACT.IND:3SG’
me̠i.re.de	‘shameful:ACT.IND:3SG’	te.i.de	‘cough:ACT.IND:3SG’
to̠u.ka	‘domesticate:PASS.IND[3SG]’	θo.u.ko.re	‘bog’
θa̠u.re	‘herb’	na.u.θo	‘by.road’
ku̠e.re.no	‘little toad’	dʒo.φu.e.te	‘teach:ACT.IND:3SG’
ku̠a.ra.ri.de	‘broken:DUR:ACT.IND:3SG’	gu.ru.a	‘thunder’

I have separated the syllables in Table 5 with a period and added the tie bar above the diphthongs in order to more clearly distinguish between the diphthongs and sequences of consecutive vowels.⁵

4.3 Syllable structure

I propose a maximum syllable template for Murui of [CVVV]_{MAX}. Table 6 shows the syllable structure of some third person singular verbs and singular nouns. In Table 6 I represent diphthongs with a tie bar.

⁵ The diphthongs in (S. Burtch 1983) are represented with a grave accent on the second vowel of the diphthong. B. Burtch (2008/1975) and S. Burtch (1978) used double grave accents to represent diphthongs (e.g. [àì]) and they underlined the sequences of vowels that they called triphthongs.

Table 6. Syllable structure

(C)V syllables	Gloss	(C)V syllables	Gloss
1. ho.φo	'thing'	2. taī.φe.de*	'be.full:ACT.IND:3SG'
3. ka.na.re.ŋo	'cockroach'	4. haī.o	'snake'
5. ti.u.e	'type of tar'	6. θaī.te	'dance:ACT.IND:3SG'
7. go.go.de	'stutter:ACT.IND:3SG'	8. dtū.āi.de	'bleed.out:ACT.IND:3SG'
9. u.i.θu	'eye'	10. dʒi.āi.ku	'cicada'
11. tu.e.de	'fell.tree:ACT.IND:3SG'	12. aū.ma.de	'fish with hook:ACT.IND:3SG'
13. e.ko.no.te	'open:ACT.IND:3SG'	14. maū.hu.de	'work:ACT.IND:3SG'
15. a.bu	'body'	16. i.gāu	'spiderweb'
17. u.i.ma	'man'	18. mūi.ro.ku	'infection in the eyes'
19. ru.i.ka	'roast.meat:PASS.IND:3SG.'	20. rūi.ka	'other group across the river'
21. ra.o.de	'hunt:ACT.IND:3SG'	22. φū.buī	'moon'
23. hu.ku	'porcupine'	24. ŋe.kuī.o	'vein'
25. ka.no.de	'help:ACT.IND:3SG'	26. φuuu.de	'rob:ACT.IND:3SG'

*According to S. Burtch (1983:1, 232), [taīφede] means 'to be full (the moon)'.

Without the tie bar over the diphthongs it is not possible to distinguish between #19 and #20 in Table 6 from their transcriptions alone. The [VV] syllables in Table 6 are diphthongs or geminate vowels, such as the geminate vowel seen in #26, [ɸuuude]. Table 6 shows some words with two adjacent vowels that belong to separate syllables such as #5, [ti.u.e] ‘type of tar’, and #11, [tu.e.de] ‘fell (tree)’. It is common to see long sequences of vowels in the Witotoan languages as shown in Table 6 in #8, [dwaide] ‘bleed out’, and #10, [dʒiaikw] ‘cicada’.⁶

4.4 Morphological characteristics of Murui

The verbal morphology of Murui is expressed through suffixes. Payne (1990:221) says prefixes are rare in these languages. She also says that infixation is not common (1990:217). According to Dixon & Aikhenvald (1999:8), “the majority of languages are polysynthetic and head marking; agglutinating with little fusion.” Payne (1990:214) describes the morphology of Amazonian languages by saying:

Indigenous SA [South American AH] languages are dominantly polysynthetic. In most, modifications such as tense, aspect, mood, location, direction, type of movement accompanying the action, causation and other valence-changing operations, and indication of person, number, and gender can, or must, be indicated by bound verbal affixes. In some languages, evidentiality, passive versus active voice, negation, and registration of the semantic role of physical shape of the arguments must also be indicated by bound verbal affixes.

The structure of the minimal verbs in Murui is illustrated in (2). This is the basic form of all Murui verbs.

(2) Root-Mood/Voice-Agreement

The verbs in table 7 have the minimal verb structure presented in (2). Table 7 is set up according to the minimal verb structure and the complete verb forms are in the fourth col-

⁶ See Minor (1956) for an analysis of the vowel sequences in the Witotoan languages.

umn. The verbs are divided into two groups: verbs that have the voiced active indicative allomorph and verbs that have the voiceless active indicative allomorph.

Table 7. Minimal structure of verb forms in Murui

Root	ACT.IND	3SG		Gloss
[-d]				
bui	-d	-e	buide	'lie down'
noi	-d	-e	noide	'bathe oneself'
tāu	-d	-e	tāude	'break'
tue	-d	-e	tuede	'fell (tree)'
koe	-d	-e	koede	'fish with machete'
rāu	-d	-e	rāude	'sit'
daia	-d	-e	daiade	'jump'
hāi	-d	-e	haide	'go'
[-t]				
rāu	-t	-e	rāute	'dig'
me	-t	-e	mete	'lick'
ϕi	-t	-e	ϕite	'blow'
hāu	-t	-e	hāute	'row'
ro	-t	-e	rote	'sing'
tāu	-t	-e	tāute	'carve'
θāi	-t	-e	θāite	'dance'
guī	-t	-e	guīte	'eat meat'

In chapter 6 I discuss other suffixes that are present in the verb structure. These include future tense, negative, the directionals (andative 'go' and venitive 'come'), and desiderative suffixes. The verb structure with these other suffixes is shown in 8. The highlighted cells represent the basic verb structure of Murui shown previously in (2).

Table 8. Murui verb structure

1	2	3	4	5	6	7	8	9
Root								
	Directional							
		Causative						
			Directional					
				Desiderative				
					Negative			
						Tense		
						Aspect		
							Mood/ Voice	
								Agreement

A verb can have all of the suffixes shown in Table 8 or it can have a combination of them. As mentioned above, every verb must have a suffix for mood or voice and a suffix for agreement.⁷

The data in S. Burtch (1978) has verb forms with the causative suffix preceding the andative suffix and verb forms with the andative suffix preceding the causative suffix. When the causative suffix precedes the andative suffix the scope is narrow. The causative suffix preceding the andative suffix is shown in the two verbs in (3). The verb [buide] ‘lie down’ is in (3a) and it has the active indicative allomorph [-d] in the third person singular form. The verb [ekonote] ‘open’ is in (3b) and it has the active indicative allomorph [-t] in the third person singular form.⁸

- (3) a. *bui-ta-aĩ-du-kue* ~ *bui-ta-haĩ-du-kue*
 lie.down-CAUS-AND-ACT.IND-1SG
 ‘I have made him/her go lie down.’
 ‘He hecho que (él) vaya a acostarse.’ [S. Burtch (1978:147, #385)]
- b. *ekono-ta-ai-d-e* ~ *ekono-ta-hai-d-e*
 open-CAUS-AND-ACT.IND-3SG
 ‘He/she made him/her go open.’
 ‘(Le) ha hecho (ir a) abrir.’
 ‘(Le) hizo que (él) fuera a abrir (la puerta).’ [S. Burtch (1978:144, 146, #312, #358)]

⁷ There are more suffixes that may be present in verbs but I do not discuss them here.

⁸ There are three allomorphs of the andative suffix. The allomorphs [-aĩ] ~ [-haĩ] are shown in (3).

In the verb forms in example (3) the agent made the patient go to perform an action. The andative suffix may also precede the causative suffix. When the andative directional [-aī] ‘go’ precedes the causative suffix in the verb structure the scope is wide.⁹

Example (4) shows the same two verbs from (3) with the directional preceding the causative in the verb structure. The two allomorphs of the andative suffix [-θaī] ~ [-aī] are shown in (4).

- (4) a. bui-θaī-ta-du-kuē
 lie.down-AND-CAUS-ACT.IND-1SG
 ‘I went to make him/her lie down.’
 ‘He ido, estoy yendo a hacer que se acueste.’ [S. Burtch (1978:147, #386)]
- b. ekonu-aī-ta-t-e
 open-AND-CAUS-ACT.IND-3SG
 ‘He/she goes make him/her open (the door). He/she went to make him/her open (the door).’
 ‘Va a hacer (le) abrir (la puerta).’
 ‘Ha ido a hacer (le) abrir (la puerta).’ [S. Burtch (1978:144, #313)]

The verbs in example (4) all require that the agent went to cause the patient to perform an action. S. Burtch (1978:147) says that these forms are not used often.¹⁰

The structure of a verb with the active indicative allomorphs [-tu] and [-t] is shown in Table 9. Table 9 has the structure of the verb [ekonote] ‘open.ACT.IND.3SG’ with its directional, desiderative, future, and nonfuture forms. The first and third person singular forms of this verb are in Table 9 since the corpus did not have all of these forms inflected for any one person.

⁹ It is possible that the venitive directional and the causative may also switch positions in the verb structure but there is no evidence of this in the Murui corpus.

¹⁰ The allomorphy of the active indicative suffix in examples (3) and (4) is discussed in section 5.4.

Table 9. Verb structure of [ekonote] ‘open’

	-1SG	-3SG
open-ACT.IND-	ekono-tu-kue	ekono-t-e
open-FUT-ACT.IND-	ekono-i-tu-kue	ekono-i-t-e
open-AND -ACT.IND-		ekonu-ai-d-e
open-AND-FUT-ACT.IND-		ekonu-ai-i-t-e*
open-DES-ACT.IND-		ekono-iaka-d-e
open-DES-FUT-ACT.IND-		ekono-iaka-ni-t-e
open-AND-DES-ACT.IND-	ekonu-ai-aka-du-kue	
open-AND-DES-FUT-ACT.IND-	ekonu-ai-aka-ni-tu-kue	ekonu-ai-aka-ni-t-e

*I transcribed the future form [ekonuaiite] including the future suffix [-i].
It is likely that this verb is phonetically pronounced [ekonuaitē] (S. Burtch 1978:143).

Table 10 shows a verb with the active indicative allomorphs [-du] ~ [-d]. The structure of the verb [tuede] ‘fell.tree.ACT.IND.3SG’ is shown in Table 10 with multiple suffixes in the verb. The directional in Table 10 is the andative suffix and it precedes the causative suffix. There were no examples of the causative suffix preceding the andative suffix for this verb present in the corpus.

Table 10. Verb structure of [tweede] ‘fell (a tree)’

	-1SG	-3SG
fell-ACT.IND-	tue-dw-kue	tue-d-e
fell-FUT-ACT.IND-		tue-i-t-e
fell-NEG-ACT.IND-		tue-ne-d-e
fell-NEG-FUT-ACT.IND-		tue-ne-i-t-e
fell-AND-ACT.IND-		tui-ai-d-e
fell-DES-ACT.IND-		tue-aka-d-e
fell-DES-FUT-ACT.IND-	a. tue-aka-ni-tw-kue b. tue-aka-i-tw-kue	
fell-AND-DES-ACT.IND-	tui-ai-aka-dw-kue	
fell-AND-DES-FUT-ACT.IND-	tui-ai-aka-ni-tw-kue	
fell-CAUS-ACT.IND-		tue-ta-t-e
fell-CAUS-FUT-ACT.IND-		tue-ta-i-t-e
fell-PASS.IND-		tue-ka*
fell-NEG-PASS.IND-		tue-ne-ga*

* The third person passive verb forms do not have the third person singular agreement suffix.

4.5 Active indicative suffix allomorphs

Murui has four allomorphs for the active indicative suffix: [-tw] ~ [-dw] ~ [-t] ~ [-d]. The active indicative suffix in Murui has previously been glossed INDICATIVE by S. Burtch (1983:2:132), VERBAL by B. Burtch & Wise (1968:24), ASSERTIVE by Petersen de Piñeros (1994:33,35), PREDICATE by Becerra & Petersen de Piñeros (2012:28), and THEMATIC by Wise (1999:326). Wise (1990) cites the definition of thematic suffixes from Matteson (1972:165) saying the term “thematic is used to gloss affixes which have little,

if any, semantic content but are required ‘to mark the closure of particular strings of morphemes’” (Wise 1990:90). She goes on to say “they are elements which are added to the root (or in Maipuran to a root or suffix) in order to constitute a theme to which inflectional affixes can be added. They are category-changing in the sense that the verb is incomplete without them. Selection usually depends upon arbitrary classes of roots” (Wise 1990:90).

The minimal verb structure mentioned in 4.4 does not give any details for determining which allomorph of the active indicative suffix should be present in a verb form. The distribution of the active indicative allomorphs appears to be phonologically unpredictable as shown in Table 7. Table 11 shows the active indicative suffix allomorphs in some other third person singular verb forms. I have separated the syllables with a period in the column of roots and I separated the root from the active indicative suffix and the agreement suffix with a hyphen.

Table 11. Allomorphs of the active indicative suffix

	Root	Root-ACT.IND-3SG	Gloss
Group A: CV	bi	bi-t-e	‘come’
	do	do-t-e	‘clean’
	me	me-t-e	‘lick’
	θe	θe-t-e	‘boil’
Group B: CV.V	ba.u	ba <u>u</u> -d-e	‘die’
	de.i	de <u>i</u> -d-e	‘rain’
	ru.i	ru <u>i</u> -d-e	‘roast meat’
Group C: CV.CV	be.go	bego-d-e	‘splash’
	θe.ϕe	θeϕe-t-e	‘abandon’
	ta.me	tame-d-e	‘mix’
Group D: CVV.CV	māu.hu	māu <u>hu</u> -d-e	‘work’
	nāu.dzi	nāu <u>dzi</u> .de	‘tremble’
Group E: CV.CVV	ko.mui	komui-d-e	‘grow’
Group F: CVV	huu	huu-d-e	‘pray’
	hāi	hāi-d-e	‘go’
	hāu	hāu-t-e	‘row’
	māu	māu-t-e	‘tie up’
	ϕui	ϕui-t-e	‘finish’
	rāu	rāu-d-e	‘sit’
	θoi	θoi-d-e	‘fall connected (like fruit)’

Table 11 shows that the allomorphs of the active indicative suffix are not predictable from the roots of the verbs alone. The verbs in table 11 are presented in six groups based on the number of syllables in the verb roots and the syllable structure of the verb roots. The roots in Group A have a clear CV syllable template. All of the verbs in Group A have the active indicative allomorph [-t]. All of the verb roots in Groups B-E have two syllables. There is only one example in Group C of a two-syllable root with the [-t] allomorph of the active indicative suffix, the rest of the roots in Groups B-E have the [-d] allomorph. Following the description of the vowel sequences found in S. Burtch (1978) and B. Burtch (2008/1975), I consider the roots in group B- E to be two-syllable roots.

Roots with one syllable are shown in groups A and F. There does not appear to be a way to predict whether a one-syllable root will have the [-t] allomorph or the [-d] allomorph. Because these allomorphs appear to be unpredictable from the structure of the verb roots I claim that the allomorphs of the active indicative suffix identify the verb classes.

4.6 Summary

In this chapter I discussed various features in Murui that are relevant to this thesis. I presented the phonemes of Murui (section 4.1) and discussed the diphthongs and long vowels in Murui (section 4.2). This was followed by a discussion of the syllable structure (section 4.3). I discussed significant morphological characteristics of Murui, focusing on the minimal verb structure (section 4.4). Finally, I discussed the allomorphs of the active indicative suffixes and showed that their distribution does not appear to be motivated phonologically (section 4.5).

CHAPTER 5

A WORD-BASED ANALYSIS

In this chapter I present my analysis of the inflectional morphology of Murui verbs using word-based morphology as described by Blevins. Recall from section 3.2 that a word-based analysis does not require a speaker to build a complete word form from the root and the individual morphemes. Instead, the roots and stems of verbs, as well as any recurring morphological patterns are found by examining complete verb forms in paradigms.

First, in section 5.1 I discuss agreement in Murui and show that the third person plural active forms and the third person singular passive forms can be deduced through proportional analogy. In section 5.2 I present my analysis of the two verb classes in Murui and show how they are distinguished through the principal parts of each class. I discuss the principal parts in Murui and their class-identifying morphology. The principal parts are the basic verb forms that are the models for deducing unknown verb forms through proportional analogy. I use Blevins' terminology to refer to the principal parts as diagnostic forms because they mark class membership through their morphology. Next, in sections 5.3 and 5.4 I discuss how to deduce the passive and causative verb forms from the principal parts. I claim the passive and the causative verb forms are also diagnostic forms that indicate verb class membership, but they are not principal parts.

5.1 Agreement in Murui

Agreement suffixes are the final suffixes to attach to a verb stem and they reflect the person, number, and (in some cases) gender of the subject of the clause. Murui has first, second, and third persons, and singular, dual, and plural number. It also distinguishes between masculine and feminine gender in dual number. The agreement suffixes are shown in Table 12.

Table 12. Agreement suffixes

	1	2	3
Singular	-kuē	-o	-e
Dual masculine	-koko	-omu ^o ko	-ia ^u ma ⁱ ia ^u
Dual feminine	-ka ⁱ ŋa ^u	-omu ^o ŋa ^u	-ia ^u ŋa ^u
Plural	-ka ^u	-om ^o	-maku

These suffixes are shown in the paradigm of the verb [dotade] ‘throw.out:ACT.IND:3SG’ in table 13.¹

Table 13. Paradigm for [dotade] ‘throw.out:ACT.IND:3SG’²

	1	2	3
Singular	dotadu-kuē	dotadu-o	dotad-e
Dual masculine	dotadu-koko	dotadu-omu ^o ko	dotadu-ia ^u ma ⁱ ia ^u
Dual feminine	dotadu-ka ⁱ ŋa ^u	dotadu-omu ^o ŋa ^u	dotadu-ia ^u ŋa ^u
Plural	dotadu-ka ^u	dotadu-om ^o	dotadu-maku

As shown in Table 13 the third person singular form is the only form that does not have the vowel [u] before the agreement suffix. The two active indicative allomorphs [-t] and [-d] are present in third person singular verbs.

Table 14 shows second and third person singular and plural forms of four verbs. Each second person verb has two forms, the first one has the [u] in the active indicative suffix and the [u] is deleted in the second form. Both of the second person forms are acceptable. The gaps in table 14 are because these forms were not found in the Murui corpus; I presume that they are all just accidental gaps. I have added the forms with the asterisks to represent

¹ The verb [dotade] ‘throw.out:ACT.IND:3SG’ is the only verb with all of the agreement markings in S. Burch (1978). I have used this verb in order to show how agreement is marked.

² The following example shows the verb [dotade] ‘throw.out:ACT.IND:3SG’ in a context: [ruŋo ie unina dotade] ‘to divorce the husband (divorciar al esposo)’ (S. Burch 1983:1:66).

ungrammatical verb forms that are not in the Murui corpus. I presume that these forms do not exist.

Table 14. Variation in some second and third person verb forms

Stem	Stem-ACT.IND-2SG	Stem-ACT.IND-2PL	Stem-ACT.IND-3SG	Stem-ACT.IND-3PL	Gloss
1. ro	a. ro-tw-o		(*ro-tw-e)	ro-tw-makw	'sing'
	b. ro-t-o		ro-t-e	(*ro-t-makw)	
2. bi	a. bi-tw-o	bi-tw-omōw	(*bi-tw-e)	bi-tw-makw	'come'
	b. bi-t-o	bi-t-omōw	bi-t-e	(*bi-t-makw)	
3. hiφano	a. hiφano-tw-o		(*hiφano-tw-e)	hiφano-tw-makw	
	b. hiφano-t-o		hiφano-t-e	(*hiφano-t-makw)	
4. dʒoφue	a. dʒoφue-tw-o	dʒoφue-tw-omōw	(*dʒoφue-tw-e)	dʒoφue-tw-makw	'teach'
	b. dʒoφue-t-o	dʒoφue-t-omōw	dʒoφue-t-e	(*dʒoφue-t-makw)	
5. noi	a. noi-dw-o	noi-dw-omōw	(*noi-dw-e)	noi-dw-makw	'bathe oneself'
	b. noi-d-o	noi-d-omōw	noi-d-e	(*noi-d-makw)	

Stem	Stem-ACT.IND-2SG	Stem-ACT.IND-2PL	Stem-ACT.IND-3SG	Stem-ACT.IND-3PL	Gloss
6. komūi	a. komūi-duu-o	komūi-duu-omōū	(*komūi-duu-e)	komūi-duu-makuu	'grow'
	b. komūi-d-o	komūi-d-omōū	komūi-d-e	(*komūi-d-makuu)	
7. tame	a. tame-duu-o		(*tame-duu-e)	tame-duu-makuu	'mix'
	b. tame-d-o		tame-d-e	(*tame-d-makuu)	
8. dota	a. dota-duu-o	dota-duu-omōū	(*dota-duu-e)	dota-duu-makuu	'throw out'
	b.		dota-d-e	(*dota-d-makuu)	

Table 14 shows that the agreement suffixes appear with both allomorphs of the active indicative suffix. The third person singular forms in table 14 are the only forms without the vowel [u] in the active indicative suffix. According to S. Burtch (1983:2, 137) the vowel [u] disappears when it is followed by the suffix for third person [-e].³ A phonological rule that would account for the deletion of the vowel [u] in the third person singular and the second person forms is shown in (5).

- (5) **[u] deletion rule**
 a. $u \rightarrow \emptyset / __ e$ (obligatory)
 b. $u \rightarrow \emptyset / __ o$ (optional)

In a word-based model of morphology a rule for the deletion of [u] in third person singular forms is unnecessary. The morphological pattern for forming the third person singular forms is to use allomorphs [-d] ~ [-t]. The morphological pattern for forming the first person singular forms is to use the allomorphs [-du] ~ [-tu] and the pattern for forming the second person forms is to use either the allomorphs [-du] ~ [-tu] or the allomorphs [-d] ~ [-t] since both are acceptable.

I show that it is possible to deduce the third person plural forms from the third person singular forms by using the formula for a four-part proportional analogy shown in (6).⁴

- (6) $a : b = c : X$
 Solve for X

The analogy for deducing the third person plural forms from the third person singular with the voiced active indicative allomorph is shown in (7). The third person singular form is highlighted in this analogy to distinguish it from the third person plural form.

³ Original: “Antes de los sufijos de segunda persona, aparece la forma -ti- o -di-, pero la vocal i desaparece cuando va seguida por el sufijo de tercera persona, -e.”

⁴ I use the third person singular and plural forms to show the relationship between the singular and plural forms but a proportional analogy could also be made for both first and second person singular and plural forms.

(7) Proportional analogy for the third person plural forms

Stem-ACT.IND-3SG	Stem-ACT.IND-3PL	Gloss
komu ^h ide :	komu ^h idumaku	‘grow’
noide :	X	‘bathe oneself’

By solving for X, a speaker could deduce that the correct third person plural form of [noide] is [noidumaku]. The relationship between these forms is shown in (8).

$$(8) \text{ komu}^{\text{h}}\text{ide} : \text{komu}^{\text{h}}\text{idumaku} = \text{noide} : \text{noidumaku}$$

The analogy in (9) shows the relationship between third person singular and third person plural for verbs that have the voiced active indicative allomorph and verbs with the voiceless active indicative allomorph is the same. I have also highlighted the third person singular form in this analogy.

(9) Proportional analogy for the third person plural forms

Stem-ACT.IND-3SG	Stem-ACT.IND-3PL	Gloss
bite :	bitumaku	‘come’
dzo ^h uete :	X	‘teach’

By solving for X, the correct third person plural form of [dzo^huete] is [dzo^huetumaku]. This analogy is shown in (10).

$$(10) \text{ bite} : \text{bitumaku} = \text{dzo}^{\text{h}}\text{uete} : \text{dzo}^{\text{h}}\text{uetumaku}$$

These analogies show that it is not possible to distinguish between the two verb classes by the agreement suffixes alone. The morphological pattern for forming the third person plural is the active indicative allomorphs, [-du] ~ [-tu], and the third person plural

agreement suffix [-makw]. Verbs with the voiced active indicative allomorph and verbs with the voiceless active indicative allomorph have this pattern.

As can be seen, the agreement suffixes are the same in the passive voice with the exception of the third person singular passive form. The third person singular passive form is marked by the absence of the agreement suffix, marked explicitly here with a zero. The agreement suffixes in passive voice are shown in Table 15 in the verb [komu^hide] ‘grow’.

Table 15. Agreement in passive voice

stem-CAUS-PASS.IND-1SG	komu ^h ita-ga-kue
stem-CAUS-PASS.IND-2SG	komu ^h ita-ga-o
stem-CAUS-PASS.IND-[3SG]	komu ^h ita-ga-∅
Gloss	‘make grow’

Table 15 shows that the third person singular agreement suffix is not present in the passive voice. In a word-based approach passive agreement can be deduced using proportional analogy. The analogy for deducing passive forms from active forms with the voiced active indicative allomorph is shown in (11). I have highlighted the third person singular active forms.

(11) Proportional analogy for third person passive agreement

Stem-ACT.IND-3SG	Stem-PASS.IND-[3SG]	Gloss
tamede :	tameka	‘mix’
atude :	X	‘bring’

By solving for X, the correct solution is the passive form [atuka]. The relationship between active and passive third person verbs is shown in the analogy in (12).

(12) tamede : tameka = atude : atuka

It is also possible to deduce the passive agreement from active forms with the voiceless allomorph of the active indicative suffix. These forms are shown in the analogy in (13). Again, the third person singular active forms are highlighted.

(13) **Proportional analogy third person passive agreement**

Stem-ACT.IND-3SG	Stem-PASS.IND-[3SG]	Gloss
ekonote :	ekonoga	‘open’
ite :	X	‘live’

By solving for X we can deduce the passive form [iga] from the pattern shown in (13). The full analogy for the relationship between these active and the passive third person singular forms is shown in (14).

(14) ekonote : ekonoga = ite : iga

If a speaker knows the relationship between the active and passive third person singular cells in a paradigm, then the unknown third singular passives can be deduced through analogy.

5.2 Murui verb classes

I claim that Murui verbs are divided into two arbitrary classes defined by principal parts. The principal parts in Murui are the third person singular active indicative forms and are illustrated in table 16.

Table 16. Principal parts: third singular active indicative forms

	Stem-ACT.IND-3SG	Gloss
Class I	dotade	‘throw out’
	kanode	‘help’
	henode	‘look for’
	θonode	‘pull’
	duide	‘sick’
	kuode	‘see’
	noide	‘bathe oneself’
	teide	‘cough’
	θoide	‘fall (fruit)’
Class II	ekonote	‘open’
	tukonote	‘uproot’
	hωφanote	‘play’
	d3oφuete	‘teach’
	raote	‘hunt’
	bite	‘come’
	bete	‘fan’
	ote	‘bring’
	φuite	‘finish’
	guite	‘eat meat’
	guate	‘grind’

Table 16 shows that the only difference between the verb classes is the allomorph of the active indicative suffix that is present in each class. Class I verbs have the [-d] ~

[-duw] allomorphs of the active indicative suffix and class II verbs have the [-t] ~ [-tuw] allomorphs.

I claim that the third person singular active indicative forms are the principal parts in Murui because they provide the most information about verb class membership when compared to other verb forms. The passive and causative verb forms also provide information about verb class membership but they are less common than the third person singular non-causative active forms and therefore do not meet the requirements for principal parts as discussed in section 3.2 and laid out in Blevins (2016:87). The principal parts are the basic forms with only the root and the active indicative suffix with no other additional suffixes present in the verb. From these basic forms other forms can be deduced through proportional analogy.

Table 17 shows a paradigm of one verb from both classes. This paradigm shows the different agreement endings that were discussed in section 5.1. In all active indicative paradigms the first person singular is [-kuẽ], the second person singular is [-o], the third person singular is [-e].

Table 17. Person and number in Murui

	Class I	Class II
1SG ACT.IND	dotaduukuẽ	bitukuẽ
2SG ACT.IND	dotaduo	bituo
3SG ACT.IND	dotade	bite
Gloss	‘throw out’	‘come’

I use the third person forms as the principal parts in my analysis since the third person forms are more common cross-linguistically, but the first and second person forms could also be used as principal parts since they show the variation of the active indicative allomorphs.

Table 18 shows transitive and intransitive verbs from both classes that appear with the two allomorphs of the active indicative suffix. The verbs in this table are all third person singular verbs.

Table 18. Principal parts in transitive and intransitive verbs

Class I [-d]		Class II [-t]		Gloss
Transitive				
tāunode	‘break’	rote		‘sing’
tuade	‘spit’	rite		‘plant (fruit trees)’
koede	‘fish with machete’	rūite		‘make (stick) trap’**
kanode	‘help’	θāute		‘rub’
auude	‘chew’	θoφete		‘abandon’
hāide	‘go’	ote		‘obtain’
donide	‘skin’	ruute		‘eat meat’
φakade	‘think’*	nite		‘weave’
Intransitive				
ride	‘arrive’	tote		‘flow (river)’
θaide	‘stop’	θāite		‘dance’
θauude	‘rest’	bite		‘come’
teide	‘cough’	φūite		‘wear out’
buide	‘lie down’	anaφete		‘control’
* This word has three different glosses in the Murui corpus: ‘think, study, read’.				
** The full gloss for this word is ‘make a trap with small sticks’.				

Table 18 shows that verb class membership is not determined by the transitivity of the verbs. Both transitive and intransitive verbs belong in each class. I claim that the only markers of verb classes are the principal parts. From the principal parts we can deduce every verb form in a paradigm.

5.3 Passive

In this section I discuss the alternations that occur in passive voice. The passive indicative allomorphs always have the opposite voicing of the active indicative allomorphs. Some active and passive verb forms are shown in table 19.

Table 19. Third person singular active and passive forms

	Stem-ACT.IND-3SG	Stem-PASS.IND- [3SG]	Gloss
Class I	ϕu ^h no-d-e	ϕu ^h no-ka	‘prepare’
	tue-d-e	tue-ka	‘fell (tree)’
	atu-d-e	atu-ka	‘bring’
	ϕaka-d-e	ϕaka-ka	‘try’
	heno-d-e	heno-ka	‘look for’
	tame-d-e	tame-ka	‘mix’
	ba ^h u ^h ro-d-e	ba ^h u ^h ro-ka	‘steal’
	θeda-d-e	θeda-ka	‘careful’
	u ^h ra ^h u ^h -d-e	u ^h ra ^h u ^h -ka	‘connect’
	tou-d-e	tou ^h -ka	‘domesticate’
	rui-d-e	rui-ka	‘eat (meat)’
	Class II	ekono-t-e	ekono-ga
i-t-e		i-ga	‘live’
ro-t-e		ro-ga	‘sing’
dzoϕue-t-e*		dzoϕue-ga	‘teach’
me-t-e		me-ga	‘lick’

*The first person singular agreement suffix [-kue] is not deleted in passive verbs as shown in the verb forms [dzoϕuetukue] ‘teach:ACT.IND:1SG’ and [dzoϕuegakue] ‘teach:PASS.IND:1SG’ (S. Burtch 1978:135, #103 & #104).

The class I passive verb forms in Table 19 have the [-ka] allomorph and the class II passive verb forms have the [-ga] allomorph. I claim that the passive allomorphs, like the active indicative allomorphs, are associated with the specific classes. Class I has the active indicative allomorph [-du] and the passive indicative allomorph [-ka] and class II has the active indicative allomorph [-tu] and the passive indicative allomorph [-ga].

A word-based analysis of the passive verb forms shows that passive verbs are able to be deduced through the principal parts. I use the formula for proportional analogies found in Blevins (2016:98) and shown in (15) to deduce verb forms from the principal parts.

$$(15) \quad a : b = c : X$$

Solve for X

As noted in section 3.2, in order to solve for X in a four-part analogy the speaker needs to know three out of the four forms in the analogy. Proportional analogies represent the relationship between the cells of the paradigm, not the word forms themselves. The analogy is not determined by the structure of the words in the cells but rather the position the words hold in the paradigm. The principal part cells of the paradigms are used to show the relationship between the principal part cells and other cells in the paradigms.

The proportional analogy for deducing the class I passive forms through analogy from the principal parts is shown in example (16). I have highlighted the third person singular active forms that are used for the analogy in this example.

(16) **Proportional analogy for class I passive forms**

Class	Stem-ACT.IND-3SG	Stem-PASS.IND-[3SG]	Gloss
I	tamede :	tameka	'mix'
I	tuède :	X	'fell (tree)'

Example (16) shows that the passive verbs can be deduced if the principal parts and another passive form in the class I paradigm are known. By solving for X we deduce that the unknown passive form is [tueka]. The relationship between the class I principal part and the class I third person singular passive is shown in (17).

(17) tamede : tameka = tuede : tueka

Class II passive verbs are also deducible from the class II principal parts. Again, the relationship between the paradigm cells is what is important, not the structure of the word forms. A speaker needs to know three of the four forms in the analogy in order to deduce the fourth form. The analogy for class II passives is shown in (18).

(18) **Proportional analogy for class II passive forms**

Class	Stem-ACT.IND-3SG	Stem-PASS.IND-3SG	Gloss
II	ekonote :	ekonoga	'open'
II	mete :	X	'lick'

The complete analogy is shown in (19).

(19) ekonote : ekonoga = mete : mega

In a reverse analogy, the proportional analogies work in the other direction. A principal part can be deduced from a diagnostic word form, such as the passive form. The analogies for deducing a principal part from the passive forms of class I and class II verbs are shown in examples (20) and (21). The principal part forms are highlighted in these examples.

(20) **Deducing class I principal parts from the passive forms**

Class	3SG Passive Indicative	3SG Active Indicative	Gloss
I	tameka :	tamede	'mix'
I	tueka :	X	'fell (tree)'

(21) **Deducing class II principal parts from the passive forms**

Class	3SG Passive Indicative	3SG Active Indicative	Gloss
II	ekonoga :	ekonote	'open'
II	mega :	X	'lick'

Examples (20) and (21) show that if a principal part of a class and its passive form are known, it is possible to deduce the principal part of a different verb in that same class from those forms.

I claim that the passive forms are diagnostic forms because, like the active indicative suffix, they identify the class membership of a verb through their morphology. However, the passive forms are not principal parts because they do not occur frequently enough to meet the definition of principal parts given in Blevins (2016:87), “the essential prerequisites for principal parts are that they occur above a nominal frequency threshold (i.e., be in active circulation) and that they exhibit class-identifying variation.”

5.4 Causative

Murui has three diagnostic forms in the verb classes. The first is the principal part of each class. The second is the passive form and the third is the causative form. As I discussed in section 5.3, it is possible to deduce the principal parts from the passive forms through analogy to other known principal parts and their passive forms. It is also possible to identify the verb class from the causative verb forms through analogy to other verbs in the same class. In this section I discuss the causative verb forms and the voicing alternations of the stops in the active and passive indicative suffixes that occur in the causative verb forms.⁵

Causative verb forms in Murui are marked by the suffix [-ta]. The causative verb forms have the opposite voicing of the stop in the active and passive indicative suffixes from the non-causative verb forms. Class I causative verbs have the active indicative allomorphs [-tuw] ~ [-t] and the passive allomorph [-ga]. Class II causative verbs have

⁵ The causative suffix is not discussed in Petersen de Piñeros (1994) nor Becerra & Petersen de Piñeros (2012).

the active indicative allomorphs [-duw] ~ [-d] and the passive allomorph [-ka]. These allomorphs are shown in the active and passive non-causative and causative verb forms in 20. Table 20 shows one verb from each class with the principal parts and the diagnostic forms of the passive indicative and the causative active indicative for each verb.

Table 20. Diagnostic forms that identify class membership

	Class I	Class II
Gloss	‘prepare’	‘open’
Active Indicative	φuɔnode	ekonote
Passive Indicative	φuɔnoka	ekonoga
Causative Active Indicative	φuɔnotate	ekonotade
Causative Passive Indicative	—*	—*

*The causative passive forms of these verbs were not present in the Murui corpus, but the causative passive form [komu^hitaga] ‘grow’ is evidence that these forms exist in Murui.

Table 21 shows some active indicative verb forms in their non-causative and causative forms.⁶

⁶ More class I causative verb forms are found in Appendix A and more class II causative verb forms are found in Appendix B.

Table 21. Non-causative verbs and their causative counterpart

	Stem-ACT.IND-3SG	Stem-CAUS-ACT.IND-3SG	Gloss
Class I	ϕu ^h no-d-e	ϕu ^h no-ta-t-e	‘prepare’
	u ^h nu-d-e	u ^h nu-ta-t-e	‘sleep’
	tue-d-e	tue-ta-t-e	‘fell (tree)’
	bui-d-e	bui-ta-t-e	‘lie down’
	dʒoko-d-e	dʒoko-ta-t-e	‘drip’
	komu ^h i-d-e	komu ^h i-ta-t-e	‘grow’
	dui-d-e	dui-ta-t-e	‘turn off’
Class II	tu-t-e	tu-ta-d-e	‘hit’
	ba ^h i-t-e	ba ^h i-ta-d-e	‘find’
	ekono-t-e	ekono-ta-d-e	‘open’
	na ^h u-t-e	na ^h u-ta-d-e*	‘crush’

*The glosses in S. Burtch (1983:vol 1, 190) for this verb are (translated) ‘crush, grind, sting’.

Table 21 shows that the stop in the active indicative allomorph has the opposite voicing when the causative suffix [-ta] is present in the verb. Class I causative verbs appear with the active indicative allomorph [-tu^h] and class II causative verbs appear with the allomorph [-du^h].⁷

The stops in the passive indicative allomorphs also have the opposite voicing in causative passive verbs. When the stops in the passive indicative suffix are voiced in the non-causative form, they are voiceless in the causative verb form. When the stops are voiceless, they are voiced in the causative verb form. Table 22 shows the voicing alterna-

⁷ There is one exception in the corpus of a causative verb not having the expected active indicative allomorph. The verb is [hāide] ‘go’ the causative form of which is [hāitade]. The verb [hāide] has the active indicative allomorph [-d] which indicates that this is a class I verb. Since the causative verb forms have the opposite voicing in the active indicative suffix we would expect the causative form of this verb to be [hāitade] instead of [hāitade]. Instead this verb patterns like a class II causative form and has the [-d] allomorph in the active indicative suffix.

tions of the stop in the active indicative suffix in the causative and causative passive verb forms of the class I verb [komu^hide] ‘grow’.

Table 22. Causative passive forms

Gloss	‘grow’
3SG Active	komu ^h ide
3SG Causative Active	komu ^h itate
3SG Causative Passive	komu ^h itaga

The verb form [komuitaga] in Table 22 has both the causative and the passive suffixes. Even with these suffixes it is possible to identify the verb class. The key to identifying the verb class in this verb is the causative suffix. Since the causative verb form has the opposite voicing of the stops in the active and passive indicative suffixes from the non-causative forms, the verb class can be identified by switching the voicing of the stop in the passive indicative suffix. I consider [komu^hide] to be a class I verb since it has the voiced stop in the active indicative suffix. Although the non-causative passive form of this verb is not present in the Murui corpus, I conclude that the passive allomorph that would be present in the non-causative passive verb form is the class I passive allomorph [-ka].

I claim that it is possible to deduce the causative verb forms through analogy to class I and II principal parts even though the causative verb forms are not members of the same paradigms as the non-causative verb forms. A proportional analogy for deducing the class I causative verb forms from the class I principal parts is shown in example (22). The principal parts are highlighted in this example.

(22) **Proportional analogy for class I causative forms**

Class	3SG Active Indicative	3SG Causative Active Indicative	Gloss
I	ϕu ^h node :	ϕu ^h no-ta-t-e	‘prepare’
I	tuede :	X	‘fell (tree)’

Example (22) shows that the causative forms are deducible through analogy to the principal parts. Like the passive analogies, it is necessary to know three out of the four forms of a causative proportional analogy in order to deduce a form. To deduce the causative form of [tuede] ‘prepare:ACT.IND:3SG’ a speaker needs to solve for X. Example (23) shows the formula for deducing class I causative verbs.

$$(23) \phi\omega\nu\nu\text{node} : \phi\omega\nu\nu\text{notate} = \text{tuede} : \text{tuetate}$$

Through analogy to the causative paradigm cell in class I, the causative verb form of [tuede] ‘prepare:ACT.IND:3SG’ is [tuetate]. The class II causative proportional analogy is shown in example (24). The principal parts are highlighted in this example.

(24) **Proportional analogy for class II causative forms**

Class	3SG Active Indicative	3SG Causative Active Indicative	Gloss
II	ekonote	ekonotade	‘open’
II	tute :	X	‘hit’

In order to deduce the causative form of [tute] a speaker needs to solve for X. The complete analogy for deducing class II causative verbs is shown in (24).

$$(25) \text{ekonote} : \text{ekonotade} = \text{tute} : \text{tutade}$$

As was shown in section 5.3, example (20), the principal parts of the non-causative forms can be deduced from the causative forms as shown in example (26). The principal part form is highlighted in this example.

(26) **Deducing class I principal parts from the causative forms**

Class	3SG Causative Active Indicative	3SG Active Indicative	Gloss
I	$\phi\omega\nu\nu\text{notate} :$	$\phi\omega\nu\nu\text{ode}$	‘prepare’
I	tuetate :	X	‘fell (tree)’

In order to deduce the principal parts of the the causative form, a speaker has to know three forms in the analogy. If a speaker knows the relationship between the causative and the principal part of a verb class then it is possible to deduce an unknown principal part form through an analogy like the one in (26). By solving for X the correct principal part is [tuede]. The same method can be used to deduce an unknown principal part from the class II causative verb forms as shown in (27). The principal part form is also highlighted in this example.

(27) **Deducing class II principal parts from the causative forms**

Class	3SG Causative	Active Indicative	3SG Active Indicative	Gloss
II	tutade :		tute	'hit'
II	ekonotade :		X	'open'

Through analogy to the class II causative form [tutade] and its principal part [tute], a speaker can deduce that the principal part form of the verb [ekonotade] is [ekonote] 'open.ACT.IND.3SG', as shown in (28).

(28) tute : tutade = ekonote : ekonotade

The causative forms have class-identifying information in their morphology and therefore I claim that they are diagnostic forms in Murui. I also claim that a speaker could deduce an unknown causative form through analogy to known principal parts and causative forms.

5.5 Summary

The principal parts in Murui are the third person singular active forms because these forms show the most variation among the active indicative suffix allomorphs and are consistent with the definition of principal parts found in Blevins (2016). The other diagnostic forms in Murui are the passive forms and the causative forms. These diagnostic forms provide information of the verb classes but are not principal parts.

I propose that there are two arbitrary conjugation classes in Murui. The verb classes are identified by the active and passive indicative suffixes they are associated with. Class I is identified by the allomorphs [-duw] ~ [-d] in non-causative active indicative and the allomorph [-ka] in the passive indicative. Class I causative verbs are identified by the allomorphs [-tuw] ~ [-t] in the active indicative and the passive allomorph [-ga]. Class II is identified by allomorph [-tuw] ~ [-t] in non-causative active indicative and the allomorph [-ga] in the passive indicative. Class II causative verbs are identified by the allomorphs [-duw] ~ [-d] in the active indicative and the allomorph [-ka] in the passive indicative. The class-identifying information of both classes is shown in Table 23.

Table 23. Class-identifying information of class I and II verbs

Active indicative	[-duw] ~ [-d]	[-tuw] ~ [-t]
Causative active indicative	[-tuw] ~ [-t]	[-duw] ~ [-d]
Passive Indicative	[-ka]	[-ga]
Causative passive indicative	[-ga]	[-ka]

Proportional analogies represent the relationship between the different cells of a paradigm, not the individual word forms. If a speaker knows the principal parts in Murui, it is possible to construct the passive and causative forms through analogy to the principal parts and other known forms. It is also possible to deduce the principal part from a causative or passive form through analogy to other causative and passive forms.

CHAPTER 6

NON-DIAGNOSTIC FORMS

In this chapter I discuss non-diagnostic verb forms and show how they can be deduced through proportional analogy to the principal parts. The non-diagnostic forms I discuss are the future, negative, directionals, and desiderative forms but I claim that my analysis would also apply to other Murui verb forms not mentioned in this thesis. These forms are non-diagnostic because the active indicative suffix has the same form in both verb classes and no longer identifies the class membership of a verb. I claim that the morpheme that immediately precedes the active indicative suffix is the morpheme that determines which allomorph of the active indicative suffix will be present in the verb form. Table 24 shows the non-diagnostic forms of class I and class II verbs.

Table 24. Class I and II non-diagnostic forms

	Class I	Class I	Class II
	‘help’	‘bathe oneself’	‘open’
Active Indicative	kanode	noide	ekonote
Future	—*	noite	ekonoite
Negative	kanonede	nojnede	ekononede
Andative	kanuāide	noiθāide	ekonuāide
Venitive	kanuāubite	noiθāubite	ekonuāubite
Desiderative	kanoakade	—**	ekonoakade

*The third person singular future form of this verb is not present in the corpus.

**The first person singular form of the verb [noiθāiakaduukūe] shows the voiced allomorph of the active indicative suffix. There are no third person singular desiderative forms of this verb in the corpus.

Each of the non-diagnostic forms in table 24 has a particular form of the active indicative suffix. The future forms take [-tuw] ~ [-t], the negative forms take [-duw] ~ [-d], the andative forms take [-duw] ~ [-d], the venitive forms take [-tuw] ~ [-t], and the desiderative forms take [-duw] ~ [-d].

I claim that these forms can be deduced through analogy from the principal parts even if they are unknown to the speaker. However, a reverse analogy that uses a non-diagnostic form to deduce unknown principal parts is impossible because non-diagnostic forms have the same voicing in the active and passive indicative suffixes and therefore these non-diagnostic forms do not have class-identifying morphology. The crucial piece of information that marks the class membership through the voicing of the stop in the active indicative suffix is lost and it is no longer possible to deduce the principal part from a non-diagnostic form.

I focus my discussion on four non-diagnostic forms found in S. Burtch (1978). I discuss the future forms in (6.1), the negative forms in (6.2), the negative passive forms in (6.3), the negative future forms in (6.4), the directional forms in (6.5), and the desiderative forms in (6.6). I show that although it is possible to deduce these forms when the principal parts are known it is impossible to deduce unknown principal parts from analogy to the non-diagnostic forms. I have highlighted the principal parts of each verb class in all of the proportional analogies in this chapter.

6.1 Future tense

Murui distinguishes between nonfuture and future tenses. If the future suffix is not present in the verb the tense is determined through context. The future suffix has allomorphs, [-i], [-ni] and [-hi]. According to S. Burtch (1983:136), the allomorphs [-i] and [-ni] are interchangeable and the allomorph [-hi] is borrowed from speakers of other Witotoan languages.¹ Each allomorph is present with the active indicative suffix allomorphs [-tuw] ~ [-t].² Future verb forms are not included as principal parts because the future tense eliminates the class-defining variation by using the active indicative suffix

¹ S. Burtch (1983:136) says, “El empleo de -i- o -ji- representa una diferencia entre hablantes del idioma, que quizá se pueda atribuir al contacto con hablantes de otros dialectos del huitoto. Parece que -i- y -ni- son intercambiables. Se emplea la variante -ti- del indicativo con el futuro”.

² In Minica, there are three classes of the future tense: the near future is [-i], the immediate future is [-ri], and the distant future is [-dʒe] (Minor & Minor 1982:24,28).

allomorph [-tuw] in the future forms of both classes. The structure of future tense verbs is shown in (29).

(29) Root-Future-Voice/Mood-Agreement

Table 25 shows third person singular verbs in nonfuture and future forms. The two allomorphs [-i] ~ [-hi] of the future suffix are in this table.³

Table 25. Third person singular nonfuture and future

	Stem-ACT.IND-3SG		Stem-FUT-ACT.IND-3SG	Gloss
Class I	dota-d-e		dota-hi-t-e	‘throw out (person)’
	bui-d-e		bui-i-t-e	‘lie down’
	koe-d-e	a.	koe-i-t-e	‘fish with machete’
		b.	koe-hi-t-e	
	noi-d-e		noi-i-t-e	‘bathe oneself’
Class II	ekono-t-e		ekono-i-t-e	‘open’
	huɸano-t-e		huɸano-i-t-e	‘play’
	gwi-t-e		gwi-i-t-e	‘eat meat’
	ro-t-e		ro-i-t-e	‘sing’
	hu-t-e		hu-i-t-e	‘plant yucca’
	bi-t-e		bi-i-te	‘come’

Both of these allomorphs appear to be grammatical in the Murui data. Table 25 shows that in the future tense form, the allomorph of the active indicative suffix is always [-t].

³ I transcribed the future forms [buiite] and [noiite] showing the future suffix [-i] present in the verb. It is likely that the future suffix merges with the preceding [i] in these verbs so that they are phonetically [buite] and [noite]. The transcriptions [buite] and [noite] were found in S. Burtch (1978). The future form [gwiite] is also my transcription showing the future suffix in the verb form. Phonetically, this verb is transcribed [guite] as found in S. Burtch (1978).

In (30) I use a four-part analogy to show how a proportional analogy can be used to deduce the class I future forms from the principal parts. This analogy is similar to the analogies I used to show the relationship between the principal parts and the passive and causative forms in sections 5.3 and 5.4.

(30) **Proportional analogy for class I future forms**

Class	3SG Active Indicative	3SG Future Active Indicative	Gloss
I	noide :	noiite	'bathe oneself'
I	buide :	X	'lie down'

By solving for X a speaker could deduce that the future form of [buide] is [buiite]. The proportional analogy for class I future verbs is shown in (31) .

(31) noide : noiite = buide : buiite

Class II future forms can also be deduced from the principal parts as shown in (32).

(32) **Proportional analogy for class II future forms**

Class	3SG Active Indicative	3SG Future Active Indicative	Gloss
II	ekonote :	ekonoite	'open'
II	rote :	X	'sing'

By solving for X, a speaker could correctly deduce that X = roite. This analogy is shown in (33).

(33) ekonote : ekonoite = rote : roite

The analogies in (31) and (33) represent the relationships between the cells of a paradigm, not the word forms themselves. Because of this, it is not necessary to have word forms with identical prosodic structure because the analogy is from the third person singular,

nonfuture, active cell that the word form occupies, not the individual word. If a speaker knows the principal parts and at least one future form from a verb class then they can deduce any future verb forms in that class.

It is impossible to work backwards from the future forms to principal parts. Since the future looks the same in both classes, the only way to deduce a principal part is if the verb class of the future verb and other principal parts are known. Since there is no way to determine which class the verb belongs in from just the future form it is impossible to predict which form of the active indicative suffix will be present in the unknown principal part. The reverse proportional analogy for deducing principal parts from the future tense is shown in examples (34).

(34) **Deducing principal parts from future active indicative forms**

3SG Future Active Indicative	3SG Active Indicative	Gloss
noiite :	noide	‘bathe oneself’
ekonoite :	ekonote	‘open’
buiite :	X	‘lie down’
roite :	X	‘sing’

Since the principal parts identify the verb classes through the active indicative allomorphs there is no way to determine which class the verb belongs to from the non-diagnostic form. In example, (34) it is impossible to determine if the future form [buiite] ‘lie down’ should belong to class I or class II. Likewise with the future form [roite] ‘sing’. Because of this, I claim that the future forms are non-diagnostic forms with no indicator of class membership in their forms.

6.2 Negative

Negation in Murui is expressed through the verbal suffix [-ɲe].⁴ The structure of negative verbs is shown in (35).

⁴ Another way to express negation through the verbal morphology is with the suffix [-ni] ‘DESCRIPTIVE NEGATIVE’ (S. Burtch 1983:134).

(35) Root-Negative-Voice/Mood-Agreement

Table 26 shows third person verbs and their negative form.

Table 26. Third person singular non-negative and negative nonfuture forms

	Stem-ACT.IND-3SG	Stem-NEG ACT.IND-3SG	Gloss
Class I	noi-d-e	noi- <i>ne</i> -d-e	'bathe oneself'
	bui-d-e	bui- <i>ne</i> -d-e	'lie down'
	kwo-d-e	kwo- <i>ne</i> -d-e	'see'
	do ϕ e-d-e	do ϕ e- <i>ne</i> -d-e	'hang'
Class II	bi-t-e	bi- <i>ne</i> -d-e	'come'
	i-t-e	i- <i>ne</i> -d-e	'live'
	ro-t-e	ro- <i>ne</i> -d-e	'sing'
	hu-t-e	hu- <i>ne</i> -d-e	'plant yucca'
	$\theta\bar{a}i$ -t-e	$\theta\bar{a}i$ - <i>ne</i> -d-e	'dance'
	ekono-t-e	ekono- <i>ne</i> -d-e	'open'
	hu ϕ ano-t-e	hu ϕ ano- <i>ne</i> -d-e	'play (trick)'

Table 26 shows that the negative verb forms all have the a voiced active indicative allomorph regardless of the verb class. Just as the future forms can be deduced through analogy the negative forms can also be deduced through analogy from the principal parts. The analogy for deducing class I negative forms is shown in (36).

(36) **Proportional analogy for class I negative forms**

Class	3SG Active Indicative	3SG Negative Active Indicative	Gloss
I	noide :	nojnede	'bathe oneself'
I	buide :	X	'lie down'

The principal part of a class plus a negative form is necessary to solve for X. The correct negative form is [buijpede]. The proportional relationship shown in (37).

$$(37) \text{ noide : noijpede} = \text{buide : buijpede}$$

Likewise, class II negative verbs can be deduced in the same way. The analogy for deducing class II negative forms is shown in (38).

(38) **Proportional analogy for class II negative forms**

Class	3SG Active Indicative	3SG Negative Active Indicative	Gloss
II	ekonote :	ekonopede	'open'
II	rote :	X	'sing'

By solving for X a speaker could deduce that the negative form of [rote] is [ropede]. This relationship is shown in the analogy in (39).

$$(39) \text{ ekonote : ekonopede} = \text{rote : ropede}$$

6.3 Negative passive

The negative suffix also conditions the voicing of the stop in the passive indicative suffix. This conditioning is shown in Table 27.

Table 27. Third person singular passive and negative passive forms

	Stem-ACT.IND-3SG	Stem-NEG ACT.IND-3SG	Gloss
Class I	atu-ka	atu-ŋe-ga	‘bring’
	ɸaka-ka	ɸaka-ŋe-ga	‘try’
	tue-ka	tue-ŋe-ga	‘fell (tree)’
Class II	ekono-ga	ekono-ŋe-ga	‘open’
	i-ga	i-ŋe-ga	‘give’
	ro-ga	ro-ŋe-ga	‘sing’

As with the negative active verb forms, the negative passive verb forms all have the voiced allomorph of the passive indicative suffix. This is evidence that the non-diagnostic forms condition the passive indicative suffix as well as the active indicative suffix.

6.4 Negative future

Although a negative active indicative verb form always has a voiced stop allomorph of the active indicative suffix when it is in nonfuture tense, a negative future form always has a voiceless stop allomorph. The structure of a negative future verb form is shown in (40).

(40) Root-Negative-Future-Mood/Voice-Agreement

Because the future suffix always follows the negative suffix and immediately precedes the active indicative suffix, the active indicative suffix is conditioned by the future suffix and the stop in the active indicative suffix is voiceless, [-tu] ~ [-t]. The analogy for predicting negative future verb forms from both classes is seen in (43).

(41) **Proportional analogy for class I negative future forms**

Class	3SG Active Indicative	3SG Negative Future Active Indicative	Gloss
I	noide :	noipeite	'bathe oneself'
I	buide :	X	'lie down'

In (43), in order to solve for X for the class I verbs we deduce that since the third singular negative future form of [noide] is [noipeite], the third singular negative future form of [buide] is [buipeite]. The complete analogy is shown in (42).

(42) noide : noipeite = buide : buipeite

The negative future forms have the same form of the active indicative suffix in both classes. The proportional analogy for class II negative future verb forms is shown in (43).

(43) **Proportional analogy for class II negative future forms**

Class	3SG Active Indicative	3SG Negative Future Active Indicative	Gloss
II	ekonote :	ekonopeite	'open'
II	rote :	X	'sing'

In example (43), a speaker solving for X would deduce that the negative future form of [rote] is [ropeite]. The complete proportional analogy in (44).

(44) ekonote : ekonopeite = rote : ropeite

It is impossible to deduce the principal parts from the negative and the negative future forms since both classes have an identical form of the active indicative suffix. The reverse analogy for negative verbs is shown in example (45).

(45) **Deducing principal parts from the negative forms**

3SG Negative Active Indicative	3SG Active Indicative	Gloss
noijnede :	noide	'bathe oneself'
ekononede :	ekonote	'open'
buijnede :	X	'lie down'
ronede :	X	'sing'

Since the negative verb forms have an identical form of the active indicative suffix in both classes they are not indicators of class membership. Reverse analogies of these forms do not show how to deduce the principal parts since it is impossible to know which class the principal part belongs to from the non-diagnostic forms and therefore, it is not possible to know which allomorph of the active indicative suffix will be present in the principal part forms of [buijnede] 'lie down' and [ronede] 'sing'. Like the future form, I conclude that the negative form is a non-diagnostic form.

6.5 Directionals

Murui has two directional morphemes, one of which means to come towards the subject and one of which means to go away from the subject. [-āi] is the andative form meaning 'go' and [-āubi] is the venitive form meaning 'come'. In this chapter I discuss the andative first and the venitive second.⁵ According to Payne (1990) directionals are common in western Amazonian languages. "Common in the western Amazonian region are morphemes which indicate the type of movement accompanying the action of the verb, the location of the action (especially 'upriver' and 'downriver'), or the directional orientation of the action or agent carrying out the action" (Payne 1990:223). The structure of directional verbs is shown in (46).

⁵ Becerra & Petersen de Piñeros (2012:41) use the term *alejamiento* for the andative suffix and they say that it is always present with the [-du] allomorph of the active indicative suffix. They use the term *acercamiento* for the venitive suffix and say that it can be present with both allomorphs of the active indicative suffix (2012:50-51). Becerra & Petersen de Piñeros (2012:41, 50) claim that the allomorphs of the directional suffixes are phonologically motivated.

(46) Root-Directional-Mood/Voice-Agreement

The three allomorphs of the andative directional suffix are: [-aī] ~ [-θaī] ~ [-haī].⁶ These allomorphs are all present with the active indicative allomorphs [-du] ~ [-d]. Table 28 shows the directional verb forms that are grouped according to their directional allomorph.

⁶ There are two possible analyses of the distribution of the andative and venitive allomorphs. The first analysis is that the allomorphs are conditioned phonologically by the vowel that precedes them. If they are conditioned phonologically, then the allomorphs [-aī] and [-aūbi] are the underlying forms and the allomorphs [-haī] and [-haūbi] have an epenthetic [h] that occurs when the suffix follows the vowel [a]. The allomorphs [-θaī] and [-θaūbi] are suppletive allomorphs that only occur after the vowel [i]. Becerra & Petersen de Piñeros (2012:41) say that each allomorph is conditioned phonologically by the final vowel of the root and they provide a list of vowels that appear with each allomorph.

The second analysis is morphological. Using word-based morphology I propose that there are multiple verb classes related to the andative and venitive forms, just as there are multiple classes related to the active forms. The verb classes are distinguished by the allomorphs of the andative and venitive suffixes. Once the principal part forms of these classes are identified, I claim that the other forms should be deducible through proportional analogies from the principal part forms.

Table 28. Andative directional allomorphs [-aī] ~ [-haī] ~ [-θaī]

Class	Stem	Stem-ACT.IND-3SG	Stem-ACT.IND-AND-3SG	Gloss	
[-aī]	I	rao	rau-aī-d-e	'hunt'	
	I	kwo	kwu-aī-d-e	'see'	
	I	φwɔ	φwɔ-d-e	'prepare'	
	I	kano	kano-d-e	'help'	
	II	huφano	huφano-t-e	'play'	
	II	ekono	ekono-t-e	'open'	
	II	o	o-t-e	'bring'	
	[-haī]	I	hika	huuka-d-e	'ask'
		I	buko	buko-d-e	'fall in/on face'
		I	āuma	āuma-d-e	'fish with hook'
[-θoī]	I	noi	noi-d-e	'bathe oneself'	
	II	θaī	θaī-t-e	'dance'	

I use a four-part analogy to show how the andative verb forms can be deduced from the principal parts in example (47). This example has two verbs from class I that have the same andative allomorph [-aī].⁷

(47) **Proportional analogy for class I andative forms**

Class	3SG Active Indicative	3SG Andative Active Indicative	Gloss
I	kwode :	kwuaide	'see'
I	kanode :	X	'help'

By solving for X, the unknown andative form of [kanode] is [kanuaide]. The complete analogy is shown in (48).

(48) kwode : kwuaide = kanode : kanuaide

When class II verbs take the andative suffix the stop in the active indicative suffix is voiced. This is the same allomorph that the class I verbs have when they take the andative suffix.

(49) **Proportional analogy for class II andative forms**

Class	3SG Active Indicative	3SG Andative Active Indicative	Gloss
II	ekonote :	ekonuaide	'open'
II	hwɸanote :	X	'play'

The andative forms of class II verbs can be deduced through the principal parts. The unknown andative form of [hwɸanote] is [hwɸanuaid̄e]. This analogy is shown in (50).

⁷ It is unclear as to why the verb [bukode] 'fall in/on face' has the andative form [bukohaide]. More research is needed to determine if there is phonological motivation or morphological motivation for the distribution of these allomorphs. If there is a distinction between the allomorphs, then it would raise the need for further principal parts.

(50) ekonote : ekonuaide = huφanote : huφanuaide

Like the analogies of the future and the negative forms, this analogy shows that the directional forms are deducible if the principal parts of each class are known.

The allomorphs of the venitive directional suffix are [-aubi] ~ [-haubi] ~ [-θaubi]. The structure of these verbs is the same as the andative verbs structure first mentioned in (46), and shown in (51).

(51) Root-Venitive-Mood/Voice-Agreement

The allomorphs of the venitive directional suffix are shown in Table 29.

Table 29. Venitive directional allomorphs: [-aubi] ~ [-haubi] ~ [-θaubi]

	Class	Stem-ACT.IND-3SG	Stem-VEN-ACT.IND-3SG	Gloss
-aubi	I	kano-d-e	kanu-aubi-t-e	'help'
	I	mauhu-d-e	mauhu-aubi-t-e	'work'
	II	ekono-t-e	ekonu-aubi-t-e	'open'
	II	o-t-e	u-aubi-t-e	'bring'
	II	huφano-t-e	huφanu-aubi-t-e	'play'
-haubi	I	dota-d-e	dota-haubi-t-e	'throw out'
	I	eka-d-e	eka-haubi-t-e	'give food'
	I	kaka-d-e	kaka-haubi-t-e	'listen'
-θaubi	I	noi-d-e	noi-θaubi-t-e	'bathe oneself'
	II	i-t-e	i-θaubi-t-e	'live'

The verbs in Table 29 are organized by the verb classes. Class I verbs in this table show the most allomorphy between the venitive allomorphs [-aubi] and [-haubi]. There is only one class I verb and one class II verb with the [-θaubi] allomorph in the Murui corpus.

Table 29 shows that the venitive directional suffix occurs with the [-tu] ~ [-t] allomorphs of the active indicative suffix.⁸

Example (52) shows the four-part analogy for constructing class I venitive forms.⁹

(52) **Proportional analogy for class I venitive forms**

Class	3SG Active Indicative	3SG Venitive Active Indicative	Gloss
I	māu <u>h</u> ude :	mauh <u>u</u> aubite	‘work’
I	kanode :	X	‘help’

By solving for X a speaker would deduce that the venitive form of [kanode] is [kanuaubite]. The full analogy is shown in (53).

(53) māuhude : mauhaubite = kanode : kanuaubite

Class II venitive forms also have the [-t] allomorph of the active indicative suffix. Example (54) shows that these forms can be deduced from the principal parts.

(54) **Proportional analogy for class II venitive forms**

Class	3SG Active Indicative	3SG Venitive Active Indicative	Gloss
II	ekonote :	ekonu <u>a</u> ubite	‘open’
II	ote :	X	‘bring’

The venitive directional forms are deducible if the principal parts and one other venitive form are known. By solving for X the correct venitive form of [ote] is [uaubite]. The full analogy is shown in (55).

⁸ Becerra & Petersen de Piñeros (2012:51) claim that the venitive suffix can appear with both allomorphs of the active indicative suffix. There is one example of this in my data in the venitive form of the verb [huukade] ‘ask.for:ACT.IND:3SG’ [huukahaubidukue] ‘ask.for:ACT.IND:3SG’.

⁹ As with the andative allomorphs, the allomorphy of the venitive suffix is beyond the scope of this thesis. However, it does raise the need for other principal parts.

(55) ekonote : ekonua^ubite = ote : ua^ubite

A reverse proportional analogy to find the principal parts from the andative forms is unsuccessful since these forms do not contain information about class membership. A reverse analogy for andative verb forms is shown in (56).

(56) **Deducing the principal parts from the andative forms**

3SG Andative Active Indicative	3SG Active Indicative	Gloss
raua ⁱ de :	raode	'hunt'
ekonua ⁱ de :	ekonote	'open'
hu ϕ anu ^a ide:	X	'play'
kuua ⁱ de :	X	'see'

From the analogy shown in (56) it is impossible to deduce which allomorph of the active indicative suffix should be present in the principal part form of [kuuaⁱde] 'see'. I consider the andative forms to be non-diagnostic forms with no class-identifying morphology in their forms.

The same issues arise when we try to deduce the principal parts from the venitive verb forms. The reverse analogy for deducing the principal parts from the venitive forms is shown in (57).

(57) **Deducing the principal parts from the venitive forms**

3SG Venitive Active Indicative	3SG Active Indicative	Gloss
mauhua ^u bite :	mauhude	'work'
ekonua ^u bite :	ekonote	'open'
kanua ^u bite :	X	'help'
ua ^u bite :	X	'bring'

As with the future, negative and andative forms, it is not possible to deduce the principal parts from the venitive forms. Therefore I consider the venitive forms to be non-diagnostic forms.

6.6 Desiderative

The desiderative suffix has two allomorphs [-iaka] and [-aka].¹⁰ The structure of desiderative verbs is shown in (58).

(58) Root-Desiderative-Mood/Voice-Agreement

Table 30 shows these allomorphs in third person singular desiderative nonfuture verb forms.

¹⁰ This suffix is not discussed in Petersen de Piñeros (1994) nor Becerra & Petersen de Piñeros (2012).

Table 30. Desiderative allomorphs [-aka] and [-iaka] in third person nonfuture and future verbs

Root-ACT.IND-3SG	Root-DES-ACT.IND-3SG	Gloss
Class I		
bui-d-e	bui-aka-d-e	'lie down'
kwo-d-e	kwo-aka-d-e	'see'
ϕwɔno-d-e	ϕwɔno-aka-d-e	'prepare'
kano-d-e	kano-aka-d-e	'help'
rao-d-e	rao-aka-d-e	'hunt'
aīno-d-e	aīno-aka-d-e	'pull out'
tue-d-e	tue-aka-d-e	'fell (tree)'
dāia-d-e	dāi-aka-d-e	'jump'
Class II		
ekono-t-e	a. ekono-iaka-d-e	'open'
	b. ekono-aka-d-e	
huϕano-t-e	huϕano-iaka-d-e	'play'
ru-t-e	ru-iaka-d-e	'eat meat'
ro-t-e	ro-iaka-d-e	'sing'
dzo-t-e	dzo-iaka-d-e	'say'
o-t-e	oī-aka-d-e	'bring'
θaī-t-e	θaī-aka-d-e	'dance'
nāu-t-e	nāu-aka-d-e	'speak'
taī-t-e	taī-aka-d-e	'beat drum'
raī-t-e	raī-aka-d-e	'say'

Table 30 shows the two allomorphs of the desiderative suffix in some class I and II verbs. The desiderative forms always occur with the [-du] allomorph of the active indicative suffix.¹¹ The analogy for predicting the desiderative forms of verbs from the principal parts is shown in (59). In order to solve for X, a speaker needs to know the principal part of each class and a desiderative form.

(59) **Proportional analogy for class I desiderative forms**

Class	3SG Active Indicative	3SG Desiderative Active Indicative	Gloss
I	kuode :	kwoakade	'see'
I	kanode :	X	'help'

By solving for X, the desiderative form of [kanode] can be deduced from the principal parts. The correct desiderative form is [kanoakade]. The full analogy is shown in (60).

(60) $kuode : kwoakade = kanode : kanoakade$

The proportional analogy for deducing class II desiderative forms is shown in (61).

(61) **Proportional analogy for class II desiderative forms**

Class	3SG Active Indicative	3SG Desiderative Active Indicative	Gloss
II	ekonote :	ekonoiakade	'open'
II	ruute :	X	'eat meat'

Example (61) shows that solving for X, the correct desiderative forms is [ruiakade]. This analogy is shown in (62).

¹¹ The distribution of the desiderative allomorphs seems to be determined by verb class. Class I verbs have the desiderative allomorph [-aka] and class II verbs have the desiderative allomorph [-iaka]. However, there is insufficient data to confirm this hypothesis.

(62) ekonote : ekonoiakade = rute : ruiakade

The desiderative verb forms are also non-diagnostic forms because they provide no information about the verb class membership. The reverse analogy in (63) shows that these forms are non-diagnostic.

(63) Deducing the principal parts from the desiderative forms

3SG Desiderative Active Indicative	3SG Active Indicative	Gloss
kwoakade :	kuode	'see'
ekonoiakade :	ekonote	'open'
kanoakade	X	'help'
ruiakade	X	'eat meat'

From the reverse analogy in (63), it is not possible to deduce a principal part from the desiderative form since the voicing of the stop in the active indicative suffix is the same in both verb classes. Therefore, I consider that the desiderative verb forms to be non-diagnostic forms.

6.7 Summary

In summary, there are some verb forms in Murui that eliminate the distinction between the verb classes. Each of these verb forms has a specific form of the active indicative suffix that is present in both verb classes. I use Blevins' terminology to refer to these forms as non-diagnostic forms. Some of the morphemes that do not distinguish between class I and class II verbs are the future, negative, andative directional, venitive directional, and desiderative suffixes. I claim that these non-diagnostic forms are significant because it is the morpheme that precedes the active indicative suffix that determines the voicing stop in the active and passive indicative suffixes.

CHAPTER 7

PETERSEN DE PIÑEROS' ANALYSIS OF MURUI

As noted in Chapter 2, there are other analyses of Murui including the tagmemic analysis by B. Burtch & Wise (1968) and the presentation of the suffixes found in S. Burtch (1983). These analyses focused on the morphological and syntactic aspects of Murui and assumed that the alternations were not phonological. However, more recent linguistic work has suggested that the prosodic structure of the verb roots determines the voicing alternations seen in the active and passive indicative suffixes. A moraic analysis has been proposed by Petersen de Piñeros (1994) and Becerra & Petersen de Piñeros (2012). In this chapter I discuss the strengths and weaknesses of the moraic analysis proposed by Petersen de Piñeros (1994) and show how my word-based analysis accounts for all of the alternations seen in the corpus.

7.1 Petersen de Piñeros' moraic analysis

The first analysis of Murui that attempted to provide phonological motivation for the alternations was by Petersen de Piñeros (1994). She used data from texts collected by Konrad Theodor Preuss in the early 1900s to analyze the phonological and morphological systems of the Witotoan language, *Mika Doode*. According to Becerra & Petersen de Piñeros (2012:20), *Mika Doode* is a dialect of Murui. Petersen de Piñeros (1994) discusses the [-tu] ~ [-du] and [-ga] ~ [-ka] alternations and uses morphophonemic rules to show their distribution.¹ She claims the active and passive indicative morphemes in *Mika Doode* are distributed as shown in Table 31.

¹ In her analysis Petersen de Piñeros (1994) uses the symbol [i]. I have changed that symbol to [u] so that it is consistent with my analysis.

Table 31. Alternations driven by mora (Petersen de Piñeros 1994:34)

	Bimoraic roots	One or three mora roots
Active indicative	-du	-tu
Passive indicative	-ka	-ga

Her claim is that monomoraic and trimoraic roots have the allomorph [-tu], while bimoraic roots have the allomorph [-du]. In passive verbs, monomoraic and trimoraic roots have the allomorph [-ga] and bimoraic roots have the allomorph [-ka]. However, she does not give an underlying form for each of these suffixes and she does not give an assimilation rule that accounts for the voicing changes. Therefore, this is not a phonological rule.

Table 32 shows the alternations found in Murui as transcribed by S. Burtch (1978) are not driven by mora. I give a bimoraic analysis of the diphthongs and a monomoraic analysis of the diphthongs and show that neither analysis works. The verb roots in this table are separated from the suffixes by a hyphen.

Table 32. Roots and mora in Murui

Roots with one mora	Gloss	Roots with two moras	Gloss	Roots with three moras	Gloss
tu-d-e	'scatter:ACT.IND:3SG'	fãu-d-e	'break:ACT.IND:3SG'	hũie-d-e	'bend:ACT.IND:3SG'
dʒu-d-e	'fall.apart:ACT.IND:3SG'	tou-d-e	'domesticate:ACT.IND:3SG'	tʃerua-d-e	'cascade.water:ACT.IND:3SG'
ru-t-e	'eat.meat:ACT.IND:3SG'	unu-d-e	'sleep:ACT.IND:3SG'	hũbũi-d-e	'look.for:ACT.IND:3SG'
do-t-e	'clean:ACT.IND:3SG'	atu-d-e	'bring:ACT.IND:3SG'	dũie-d-e	'adjacent.to:ACT.IND:3SG'
o-t-e	'bring:ACT.IND:3SG'	hãi-d-e	'go:ACT.IND:3SG'	bodʒãu-d-e	'cut.into.pieces:ACT.IND:3SG'
ro-t-e	'sing:ACT.IND:3SG'	θoĩ-d-e	'fall.connected.fruit:ACT.IND:3SG'	dʒoφue-t-e	'teach:ACT.IND:3SG'
dʒo-t-e	'say:ACT.IND:3SG'	θãi-t-e	'dance:ACT.IND:3SG'	mãuh̃u-d-e	'work:ACT.IND:3SG'
hu-t-e	'plant.yucca:ACT.IND:3SG'	θeφe-t-e	'abandon:ACT.IND:3SG'	komũi-d-e	'grow:ACT.IND:3SG'
θe-t-e	'boil:ACT.IND:3SG'	rao-d-e	'hunt:ACT.IND:3SG'	φẽiɲo-t-e	'receive:ACT.IND:3SG'
φi-t-e	'blow:ACT.IND:3SG'	φũi-t-e	'blow:ACT.IND:3SG'	rũãi-d-e	'soak:ACT.IND:3SG'

Table 32 shows a selection of Murui verbs from S. Burtch (1978) organized by the number of moras in the roots. The monomoraic roots usually have the [-t] allomorph of the active indicative allomorph with two exceptions. The bimoraic roots have both the [-t] and the [-d] allomorphs of the active indicative suffix. Trimoraic roots can also have either allomorph. If diphthongs are bimoraic then there is no way to determine from this data which allomorph of the active indicative suffix will be present. If diphthongs are monomoraic, then there are monomoraic verb roots with both allomorphs of the active indicative suffix such as [t̄aude] ‘break:ACT.IND:3SG’ and [θaite] ‘dance:ACT.IND:3SG’. These forms have the same moraic structure but they have different allomorphs of the active indicative suffix. This evidence suggests that the mora count of the root is not adequate for describing the alternations in the Murui corpus.

According to Petersen de Piñeros (1994:25), Mika Doode has a syllable structure of (C)V(V). She claims that Mika Doode has two semivowels, [u] and [i], that occur in diphthongs (1994:34-35). She also claims that Mika Doode has long and short diphthongs. Long diphthongs only appear word-initially and the first vowel of the diphthong sequence is lengthened (Petersen de Piñeros 1994:27). Table 33 shows some of her evidence for the existence of long and short diphthongs. The first vowel of the diphthong is lengthened in the future verb forms in Table 33.

Table 33. Petersen de Piñeros’ evidence for long and short diphthongs

Stem-ACT.IND-3SG	Stem-[FUT]-ACT.IND-3SG	Gloss
āute	ā:ute	‘poison’
māute	mā:ute	‘tie up’

Petersen de Piñeros (1994:27) shows that other vowels are also lengthened word-initially. She says that long vowels and long diphthongs are bimoraic and claims that this is also true for Murui (1994:33). If the second vowel of her proposed syllable template is a semivowel then the diphthongs from Table 33 would have a semivowel as the second vowel in the diphthong.

Table 34 shows her evidence for dividing the verbs by mora. There are two active verbs and two passive verbs in each column. The root and suffixes are separated by hyphens in Table 34.

Table 34. Verbs divided by moras in the root (Petersen de Piñeros 1994:34)

	1 Mora	Gloss	2 Moras	Gloss	3 Moras	Gloss
Active	h <u>u</u> -t <u>u</u> -k <u>e</u>	'plant yucca'	h <u>u</u> : <u>u</u> - <u>tu</u> -k <u>e</u>	'heal, cure'	h <u>u</u> k <u>an</u> o- <u>tu</u> -k <u>e</u>	'ask'
	au-t <u>u</u> -k <u>au</u>	'poison'	h <u>a</u> : <u>i</u> - <u>tu</u> -k <u>au</u>	'go'	h <u>a</u> : <u>no</u> - <u>tu</u> -k <u>au</u>	'silence'
Passive	o-g <u>a</u>	'bring'	ma <u>n</u> o-k <u>a</u>	'heal, cure'	h <u>u</u> ϕ <u>an</u> o-g <u>a</u>	'destroy'
	me-g <u>a</u>	'lick'	be: <u>i</u> -k <u>a</u>	'toast'	me: <u>ine</u> -g <u>a</u>	'kill'

In Table 34, long vowels are two moras. In the bimoraic column there are two verbs with long vowels that are followed by the vowel [i], [hu:duke] ‘heal, cure’ and [be:iika] ‘toast’. According to her analysis, if the the diphthongs consist of a long vowel and the vowel [i], then the [i] is actually a semivowel (Petersen de Piñeros 1994:34-35). It is possible that she considers the long vowel followed by [i] in these words to be long diphthongs with two moras.

In Table 35 I give the transcriptions of these words by Petersen de Piñeros (1994) in comparison to the transcriptions found in S. Burtch (1978) and S. Burtch (1983). In some instances, I provide the active form of the verb if there was no passive form in my Murui corpus. This table is set up according to the data from (Petersen de Piñeros 1994:34) so that it is consistent with the data in Table 34. I added a column with either a P or a B to show which linguist transcribed the data. Not all of the verb forms used by Petersen de Piñeros (1994) are present in S. Burtch (1978), so I specify the agreement of the verbs that have different forms in Table 34.

Table 35. Contrast between the transcriptions of Petersen de Piñeros (1994:34) and S. Burtch (1978) and S. Burtch (1983)

	1 Mora	Gloss	2 Moras	Gloss	3 Moras	Gloss
P.	huw-tuw-ke	'plant.yucca:1SG'	huw-dtu-ke	'cure:1SG'	huwkanotuw-ke	'ask:1SG'
B.	huw-te	'plant.yucca:3SG'	huwu-d-e	'pray, chant:3SG'*	huwkanotuw-kūe	'ask:1SG'
P.	auw-tuw-kaw	'poison:1PL'	hai-dtu-kaw	'go:1SG'	hano-tuw-kaw	'silence:1PL'
B.	āuw-te	'poison:3SG'	hai-d-e	'go:3SG'	haano-te	'deny:3SG'
P.	o-ga	'bring'	mano-ka	'cure'	huφano-ga	'destroy'
B.	o-ga	'take, bring'	—**	—**	—**	—**
P.	me-ga	'lick'	bei-ka	'toast'	meine-ga	'kill:PASS.IND[3SG]'
B.	me-ga	'lick'	beur-ka	'toast'	mēine-te	'kill:ACT.IND:3SG'

*This gloss is found in S. Burtch (1983:1, 155).

**These forms are not present in S. Burtch (1978) nor (1983).

In Table 35, there is a strong correspondence between the two transcriptions and many of the words in this table are transcribed the same way by Petersen de Piñeros (1994) and S. Burtch (1978). However, there is a contrast in each example with a diphthong. In the monomoraic roots the contrast is seen in the words [aʉtʉkɑw] and [aʉtʉ]. In the bimoraic verb roots the contrast is seen in the transcription of two words: [ha:ɪdukɑw] and [hɑɪde] and [be:ɪka] and [beuka]. In the trimoraic verb roots the contrast is seen in the transcriptions of [me:ɪnega] and [mɛɪnete].

Table 36 shows an analysis of different verb roots and their moras in Murui by Becerra & Petersen de Piñeros (2012). Diphthongs are represented by the vowels [i] and [ɪ], and long vowels are written with two adjacent identical vowels. This table is written orthographically. The j in the table is phonetically [h] and the f is phonetically [ɸ].

Table 36. Verb roots and their moras (Becerra & Petersen de Piñeros 2012:49-50)

One mora verb roots	<i>i-, o-, bi-, ne-, ñe-, ui-, etc.</i>
Two mora verb roots	<i>jaai-, raau-, nooi-, umu-, kazi-, jeno-, rii-, etc.</i>
Three mora verb roots	<i>fueo-, raao-, etc.</i>

The verb roots shown in Table 36 contrast with the same verb roots in S. Burtch (1978) and S. Burtch (1983). Wherever they transcribed a long vowel, S. Burtch (1978) does not have a long vowel.

The difference between these transcriptions is that Petersen de Piñeros (1994) and Becerra & Petersen de Piñeros (2012) transcribed a long vowel in the diphthongs and S. Burtch (1978) did not transcribe the long vowels. Petersen de Piñeros (1994) claims that there is a phonemic contrast between long and short diphthongs while S. Burtch (1978) claims that there is no such contrast. Since the transcriptions differ in how the diphthongs are transcribed it would be helpful to know how Petersen de Piñeros (1994) would handle the one-syllable roots that have diphthongs such as the verbs [taʉude] ‘break:ACT.IND:3SG’ and [θaɪite] ‘dance:ACT.IND:3SG’. Both of these verbs have a diphthong in the first syllable of the word so by her analysis they should be transcribed [ta:ʉude] and [θa:ɪite]. There is

no difference between the moras in these verbs yet they each have a different allomorph of the active indicative suffix. Her analysis needs to show how a speaker would determine which allomorph of the active indicative suffix is present in these verbs.

Although the analysis by Petersen de Piñeros (1994) describes some of the alternations that occur in Murui she does not account for all of the alternations that occur after other suffixes. She does not discuss why the stops in the active indicative allomorphs have the opposite voicing of the passive indicative allomorphs when the active and passive suffixes occur in the same position in the verb structure. Another gap in her analysis is that the prosody of the roots does not determine the voicing alternations that are seen in causative verbs. In order to account for the voicing alternations she needs to provide a rule stating that when other suffixes are added to the root it causes the voicing of the stop in the active or passive indicative suffixes to change. However, this rule would also need to explain why the negative verb forms are always present with the [-d] allomorph of the active indicative suffix and the future verb forms are always present with the [-t] allomorph (as well as the allomorphs that are present in the other non-diagnostic forms). Her analysis does not account for the allomorphy that occurs in the non-diagnostic forms. Although she says that the negative suffix is always present with the [-du] allomorph she does not give an explanation for why the [d] allomorph is used in the negative form. Likewise with the future, she gives phonological rules for forming the future but she does not discuss why the [t] allomorph is consistently used in future verbs.

The analysis by Petersen de Piñeros (1994) may not be the best analysis for these alternations since it does not account for all of the facts. A similar case where the morphological analysis is better than the phonological analysis is found in Maori and is described by Hale (1973). He writes that although the phonological analysis of Maori is more elegant it may not be the right analysis (Hale 1973:416). Instead, the morphological analysis may be the better analysis in Maori. He says, “there is some evidence that, with respect to the passive and gerundive verb forms, he [the Maori speaker AH] acquires a grammar which is more consistent with the conjugation alternative than with the phonological alternative” (Hale 1973:420).

Whether the verb classes are determined by the prosodic structure of the root is not relevant in a word-based analysis because the active indicative, the passive indicative and the causative verb forms are diagnostic forms that identify the verb classes. Although a word-based analysis does not provide the cause of the high correlation between the prosodic structure of the verb roots and the distribution of the active and passive indicative allomorphs, it does show that these other alternations are morphological and not phonological. Once the two verb classes are established, the alternations that are seen in the non-diagnostic forms need to be accounted for. My claim that the morpheme that precedes the active and passive indicative suffixes accounts for these alternations in a way that a phonological analysis is unable to do and I claim that the morphological analysis is the better analysis of the alternations seen in Murui.

7.2 Summary

In this chapter I discussed the analysis of these alternations by Petersen de Piñeros (1994). Her analysis accounts for many of the alternations that are seen in verbs in their minimal verb structure but it does not account for verb roots that do not fit the pattern of bimoraic roots patterning with the voiced active indicative allomorph and the voiceless passive indicative allomorph and monomoraic roots patterning with the voiceless active indicative allomorphs and the voiced passive indicative allomorph. She does not give an analysis of the alternations that are seen when other suffixes are present in the verb. I claim that these alternations are morphological rather than phonological and that the morphological word-based approach is the better analysis of these alternations.

CHAPTER 8

CONCLUSIONS

In this thesis I have analyzed part of the inflectional morphology of Murui, focusing on the allomorphs of the active and passive indicative suffixes. The analysis is from a word-based morphological perspective.

A word-based analysis provides an alternative way to view the alternations as morphological alternations rather than phonological alternations. By using whole word forms as the basis for my analysis, I was able to identify the conjugation patterns that divide the verbs into two classes. A word-based theory of morphology uses proportional analogy to construct verb forms. New word forms can be deduced through proportional analogy from the principal parts.

The principal parts in Murui are the third person singular nonfuture forms. The principal parts identify the verb classes through the active indicative suffix allomorphs [-tu] ~ [-du] ~ [-t] ~ [-d]. I claim that the alternations are morphological markers of the verb classes, and that once the conjugation patterns of a paradigm are learned, any verb form in Murui is deducible through analogy from the principal parts.

The passive suffix allomorphs [-ka] and [-ga] and the causative suffix [-ta] also identify the verb classes, but do not meet the principal parts requirements laid out in Blevins (2016:87). I consider these forms to be diagnostic forms because they identify verb class membership through their morphology. It is possible to deduce the causative and passive forms through analogy from the principal parts. Verb class membership can also be determined through reverse analogy from the passive and causative forms.

Finally, I have shown that the non-diagnostic forms of the future, negative, andative, venitive, and desiderative verb forms do not distinguish between verb classes and the active indicative suffix in these forms is identical in both classes. These forms are

non-diagnostic because they have no information of class membership in their morphology and because reverse analogy does not allow one to deduce the principal parts from these forms. I claim that the non-diagnostic forms are significant because it is the suffix that precedes the active and passive indicative suffixes that conditions the voicing of the stops. According to Petersen de Piñeros (1994) the [-tu] ~ [-du] and [-ka] ~ [-ga] alternations are the result of the number of moras in the verb roots. I have shown that an analysis of the prosodic structure of the verb roots does not account for all of the alternations in the Murui data.

The implications of this research involve re-examining the previous research and the previous phonological analyses of other Witotoan languages to see if there is a family characteristic of alternations in Witotoan languages. If so, it is important to determine if these alternations are morphologically or phonologically driven. A morphological reconstruction of Proto Witotoan should be completed in order to identify the morphological patterns seen in the Witotoan languages.

The success of a word-based approach to provide an answer to the alternations seen in Murui imply that a word-based analysis could account for the alternations seen in other Witotoan languages as well. If there is a previous phonological analysis that provides the phonological motivation for these alternations then it would be helpful to compare this phonological analysis to a word-based analysis. Even if both analyses give an answer for why the alternations occur, one analysis may be better than the other. In the case of Murui, I propose that the morphological analysis is the better analysis of these alternations.

APPENDICES

APPENDIX A
CLASS I VERBS

The verbs in this list are class I third person singular verbs with the active indicative allomorph [-d] found in S. Burtch (1978). They are organized into groups by the syllable structure of the verb roots and the number of moras of the verb roots. In each grouping the verbs are organized alphabetically by the first letter in the root. Another distinction is made between verb roots with hiatus and verb roots without hiatus. Only the verbs with the minimal verb structure are shown in this list. I have not included verbs with suffixes other than the active indicative suffix since these suffixes may condition the voicing of the active indicative suffix. I also include class I causative verbs and the stative verbs from S. Burtch (1978).

The stems in this table are my analysis of the verb stems without the active indicative suffix and the agreement suffix. Not all of these stems were present in the Murui corpus. In rows 46 and 76 I have given the passive indicative verb form since the active indicative verb form was not present in the Murui corpus. Each citation includes the page number followed by the entry number used by S. Burtch (1978).

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
Monosyllabic, monomoraic			
1.	dʒu	dʒude	‘fall apart (like fruit and old rope)’ (1978:179, #723)
2.	ga	gade*	‘go down (the river)’ (1978:177, #668)
3.	tu	tude	‘scatter’ (1978:179, #712)

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
Disyllabic, no hiatus			
4.	aka	akade	‘observe watching’ (1978:187, #908)
5.	atu	atude	‘bring’ (1978:129, #23)
6.	bago	bagode	‘it is waved (the river)’ (1978:190, #965)
7.	bego	begode	‘splash’ (1978:153, #123)
8.	bew	beude	‘toast’ (1978:152, #114)
9.	buwo	buwoode	‘cover (with blanket)’ (1978:153, #128)
10.	biru	biruode	‘tangle oneself’ (1978:148, #12)
11.	bono	bonode	‘light (fire)’ (1978:153, #122)
12.	boko	bokode	‘cut open’ (1978:153, #118)
13.	buko	bukode	‘slap’ (1978:148, #6)
14.	ɸaka	ɸakade	‘try’ (1978:132, #68)
15.	ɸuɸu	ɸuɸuode	‘knead’ (1978:155, #187)
16.	ɸuwo	ɸuwoode	‘prepare’

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:121, #26)
17.	dame	damede	‘alone’
			(1978:157, #214)
18.	doɸe	doɸede	‘hang’
			(1978:161, #318)
19.	dono	donode	‘make fall in a trap’
			(1978:161, #315)
20.	duku	dukuɗe	‘stinging’
			(1978:172, #566)
21.	dʒaba	dʒabade	‘annoy’
			(1978:148, #1)
22.	dʒiku	dʒikuɗe	‘doubt’
			(1978:174, #610)
23.	dʒuku	dʒukuɗe	‘sting’
			(1978:174, #599)
24.	dʒwo	dʒwoɗe	‘climb’
			(1978:174, #603)
25.	eka	ekade	‘feed’
			(1978:143, #299)
26.	gaɗʒa	gaɗʒade	‘sweep’
			(1978:175, #638)
27.	gogo	gogode	‘stutter’
			(1978:176, #643)
28.	guru	gurude	‘thunder’
			(1978:181, #754)
29.	heno	henode	‘look for’

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:143, #76)
30.	hidzo	hidzode	'healthy'
			(1978:167, #437)
31.	hoko	hokode	'wash (dishes)'
			(1978:154, #161)
32.	horo	horode	'crawl'
			(1978:185, #869)
33.	huru	hurude	'fall out (children's teeth)'
			(1978:183, #806)
34.	hwuka	hwukade	'ask for'
			(1978:143, #295)
35.	huruu	huruude	'make basket'
			(1978:182, #790)
36.	iϕo	iϕode	'advance'
			(1978:184, #832)
37.	kaka	kakade	'listen'
			(1978:145, #340)
38.	kano	kanode	'help'
			(1978:121, #7)
39.	kuru	kurude	'scale (fish)'
			(1978:180, #739)
40.	mago	magode	'ferment'
			(1978:187, #917)
41.	maka	makade	'walk'
			(1978:153, #139)
42.	mugu	mugude	'lick finger or hand'

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:185, #862)
43.	muhu	muhude	‘soak’
			(1978:155, #171)
44.	raϕo	raϕode	‘sweep’
			(1978:156, #197)
45.	tame	tamede	‘mix’
			(1978:134, #79)
46.	tuɠu	tuɠuka	‘enclose:PASS.IND’
			(1978:179, #713)
47.	tuhw	tuhwude	‘collect (from a tree)’
			(1978:162, #336)
48.	tʃuru	tʃurude	‘waterfall’
			(1978:164, #381)
49.	θeda	θedade	‘care for’
			(1978:134, #78)
50.	θego	θegode	‘healthy’
			(1978:164, #383)
51.	θono	θonode	‘pull’
			(1978:161, #303)
52.	θuhw	θuhwude	‘dock’
			(1978:162, #322)
53.	ɯba	ɯbade	‘pay’
			(1978:188, #937)
54.	ɯϕo	ɯϕode	‘come forward’
			(1978:184, #832)
55.	ɯnw	ɯnwude	‘sleep’

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:146, #361)
Disyllabic with hiatus (C)V.V			
56.	aw	awde	‘chew’ (1978:211, #1390)
57.	baw	bawde	‘die’ (1978:212, #1392)
58.	bew	beude	‘tan, toast’ (1978:203, #1228)
59.	bwi	bwuide	‘lie down’ (1978:137, #163)
60.	ϕei	ϕeide	‘forget’ (1978:202, #1214)
61.	ϕwi	ϕwuide	‘lie down (in hammock)’ (1978:156, #190)
62.	dei	deide	‘rain’ (1978:157, #216)
63.	doi	doide	‘the spring releases (trap)’ (1978:157, #223)
64.	dui	duide	‘turn off’ (1978:129, #40)
65.	dui	dwuide	‘fall (tree)’ (1978:161, #321)
66.	dʒui	dʒuide	‘have diarrhea’ (1978:173, #597)
67.	dʒwi	dʒwuide	‘grab’ (1978:174, #601)
68.	dʒwo	dʒwode	‘climb (tree, house)’

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:210, #1361)
69.	goi	goide	'fall (tree)'
			(1978:193, #1034)
70.	hiu	hiude	'chase'
			(1978:206, #1289)
71.	hoi	hoide	'chase out'
			(1978:193, #1042)
72.	hui	huide	'comes out smoothly (flows)'
			(1978:196, #1081)
73.	hwi	huide	'hang'
			(1978:155, #168)
74.	koe	koede	'fish with machete'
			(1978:123, #64)
75.	kuwo	kuode	'see'
			(1978:130, #47)
76.	mai	maika	'sick:PASS.IND'
			(1978:129, #39)
77.	miu	miude	'criticize' (1978:149, #34)
78.	moi	moide	'twist (chambira)'
			(1978:137, #144)
79.	mui	muide	'bald, faded'
			(1978:185, #863)
80.	nei	neide	'connected'
			(1978:166, #427)
81.	noi	noide	'bathe oneself'
			(1978:131, #13)

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
82.	rao	raode**	'hunt' (1978:121, #14)
83.	rei	reide	'hide oneself' (1978:137, #149)
84.	rui	ruide	'eat, roast (meat)' (1978:125, #111)
85.	tei	teide	'cough' (1978:137, #145)
86.	θiu	θiude	'burn (smoking meat)' (1978:207, #1296)
87.	θui	θuide	'happen' (1978:162, #330)
88.	toi	toide	'drain out' (1978:157, #217)
89.	tou	toude	'domesticate' (1978:137, #161)
90.	tua	tuade	'spit' (1978:158, #250)
91.	tui	tuide	'empty' (1978:126, #137)
92.	tue	tuede	'fell (tree)' (1978:123, #55)
93.	θui	θuide	'straight' (1978:161, #309)
94.	ue	uede	'is cooked' (1978:198, #1137)

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
95.	ui	uide	‘covered with mold’ (1978:196, #1087)
96.	ue	uede	‘put on/in’ (1978:207, #1304)
Disyllabic with hiatus (C)V̄V̄			
97.	āuma	āumade	‘fish with hook’ (1978:143, #291)
98.	bāuro	bāurode	‘rob’ (1978:134, #96)
99.	bodʒāu	bodʒāude	‘cut into pieces’ (1978:145, #343)
100.	dāia	dāiade	‘jump’ (1978:170, #514)
101.	duai	duaide	‘bleed out’ (1978:160, #276)
102.	gāwdʒo	gāwdʒode	‘roll up, fold’ (1978:177, #676)
103.	gāue	gāuede	‘put in or on top of something’ (1978:180, #748)
104.	hāidu	hāidu	‘shake’ (1978:167, #447)
105.	hāikuī	hāikuīde	‘mixed’ (1978:167, #451)
106.	hurbūi	hurbūide	‘look for’ (1978:148, #3)
107.	urāu	urāude	‘joined together’

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:189, #963)
108.	komuī	komuīde	‘grow’
			(1978:134, #83)
109.	māuhur	māuhude	‘work’
			(1978:143, #301)
110.	nāuhude	nāuhude	‘stick together’
			(1978:169, #481)
111.	ᵑāuhude	ᵑāuhude	‘separate’
			(1978:169, #493)
112.	nāudzi	nāudzide	‘tremble’
			(1978:178, #692)
113.	rāiϕi	rāiϕide	‘cost’
			(1978:158, #252)
114.	rekuī	rekuīde	‘spray’
			(1978:198, #1127)
115.	ruāi	ruāide	‘become wet’
			(1978:159, #268)
116.	ruϕāi	ruϕāide	‘rot’
			(1978:159, #267)
117.	θāiθi	θāiθide	‘weigh’
			(1978:168, #470)
118.	tāiϕe	tāiϕede	‘become full (the moon)’
			(1978:150, #70)
119.	tuiko	tuikode	‘strip off (bark)’
			(1978:127, #149)
120.	urāu	urāude	‘join together (things)’

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:189, #963)
Monosyllabic, bimoraic			
121.	φuuu	φuuude	‘rob’ (1978:156, #188)
122.	ee	eede	‘cry’ (1978:181, #768)
123.	huuu	huuude	‘pray, chant’ (1978:155, #166)
124.	āu	āuude	‘has a lot of fruit (tree)’ (1978:212, #1399)
125.	φēi	φēide	‘hang up’ (1978:203, #1222)
126.	dʒāi	dʒāide	‘burst’ (1978:173, #585)
127.	gāu	gāuude	‘like’ (1978:177, #673)
128.	hāi	hāide	‘go’ (1978:138, #165)
129.	rāu	rāuude	‘sit oneself’ (1978:159, #255)
130.	tāu	tāuude	‘break oneself’ (1978:158, #246)
131.	θāi	θāide	‘stop’ (1978:168, #469)
132.	θāu	θāuude	‘spark (candle)’ (1978:162, #327)

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
133.	θoī	θoīde	‘fall connected (like fruit)’ (1978:137, #148)
Monosyllabic, trimoraic			
134.	kueī	kueīde	‘use up’ (1978:216, #1455)
Trisyllabic			
135.	akuāu	akuāude	‘rest, recline’ (1978:216, #1464)
136.	duie	duiede	‘adjacent to’ (1978:129, #41)
137.	etuāu	etuāude	‘bleed, become night’ (1978:208, #1330)
138.	huie	huiede	‘crouch’ (1978:214, #1433)
139.	oφei	oφeide	‘take out the heart of palm’ (1978:203, #1217)
140.	orui	oruide	‘is full’ (1978:186, #872)
141.	θerui	θeruide	‘peel leaves (plants like rice)’ (1978:164, #385)
142.	tferua	tferuade	‘infected’ (1978:164, #371)
143.	uɔuāu	uɔuāude	‘soft, smooth’ (1978:209, #1332)
Quadrisyllabic			
144.	hedakuwe	hedakuwede	‘thick’

Class I third person singular, nonfuture verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:207, #1308)
145.	uikoϕi	uikoϕide	'is ahead'
			(1978:196, #1083)
146.	uirohuu	uirohude	'lean oneself'
			(1978:155, #173)
Causative verbs			
147.		doritate	'shoot with shotgun'
			(1978:172, #561)
148.		guiguwtate	'drag (person)'
			(1978:176, #649)
149.		kotate	'nail'
			(1978:180, #738)
150.		naβitate	'make late'
			(1978:149, #26)
Stative verbs			
151.		aϕorede	'deep'
			(1978:187, #911)
152.		aruirede	'mischievous'
			(1978:191, #992)
153.		ϕairede	'hardworking'
			(1978:155, #182)
154.		ϕeirede	'forgetful'
			(1978:154, #153)
155.		duerede	'poor'
			(1978:130, #46)
156.		dzarede	'slow'

Class I third person singular, nonfuture verb forms and stems

Stem	Stem.ACT.IND.3SG	Gloss
		(1978:176, #655)
157.	dzeguerede	'hard work, heavy' (1978:208, #1314)
158.	ebirede	'pretty' (1978:129, #25)
159.	ekaïrede	'healthy' (1978:186, #891)
160.	garede	'cut (hair)' (1978:175, #640)
161.	hãïrede	'sharp' (1978:154, #160)
162.	hãũãũrede	'hard' (1978:123, #70)
163.	hearede	'dirty' (1978:130, #45)
164.	hiãũrede	'is red' (1978:218, #1480)
165.	hukurede	'poisonous' (1978:183, #821)
166.	iberede	'feathered' (1978:181, #761)
167.	iɸonũãũrede	'full of holes' (1978:188, #924)
168.	iθïrede	'hurts' (1978:123, #53)
169.	iokũrede	'healthy, strong'

Class I third person singular, nonfuture verb forms and stems

Stem	Stem.ACT.IND.3SG	Gloss
		(1978:206, #1277)
170.	kāuere ^{de}	‘greasy’
		(1978:180, #733)
171.	kuere ^{de}	‘bad smelling, salty’
		(1978:198, #1135)
172.	mokuāuere ^{de}	‘tasteless’
		(1978:216, #1453)
173.	mere ^{de}	‘heavy’
		(1978:152, #109)
174.	mei ^{de} ere	‘shameful’
		(1978:154, #143)
175.	mokore ^{de}	‘green, blue’
		(1978:152, #97)
176.	ore ^{de}	‘sent’
		(1978:192, #1027)
177.	rotjire ^{de}	‘bitter’
		(1978:174, #628)
178.	ruire ^{de}	‘fierce, brave’
		(1978:129, #32)
179.	ruore ^{de}	‘hot and humid’
		(1978:124, #92)
180.	θarare ^{de}	‘rough’
		(1978:165, #394)
181.	θeφui ^{de} ere	‘hard work, heavy’
		(1978:128, #8)
182.	θure ^{de}	‘lonely, sad’

Class I third person singular, nonfuture verb forms and stems

Stem	Stem.ACT.IND.3SG	Gloss
		(1978:164, #389)
183.	uere	'thick, fleshy'
		(1978:207, #1299)
184.	urare	'sick'
		(1978:189, #946)

*There are two spellings of this verb in S. Burtch (1983:97), [gade] and [gaade].

**There are two transcriptions of this verb in S. Burtch (1978), [raode] and [raote].

APPENDIX B
CLASS II VERBS

The verbs in this list are class II third person singular verbs with the active indicative allomorph [-t] found in S. Burtch (1978). They are organized into groups by the syllable structure of the verb roots and the number of moras of the verb roots. In each grouping the verbs are organized alphabetically by the first letter in the root. Another distinction is made between verb roots with hiatus and verb roots without hiatus. Only the verbs with the minimal verb structure are shown in this list. Verbs with suffixes other than the active indicative suffix are not included since these suffixes may condition the voicing of the active indicative suffix. The stems in this table are my analysis of the remaining verb stem when the active indicative suffix and the agreement suffix are removed. I also include class II causative verbs in this list. Each citation includes the page number followed by the entry number used by S. Burtch (1978).

Class II third person singular active verb forms and stems

Stem	Stem.ACT.IND.3SG	Gloss
Monosyllabic, monomoraic		
1.	be	bete 'fan' (1978:152, #111)
2.	bi	bite 'come' (1978:131, #1)
3.	ɸa	ɸate* 'hit' (1978:187, #897)
4.	ɸe	ɸete 'throw (from one place to another)'

Class II third person singular active verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:187, #915)
5.	ϕi	ϕite	'blow'
			(1978:150, #61)
6.	de	dete	'cut'
			(1978:171, #545)
7.	du	duite	'sting'
			(1978:160, #279)
8.	do	dote	'clean'
			(1978:156, #209)
9.	du	dute	'chew (coca)'
			(1978:157, #227)
10.	dzi	dzite	'eat fruit and lick the juice'
			(1978:174, #615)
11.	dzo	dzote	'say'
			(1978:142, #275)
12.	dzu	dzuite	'make branch trap'
			(1978:174, #604)
13.	hu	hute	'brush'
			(1978:183, #802)
14.	hu	huite	'plant yucca'
			(1978:132, #27)
15.	i	ite	'there is, have, live, give'
			(1978:126, #139)

Class II third person singular active verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
16.	me	mete	'lick' (1978:151, #89)
17.	ni	nite	'make home' (1978:166, #423)
18.	o	ote	'bring' (1978:143, #297)
19.	ri	rite	'plant (fruit)' (1978:165, #410)
20.	ru	ruete	'eat meat' (1978:143, #303)
21.	ro	rote	'sing' (1978:132, #25)
22.	to	tote	'flow (river)' (1978:156, #202)
23.	tu	tute	'knock (door)' (1978:157, #221)
24.	θe	θete	'boil' (1978:161, #302)
25.	θo	θote	'cook casabe in clay dish' (1978:160, #299)

Monosyllabic, bimoraic

26.	bāi	bāite	'find' (1978:128, #5)
-----	-----	-------	--------------------------

Class II third person singular active verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
27.	ϕāw	ϕāwte	‘throw out’ (1978:154, #150)
28.	ϕūi	ϕūite	‘wear out’ (1978:121, #9)
29.	dʒāi	dʒāite	‘electric shock’ (1978:179, #716)
30.	dʒāw	dʒāwte	‘fence in’ (1978:176, #657)
31.	gāw	gāwte	‘pile’ (1978:176, #642)
32.	gūa	gūate	‘grind’ (1978:128, #6)
33.	gūi	gūite	‘eat’ (1978:129, #31)
34.	hāw	hāwte	‘row’ (1978:137, #147)
35.	kūi	kūite	‘scrape (skin)’ (1978:179, #727)
36.	māi	māite	‘sting’ (1978:211, #1376)
37.	māw	māwte	‘tie’ (1978:153, #131)
38.	ɲāwte	ɲāwte	‘talk’

Class II third person singular active verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
			(1978:212, #1405)
39.	rāi	raīte	‘say’
			(1978:211, #1378)
40.	raū	raūte	‘dig’
			(1978:159, #256)
41.	tāi	taīte	‘beat drum’
			(1978:178, #704)
42.	taū	taūte	‘cultivate’
			(1978:158, #247)
43.	θāi	θaīte	‘dance’
			(1978:137, #156)
<hr/>			
Monosyllabic, trimoraic			
44.	guāū	guāūte	‘pull something’
			(1978:215, #1445)
45.	uāū	uāūte	‘spin’
			(1978:130, #50)
<hr/>			
Disyllabic, no hiatus			
46.	θoϕe	θoϕete	‘leave’
			(1978:161, #306)
47.	dʒuuno	dʒuunote	‘grab from danger’
			(1978:174, #602)
<hr/>			
Disyllabic with hiatus			

Class II third person singular active verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
48.	ϕeīno	ϕeīnote	‘recieve’ (1978:129, #29)
Trisyllabic			
49.	ekono	ekonote	‘open’ (1978:121, #1)
50.	hakano	hakonote	‘siphon’ (1978:167, #445)
51.	dukoθite	dukoθite	‘crack’ (1978:170, #507)
52.	hearui	hearuite	‘abhor’ (1978:204, #1243)
53.	huφano	huφanote	‘play’ (1978:122, #33)
54.	tucono	tuconote	‘uproot’ (1978:163, #363)
55.	θaiuano	θaiuanote	‘shake off (dirt)’ (1978:215, #1439)
56.	tjiφeno	tjiφenote	‘dented’ (1978:175, #632)
57.	wφeno	wφenote	‘return’ (1978:189, #958)
58.	dzeruφe	dzeruφete	‘drizzle’ (1978:174, #606)

Class II third person singular active verb forms and stems

	Stem	Stem.ACT.IND.3SG	Gloss
59.	dʒaɰgɑiŋo	dʒaɰgɑiŋote	‘illuminate’ (1978:173, 3575)
60.	ɸakakɰ	ɸakakɰte	‘do the test’ (1978:187, #914)
61.	dʒoɸue	dʒoɸuete	‘teach’ (1978:134, #81)
62.	naɸue	naɸuete	‘welcome’ (1978:151, #74)
63.	ɸueo	ɸueote	‘learn’ (1978:216, #1460)
64.	uiŋo	uiŋote	‘know’ (1978:125, #119)
65.	kɰgɰno	kɰgɰnote	‘tangle’ (1978:180, #740)
66.	gɰgɰθi	gɰgɰθite	‘fall (tree)’ (1978:181, #755)
<hr/>			
Causative verbs			
67.		betade	‘blow (the wind)’ (1978:152, #115)
68.		butade	‘hit’ (1978:153, #120)
69.		tʃitade	‘squeeze out (pus)’ (1978:175, #630)

Class II third person singular active verb forms and stems

Stem	Stem.ACT.IND.3SG	Gloss
70.	gutade	‘suppress, swallow’ (1978:176, #648)
71.	gotade	‘make fall (house or tree)’ (1978:176, #647)
72.	hāitade	‘make go’ (1978:167, #448)
73.	ϕatade	‘beat drum’ (1978:187, #898)
74.	kuāūtade*	‘hit (a person or ball)’ (1978:215, #1446)
75.	metade	‘cover with leaves’ (1978:152, #93)
76.	mutade	‘submerge, soak’ (1978:152, #98)
77.	dotade	‘throw out’ (1978:131, #9)
78.	dutade	‘hit’ (1978:157, #226)
79.	totade	‘make spill’ (1978:156, #205)
80.	tutade	‘hit one's head on something’ (1978:157, #220)
81.	θāitade	‘fall on top of’

Class II third person singular active verb forms and stems

Stem	Stem.ACT.IND.3SG	Gloss
		(1978:168, #471)
82.	θotade	‘huddle’
		(1978:161, #304)
83.	dʒetade	‘barks’
		(1978:173, #577)
84.	dʒotade	‘advise’
		(1978:176, #663)
85.	dʒutade	‘sting’
		(1978:173, #598)
86.	ϕetade	‘hang clothing (with a pointed thing)’
		(1978:187, #916)

* The Spanish gloss of this word is ‘azotar, pegar’.

REFERENCES

- Anderson, Stephen R. 1992. *A-morphous morphology*. (Cambridge Studies in Linguistics.) New York: Cambridge University Press.
- Aronoff, Mark. 1994. *Morphology by itself: Stems and inflectional classes*. Cambridge, MA: The MIT Press.
- Aschmann, Richard P. 1993. *Proto Witotoan*. Dallas, TX: Summer Institute of Linguistics and University of Texas at Arlington.
- Becerra, Eudicio & Gabriele Petersen de Piñeros. 2012. *Curso de lengua bue (uitoto) kai murui uai yofuerabe*. Bogotá: Universidad Nacional de Colombia.
- Blevins, James & Farrell Ackerman. 2015. Word and paradigm morphology. <http://people.ds.cam.ac.uk/jpb39/pdf/BlevinsAckermanMalouf2017.pdf>. (February-21-2016.)
- Blevins, James P. 2006. Word-based morphology. *Journal of Linguistics* 42(3). 531-573.
- Blevins, James P. 2016. *Word and paradigm morphology*. Oxford: Oxford University Press.
- Burgos, Manuel. 1994. The Witotos and the rubber boom: The silent genocide. A study through the chronicles of explorers of the Amazon Basin. http://www.manuelburgos.com/Manuel_Burgos/INTERESTS_files/witotos.pdf. (October-16-2017.)
- Burtch, Bryan. 2008/1975. *Fonología del idioma huitoto muruí*. (Datos Etno-Lingüísticos No. 9:1-9.) Lima: Instituto Lingüístico de Verano.
- Burtch, Bryan. 1985. *Textos murui*. (Datos Etno-Lingüísticos No. 73:1-87.) Lima: Instituto Lingüístico de Verano.
- Burtch, Bryan & Mary Ruth Wise. 1968. Murui (Witotoan) clause structures. *Linguistics* 38. 12-29.
- Burtch, Bryan and Shirley Burtch. 1975. *Huitoto muruí: Bosquejo breve de la subsistencia y terminología murui de parentesco*. (Datos Etno-Lingüísticos No. 9:10-14.) Lima: Instituto Lingüístico de Verano.

- Burtch, Shirley. 1978. Huitoto murui. In Eugene Loos, (ed.). *Materiales para estudios fonológicos*, vol. 2, 119-218. Lima, Peru: Instituto Lingüístico de Verano.
- Burtch, Shirley. 1983. *Diccionario huitoto muruí*. 2 volumes. (Serie Lingüística Peruana No. 20.) Pucallpa, Peru: Instituto Lingüístico de Verano.
- Collier, Richard. 1968. *The river that God forgot*. New York: E.P. Dutton.
- Comrie, Bernard, Martin Haspelmath & Balthasar Bickel. 2015. Leipzig Glossing Rules. <https://www.eva.mpg.de/lingua/resources/glossing-rules.php>. (July-14-2017.)
- Crevels, Mily. 2012. Language endangerment in South America: The clock is ticking. In Lyle Campbell and Verónica Grondona, (eds.). *The indigenous languages of South America: A comprehensive guide*, 167-235. Berlin/Boston: Walter de Gruyter GmbH & Co. KG.
- Dixon, R. M. W. and Alexandra Y. Aikhenvald, eds. 1999. *The Amazonian languages*. (Cambridge Language Surveys.) Cambridge: Cambridge University Press.
- Hale, Kenneth. 1973. Deep-surface canonical disparities in relation to analysis and change: An Australian example. *Current trends in linguistics* 11. 401-458. Hague: Mouton.
- Hardenburg, W. E. 1912. *The Putumayo: The devil's paradise*. London: T. Fisher Unwin.
- Kellogg, Michael. 1999. WordReference.com. <http://www.wordreference.com>. (July-14-2017.)
- Loos, Eugene and Eugene Minor. 1963. The structure and contexts of Witoto predicates in narrative speech. In Benjamin F. Elson, (ed.). *Studies in Peruvian Indian languages*, 1, 37-66. Mexico City: Instituto Lingüístico de Verano.
- Matthews, P.H. 1972. *Inflectional morphology: A theoretical study based on aspects of Latin verb conjugations*. (Cambridge Studies in Linguistics.) Cambridge: Cambridge University Press.
- Matthews, P.H. 1991. *Morphology*. 2nd edn. (Cambridge Textbooks in Linguistics.) Cambridge: Cambridge University Press.
- Minor, Eugene M. 1956. Witoto vowel clusters. *International Journal of Applied Linguistics* 22. 131-137.
- Minor, Eugene and Dorothy Minor. 1976. Fonología del huitoto. In Ministerio de Gobierno, (ed.). *Sistemas fonológicos de idiomas colombianos*, vol. 3, 59-67. Meta, República de Colombia: Instituto Lingüístico de Verano.

- Minor, Eugene and Dorothy Minor. 1982. *Gramática pedagógica huitoto*. Bogotá: Editorial Townsend.
- Payne, Doris L. 1990. Morphological characteristics of lowland South American languages. In Doris L. Payne, (ed.). *Amazonian linguistics: Studies in lowland South American languages*, 213-241. Austin, TX: University of Texas Press.
- Payne, Doris L. 1985. -ta in Zaparoan and Peba-Yaguan. *International Journal of American Linguistics* 51:4. 529-531.
- Petersen de Piñeros, Gabriele. 1994. *La lengua uitota en la obra de K. Th. Preuss: aspectos fonológicos y morfosintácticos*. Bogotá: Editorial Universidad Nacional thesis.
- Seifart, Frank. 2007. The Prehistory of nominal classification in Witotoan languages. *International Journal of American Linguistics* 73(4). 411-445.
- Simons, Gary F. and Charles D. Fennig, eds. 2017. Ethnologue: Languages of the world twentieth edition. <http://www.ethnologue.com>. (February-05-2016.)
- Stanfield, Michael Edward. 1998. *Red rubber, bleeding trees*. Albuquerque: University of New Mexico Press.
- Wise, Mary Ruth. 1990. Valence-changing affixes in Maipuran Arawakan languages. In Doris L. Payne, (ed.). *Amazonian linguistics: Studies in lowland South American languages*, 89-116. Austin, TX: University of Texas Press.
- Wise, Mary Ruth. 1999. Small language families and isolates in Peru. In R. M. W. Dixon and Alexandra Y. Aikhenvald, (eds.). *The Amazonian languages* (Cambridge Language Surveys), 307-340. Cambridge: Cambridge University Press.
- Von Kinder, Leopoldo. 1936. *Gramática y vocabulario de la lengua huitota*. vol. 4. (Boletín de estudios históricos suplemento.) Pasto, Colombia: Imprenta del Departamento.