A PHONOLOGICAL DESCRIPTION OF WADIYARI,
A LANGUAGE SPOKEN IN
PAKISTAN

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Presented in Partial Fulfillment of the Requirements for the Degree of
MASTER OF ARTS
IN
LINGUISTICS

Payap University

April 2016

Title: A Phonological Description of Wadiyari, a Language Spoken in Pakistan

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ACKNOWLEDGEMENTS

ABSTRACT

This research presents a description of the phonology of the Wadiyari language spoken in Pakistan. While Wadiyari is also spoken in India, the current study is only focused on the variety spoken in Pakistan. This study is the first attempt at investigating and describing the sound system of the Wadiyari language, which belongs to the Gujarati group of the central zone of the Indo-Aryan language family. A wordlist of 1,650 lexical items was used to collect data from three native Wadiyari speakers, inhabitants of the interior Sindh, a province in Pakistan.

The data was analyzed according to the six steps of phonological analysis described by Burquest (2006). Most of the analysis was carried out using the Classical Phonology approach (Hockett 1955; Trubetzkoy 1969; Jakobson 1971) but for analyzing the stress system, Metrical Phonology (Goldsmith 1990) was used. The analysis was aided by the use of a number of computer programs for linguistic analysis, including Speech Analyzer, Phonology Assistant, and FieldWorks.

According to the analysis of this study, Wadiyari has thirty-eight distinctive consonants at all seven places of articulation with eight manners of articulation: five implosives /ɓ, ɗ, ɖ, ƒ, ɠ/, sixteen plosives /p, pʰ, b, bʱ, t, tʰ, d, dʱ, ʈ, ʈʰ, ɖ, ɖʱ, k, kʰ, g, gʱ/, four nasals /m, n, ɳ, ŋ/, four fricatives /s, z, ʃ, ɦ/, three affricates /ʧ, ʧʰ, ʤ/, two laterals /l, ɭ/, two flaps /ɾ, ɽ/ and two approximants /w, j/. There are eight distinctive

oral monophthongs /i, ɪ, e, a, ə, u, ʊ, o/, five distinctive nasal monophthongs /ẽ, ã, ũ, õ, õ/, five oral diphthongs /ai, aɪ, əi, oi, oɪ/ and two nasal diphthongs /aĩ, oĩ/ in Wadiyari. The oral vowels are contrastive with nasal vowels, but the contrast between the oral and nasal vowels tends to be neutralized around some segments.

Every word in Wadiyari can be parsed with two maximal syllable templates: (C)(C)V(C)(C) and (C)VV(C). Stress is predictable; primary stress usually falls on the penultimate syllable of the word. However, when the final syllable is heavy, or it is a closed syllable word, or if the final syllable has a diphthong, the primary stress falls on the final syllable of the word.

Wadiyari is a language rich in affixation and obviously has many interesting morphophonemic processes. However, these are not included in the objectives of this study. Further research is highly recommended for investigating the morphophonemic processes in the Wadiyari language.

บทคัดย่อ

งานวิจัยชิ้นนี้นำเสนอเกี่ยวกับระบบเสียงของภาษาวะดิยารีซึ่งพูดในประเทศปากีสถาน ภาษาวะดิยารีมีผู้พูดในประเทศอินเดียด้วยแต่วิทยานิพนธ์ฉบับนี้ศึกษาเฉพาะวิธภาษาวะดิยารีที่พูดใน ประเทศปากีสถานเท่านั้น การวิจัยครั้งนี้ถือเป็นการศึกษาและอธิบายระบบเสียงของภาษาวะดิยารี เป็นครั้งแรก ภาษาวะดิยารีจัดอยู่ในกลุ่มภาษาคุชราตถิ่นกลางในตระกูลภาษาอินโด-อารยัน การเก็บข้อมูลภาษาใช้รายการคำจำนวน 1,650 คำโดยมีผู้ที่พูดภาษาวะดิยารีเป็นภาษาแม่จำนวน 3 คนและเป็นชาวจังหวัดสินธ์ในประเทศปากีสถานเป็นผู้ให้ข้อมูลภาษา

การวิเคราะห์ข้อมูลอาศัยหลักการวิเคราะห์ระบบเสียง 6 ขั้นตอนตามที่ Burquest (2006) อธิบายไว้ การวิเคราะห์ส่วนใหญ่อาศัยวิธีการวิเคราะห์ระบบเสียงแบบดั้งเดิม แต่การวิเคราะห์ ระบบการเน้นเสียงใช้วิธีการของทฤษฎีโครงสร้างการเน้นพยางค์ (Metrical Phonology) ของ Goldsmith (1990) นอกจากนี้ยังใช้โปรแกรมคอมพิวเตอร์ต่าง ๆ ช่วยในการวิเคราะห์ ได้แก่ โปรแกรม Speech Analyzer โปรแกรม Phonology Assistant และโปรแกรม FieldWorks

ผลการวิเคราะห์พบว่า ภาษาวะดิยารีมีพยัญชนะที่แตกต่างกันทั้งหมด 38 หน่วยเสียงที่มี ตำแหน่งการเกิดเสียง 7 ตำแหน่ง และลักษณะวิธีการออกเสียง 8 ลักษณะ ได้แก่ เสียงกักเส้นเสียง ลมเข้า 5 หน่วยเสียง /ɓ, ɗ, ɖ, ʄ, ɠ/ เสียงกัก 16 หน่วยเสียง /p, pʰ, b, bʱ, t, tʰ, d, dʱ, ʈ, ʈʰ, ɖ, ɖʱ, k, kʰ, g, gʱ/ เสียงนาสิก 4 หน่วยเสียง /m, n, ɳ, ŋ/ เสียงเสียดแทรก 4 หน่วยเสียง /s, z, ʃ, ɦ/ เสียงกักเสียดแทรก 3 หน่วยเสียง /tʃ, tʃʰ, dʒ/ เสียงเปิดข้างลิ้น 2 หน่วยเสียง /l, ɭ/

เสียงลิ้นสะบัด 2 หน่วยเสียง /ɾ, ɽ/ และเสียงเปิด 2 หน่วยเสียง /w, j/ เสียงสระประกอบด้วย สระเดี่ยว 8 หน่วยเสียง /i, ɪ, e, a, ə, u, ʊ, o/ สระนาสิกเดี่ยว 5 หน่วยเสียง /ẽ, ã, ũ, ʊ̃, õ/ สระประสม 5 หน่วยเสียง /ai, aɪ, əi, oi, oɪ/ และสระนาสิกประสม 2 หน่วยเสียง /aĩ, oĩ/ สระปกติและสระนาสิกมีความต่างกัน แต่ความต่างดังกล่าวมีแนวโน้มจะหายไป เมื่อปรากฏ ร่วมกับหน่วยเสียงบางหน่วยเสียง

คำทุกคำในภาษาวะดิยารีจำแนกเป็นแม่แบบพยางค์สูงสุด 2 แบบ คือ (C)(C)V(C)(C) และ (C)VV(C) การเน้นเสียงมีรูปแบบแน่นอนโดยน้ำหนักเสียงหลักจะตกที่พยางค์รองสุดท้ายของคำเสมอ อย่างไรก็ตามหากพยางค์สุดท้ายเป็นพยางค์หนักหรือพยางค์ปิด หรือหากพยางค์สุดท้าย ประกอบด้วยสระประสม จะลงเสียงหนักที่พยางค์สุดท้ายของคำแทน

ภาษาวะดิยารีมีการเติมหน่วยคำเติมจำนวนมากและเห็นได้ชัดว่ามีกระบวนการทาง หน่วยเสียงของหน่วยคำเติมที่น่าสนใจหลายประการ อย่างไรก็ตาม ประเด็นดังกล่าวไม่ใช่จุดประสงค์ ของการศึกษาวิจัยครั้งนี้ การศึกษากระบวนการทางหน่วยเสียงของหน่วยคำเติมในภาษาวะดิยารี จึงเป็นประเด็นที่ควรมีการศึกษาต่อไป

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C	Consonant
CD	Complementary Distribution
CAE	Contrast in Analogous Environment
CIE	Contrast in Identical Environment
IA	Indo-Aryan
LRP	Language Resource Person
MIA	Middle Indo-Aryan
NIA	New Indo-Aryan Languages
OIA	Old Indo-Aryan Languages
pl	Plural
PSS	Phonetically Similar Segment
sg	Singular
tr	Transitive Verb
QS	Quantity Sensitive
V	Vowel
$\rightarrow$	Alternation direction
$*$	Bad or wrong
$\emptyset$	Nothing
( )	Optional
/ /	Phonemic transcription
[ ]	Phonetic transcription
[˥]	Phonetically unreleased
[α place]	Shared place of articulation feature
'	Primary Stress
σ	Syllable
.	Syllable break
___#	Syllable final position
#___	Syllable initial position

GLOSSARY

Classical phonology A label sometimes applied to the bulk of the work in phonology between the mid-1920s and the mid-1960s, characterized above all by its emphasis upon the identification of phonetic features which serve, or might serve, to distinguish one word or utterance from another of different meaning, and hence by its emphasis upon representations, with a corresponding lack of interest in rules (Trask 1996: 72–73).

Contrast in Analogous Environment (CAE) A persistent difference between two sounds in environments which are sufficiently similar and of such a nature that the phonetic environment could not plausibly be considered as being responsible for the differences between the sounds (Pike 1947: 236).

Contrast in Identical Environment (CIE) A difference in sounds which persists in environments which are the same both as to neighboring sounds and as to positions in phonological and grammatical units (Pike 1947: 236).

Metrical phonology A theory of phonology in which phonological strings are represented in a hierarchical manner, using such notions as segment, syllable, foot and word (see also prosodic phonology) Crystal (2008: 304).

Morphophonemic processes A branch of linguistics referring to the analysis and classification of the phonological factors which affect the appearance of morphemes, or, correspondingly, the grammatical factors which affect the appearance of phonemes Crystal (2008: 315).

Phoneme The phonemes of a language are the sound-based-entities of which morphemes are composed (Marlett 2014: 16).

The minimal unit in the sound system of a language Crystal (2008: 361).

For example, /s/ of [sɪp] and /z/ of [zɪp] are separate phonemes which are able to convey distinct meaning.

Segmental Segmental phonology analyses the speech into distinctive units, or phonemes which have a fairly direct correspondence with phonetic segments (Crystal 2008: 426).

Suprasegmental A phonological element whose domain is something larger than a single segment and whose phonetic realization can only be described by reference to adjoining domains in the same utterance. The most familiar such elements are stress and tone (or pitch), though others are sometimes recognized. Suprasegmental elements are essentially the same as prosodic elements (Trask 1996: 343).

Chapter 1
Introduction

1.1 Overview

The aim of this study is to describe the basic phonology of the Wadiyari language. This chapter discusses the Wadiyari language first, and then describes the geographic locations of the Wadiyara people. This is followed by a description of the language family that Wadiyari belongs to, an explanation of the purpose of this study, a description of the methodology for conducting this study and finally, a discussion of the limitations of this study.

1.2 The Wadiyari language

Wadiyari [kxp][1] (also called Wadiyara, Wadiyara Koli, Wadhiara, Wadaria) is an Indo-Aryan language and belongs to the central zone of the Gujarati group of languages. According to Lewis, et al. (2015), Wadiyari is spoken by 579,000 people, in Pakistan (175,000 as of 1998) and India (404,000 as of 2000). The speakers of the Wadiyari language are called Wadiyara and they take their name from their place of origin in Gujarat, India (Grainger & Grainger 1980: 30; Jeffery 1999). In this study, the term "Wadiyara" is used when referring to the people and the term "Wadiyari" is used in reference to the language.

In Pakistan, Wadiyari is mostly spoken in the rural areas of Sindh province in the southeastern corner of Pakistan. Aside from the national and provincial languages, Urdu and Sindhi respectively, there are several ethnic minority languages in Sindh province of which Wadiyari is one. Sindh province has as many as thirty-four ethnic groups[2] (Jeffery 1999). According to Glover (1988: 2) these ethnic minorities are of low social status, very poor, politically weak, and economically deprived. Most of these ethnic groups are associated with two larger castes, namely, Bhil and Koli (Grainger & Grainger 1980). The Wadiyara people associate themselves with the Koli.

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[1] ISO-639-3 language code.

[2] See Section 2.3.2 for the list of the names of the ethnic groups.

The language is currently being used orally by all generations (Jeffery 1999) and the language situation is sustainable. The EGIDS level for Wadiyari in Pakistan and India, according to the Ethnologue (Lewis, et al. 2015), is 6a (Vigorous), which is illustrated in Figure 1 below.
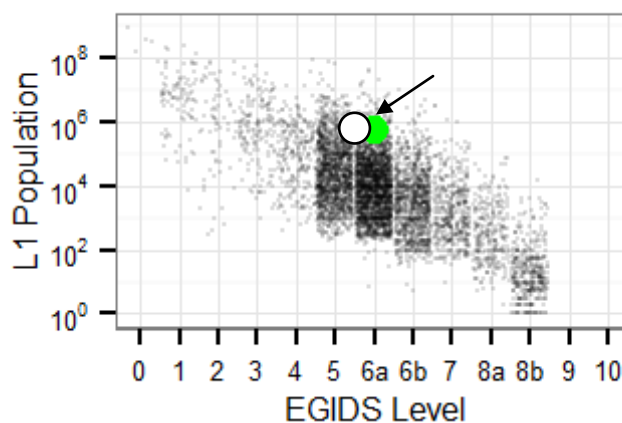
Figure 1 EGIDS level for Wadiyari (Ethnologue[3])

A number of speech varieties, including Hasoria Bhil, Hasoria Koli, Mewasi (Mayvasi Koli), Nairya Koli, Rardro Bhil, Tharadari Bhil, and Tharadari Koli, are considered linguistically the same language as Wadiyari (Jeffery 1999). These varieties are listed as dialects of Wadiyari in the Ethnologue purely on a linguistic basis; however, they are also recognized as distinct sociolinguistic endogamous ethnic groups (Lewis, et al. 2015). Although Wadiyari has 78% lexical similarity with Kachhi Koli (Lewis, et al. 2015), the percentage of the intelligibility between the two languages is not necessarily the same. This requires a more in-depth language survey and comprehensive test to determine the intelligibility between Wadiyari and other related languages as well as the dialects of the Wadiyari language.

1.3 Geography of Wadiyara people

The Wadiyara people are originally from Wadiyar town, in the state of Gujarat in India (Jeffery 1999; Lewis, et al. 2015). It is believed that a severe famine in Gujarat pushed thousands of Wadiyaras to migrate towards Sindh, Pakistan, in the early years of the previous century (Grainger & Grainger 1980; Jeffery 1999). Figure 2 shows a general view of geographic locations of the Wadiyara people both in India and Pakistan.

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[3] http://www.ethnologue.com/cloud/kxp

Figure 2 Locations of the Wadiyara people (adapted from Google map[4])

In Sindh province, the villages of the Wadiyara people are mainly located around Chambar, Digri, Hyderabad, Jhuddo, Kali Mori, Kotri, Kunri, Malkani, Matli, Mirpurkhas, Sanghar, Sultanabad, Tando Adam, Tando Allahyar, Tando Ghulam Ali, and Wirwah (Jeffery 1999).

Figure 3 shows the areas in which the Wadiyara people live in Sindh province, Pakistan.

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[4] https://www.google.com/maps/place/Pakistan
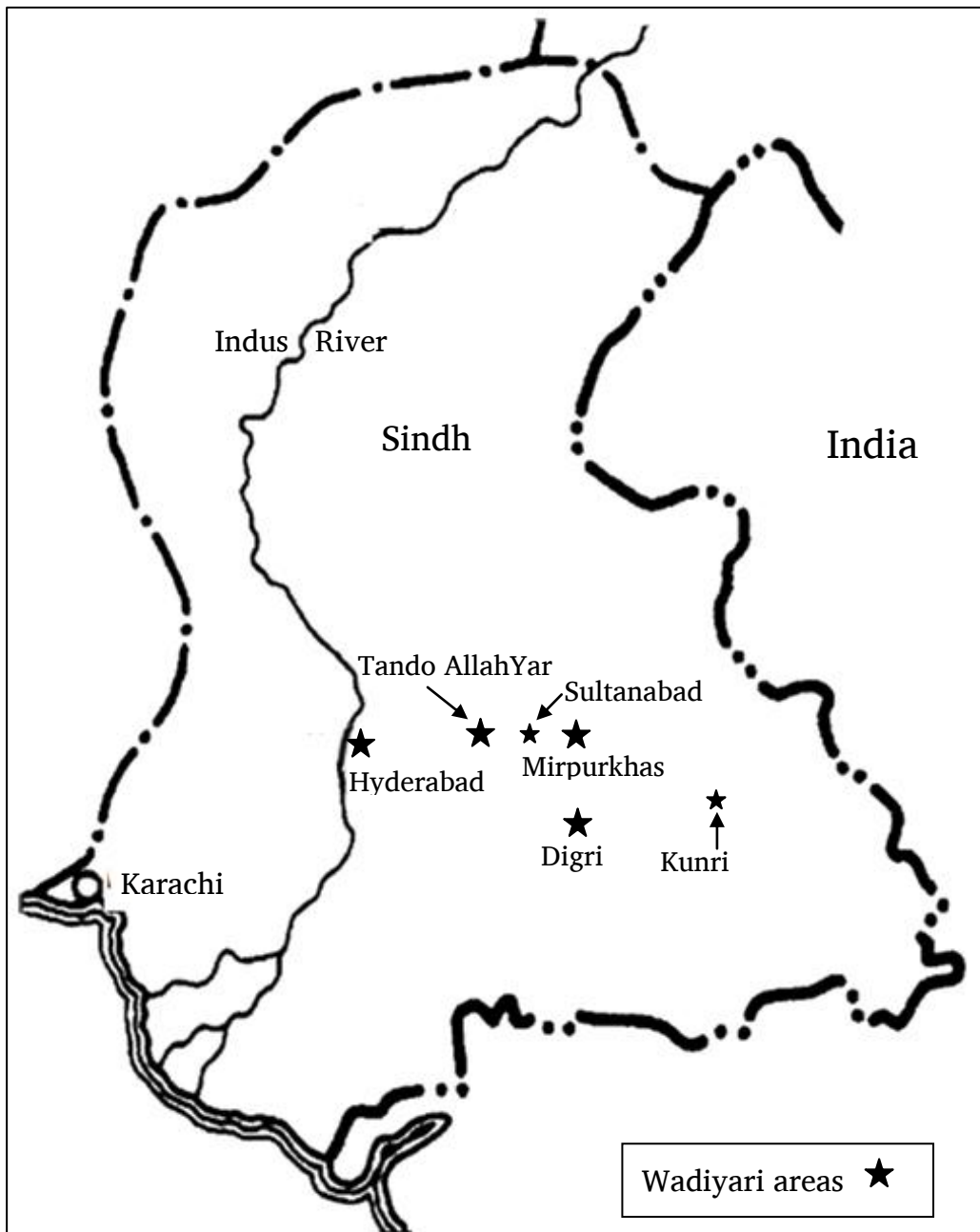
Figure 3 Locations of the Wadiyara people in Pakistan (adapted from Jeffery 199: 2)

1.4 Classification of Wadiyari

Based on morphological and lexical comparisons (Jeffery 1999), the Wadiyari language is found to be one of the Gujarati groups of languages (see the language groupings given in Table 4 in Section 2.5). The Gujarati group comes under the central zone of Indo-Aryan (IA) languages, which is a sub-branch of Indo-Iranian languages. The classification of Wadiyari is illustrated in Figure 4.
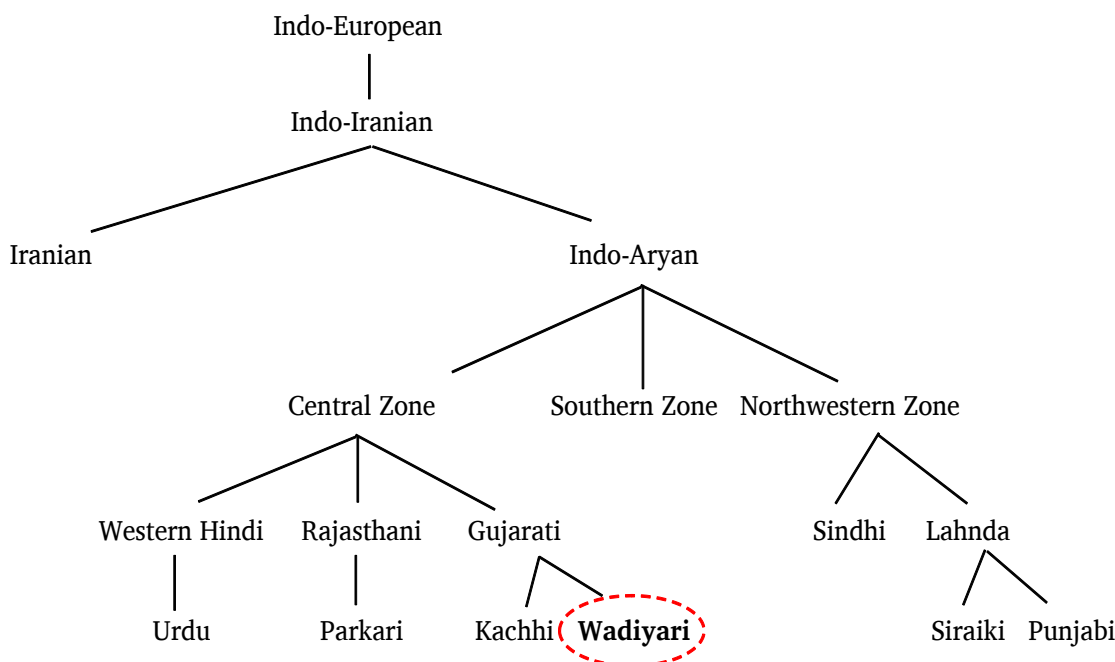
Figure 4 Language family tree for Wadiyari[5]

A number of distinct IA languages with small numbers of speakers were either not reported in the Linguistics Survey of India (Grierson 1908-1968) or they were treated as speech varieties of some of the other larger languages. For example, while the Kachhi and Dhatki languages from the Central Zone of IA languages were treated as a speech variety of the Gujarati language and Sindhi language, respectively, the Wadiyari and a number of other languages were not mentioned. According to Grainger & Grainger (1980: 42), Kachhi and Wadiyari are in some ways related to the Gujarati language but "they cannot be regarded as dialects of Gujarati".

1.5 Reasons for the study

In order to create a good orthography for documenting and revitalizing a language, an in-depth phonological study is crucial. The Wadiyara people are very interested to see their language in written form and used in literacy. Unfortunately, the Wadiyari language has not been thoroughly studied before. The language was first reported in a preliminary survey of the languages of Sindh (Grainger and Grainger 1988), and then in another linguistic survey (Jeffery 1999) held in the same area of Pakistan.

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[5] This language family tree does not show all languages, for example, the Dhatki language, and it is based on the data from Grainger & Grainger (1980); Jeffery (1999); and Lewis, et al. (2015).

There has been no earlier phonological work about the Wadiyari language and a phonological study of the Wadiyari language has been desired for a long time. Therefore, the researcher decided to provide a detailed phonological description of the language.

This study will describe the sound system of Wadiyari including the segmental aspects, suprasegmentals, syllable and word structures, phonotactics and phonological processes. One of the expectations is that the findings in this research will provide a good basis for future research in other areas, especially for designing a suitable orthography and doing other language development work in the future. This study will also help other related languages in the region.

1.6 Objectives

The objectives in this study are to describe the phonology of the Wadiyari language by collecting and to analyze a wordlist of 1,650 lexical items from three different Wadiyari speakers. The description will include the syllable structures and word structures of the language, the segmental aspects, the suprasegmentals, phonotactics, and the phonological processes of the language.

In relation to the objectives, the research questions of this study include the following:

1. How many contrastive consonants and vowels are there in the Wadiyari language?
2. What is the syllable template of Wadiyari and are there any complex onset, nucleus and coda in the syllable structure?
3. Are there contrastive tones in Wadiyari? Does stress exist? If it does, is it predictable?
4. What are the phonological processes observed in the Wadiyari language data?

1.7 Methodology

This section explains the methods used in conducting this research. It begins with a review of the previous research of Wadiyari and other related languages, followed by an explanation of the questionnaire and wordlist, language resource persons (LRPs), data collection, and data analysis.

1.7.1 Review of previous research

In order to gain an in-depth knowledge of the topic and the earlier work related to the family of the language of research, and to incorporate the literature into this research, the researcher went through a number of earlier pieces of literature. The earlier works on the following subjects are reviewed:

- An overview of phonological theories
- General background of the Indo-Aryan language family
- Classification of Indo-Aryan languages
- Linguistic background of Indo-Aryan languages, and
- Phonology of other Indo-Aryan languages that are related to Wadiyari

The literature on these subjects will be discussed in Chapter 2.

1.7.2 Questionnaire and wordlist

A questionnaire was adopted which had been designed by Dr. Phinnarat Akharawatthanakun (and was used in the AL701 Field Methods in Linguistics course at Payap University in 2014) to elicit some metadata of each LRP. The questionnaire included some questions about the LRP's language name, age, gender, place of birth, places lived, languages s/he speaks, and similar questions about their parents and spouses.

A wordlist of 1,650 lexical items was adapted to be used in data collection. The wordlist originally contained 1,600 lexical items and was designed by the Naga survey team of SIL International to be used in Myanmar. The wordlist then was expanded to 1,650 items by Nawsawu to collect data for his ongoing MA thesis research. The researcher modified the wordlist by changing some lexical items to be more appropriate in the research context and the number of lexical items remains the same, i.e. 1,650.

1.7.3 Language resource persons

Three Language Resource Persons (LRPs) from three different villages around Mirpurkhas city were interviewed. Due to the local cultural hindrances, all of the LRPs had to be men. The researcher wanted to elicit each set of data from three different age groups, a young LRP, a middle aged LRP, and an elderly LRP, to have more reliable data. Therefore, the researcher fixed the ages of the LRPs; one in his twenties, one in his fifties, and one in his sixties. The youngest LRP of the three, 25 years old, has

received some basic linguistics training from a local institute. The other two LRPs have no education. One is working as a general cleaning worker in a local organization and the other is a farmer. All of the LRPs were able to come to an office in Rattanabad, Mirpurkhas, to work with the researcher. They were compensated for their days of work. All of the LRPs are native Wadiyari speakers and have a good command of Urdu (the national language of Pakistan) to communicate with the researcher, who has near native fluency in Urdu, during the data elicitation. The background information of the three LRPs is given in Table 1.

Table 1 Background information of the LRPs

LRP	Gender	Age	Languages they speak	Residence
1	Male	63	Wadiyari, Sindhi, some Urdu	Kak village, Dolatpur, Mirpurkhas, Sindh.
2	Male	51	Wadiyari, Sindhi, Kachhi, Urdu	Khanjee Patel village, Isa Khan Mori, Mirpurkhas, Sindh.
3	Male	25	Wadiyari, Sindhi, Kachhi, Marwari, Urdu, Siraiki	Wali Muhammad Rind village, Dolatpur, Mirpurkhas, Sindh.

1.7.4 Data collection

The researcher elicited all of the data with each LRP himself to maintain the quality and consistency of the data. The researcher downloaded a number of images from Google images (for eliciting most of the nouns) ahead of time. The images were used with all of the LRPs to minimize receiving loanwords. During the data elicitation with each LRP, the researcher either showed an image on a laptop computer (in the case of a noun) or read an item from the wordlist in Urdu to the LRP. After the LRP pronounced the item in Wadiyari, the researcher transcribed the item using the International Phonetic Alphabet (IPA)[6]. After transcribing one to ten lexical items, depending on the LRP, each item was digitally recorded immediately with an Edirol R-09HR HI Res Wave/MP3 Recorder. During the recording sessions, the LRPs pronounced each lexical item three times with a pause between each token.

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[6] When referring to other authors' work, the original transcriptions are used.

1.7.5 Data analysis

The data was analyzed according to the six steps of phonological analysis (Burquest 2006). In the first step, charts of the phones (consonants and vowels) were made and the ambiguous segments/sequences were determined; in the second step, phonetically similar segments were connected to look for contrasts in the third step; in the fourth step, the researcher looked for complementary distribution; then phonemes and phonemic representation were decided in the fifth step; and in the last step, distribution of phonemes were presented. In the cases where phonological processes were found, the rules were written. The stress pattern was analyzed and presented by using Metrical Phonology (Goldsmith 1990).

In order to gain accurate and reliable results, computer programs were used to assist with the analysis, including Speech Analyzer, Phonology Assistant, and Fieldworks.[7] It should be noted that these programs were not used for acoustic analysis in this study; rather these were used mainly to manage and organize the data.

1.8 Limitations of the study

Wadiyari is spoken in Pakistan as well as in India but the data for this study was only elicited within Pakistan. During this study, a word list of 1,650 words of phonological data was elicited from three native Wadiyari Language Resource Persons (LRPs) from different villages but all of the LRPs were male and there is no representation of female speech in the data.

Based on some previous language surveys (Grainger & Grainger 1980; Jeffery 1999), a number of languages related to Wadiyari have about 70% to 80% lexical similarity. This study only focuses on providing an initial phonological description of Wadiyari and does not provide any comparison or comprehension test of Wadiyari with the related language varieties. This research does not cover the grammar of Wadiyari and its concern is not the sociolinguistic issues of the Wadiyara people.

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[7] All three of these computer programs are designed by members of SIL International and can be downloaded from the SIL website: http://www.sil.org/. Some technical support from SIL was provided in using these programs whenever needed.

Chapter 2
Literature Review

2.1 Introduction

A review of previous linguistic work, related to the Indo-Aryan language family in general and to the languages which are related to the Wadiyari language in particular, is presented in this chapter. The reviews are presented in six main sections (2.2 - 2.7). Section 2.2 briefly reviews two phonological theories, Section 2.3 accounts for the work done in the Wadiyari language, Section 2.4 provides some general background of the Indo-Aryan language family, and Section 2.5 gives an overview of the classification of Indo-Aryan languages. Section 2.6 reviews the linguistic features, particularly phonological features, of the New Indo-Aryan languages, and Section 2.7 provides brief phonological sketches of some Indo-Aryan languages which are related to Wadiyari.

2.2 Phonological theories

Primarily, two phonological theories are used in the analysis of this study, namely: Classical Phonology and Metrical Phonology. They are discussed in Sections 2.2.1 and 2.2.2 below.

2.2.1 Classical phonology

Classical phonology is usually referring to scholarly work (Bloomfield 1935; Hockett 1955; Trubezkoy 1969; Jakobson 1971) which became very influential in the field of phonology. According to Trask (1996: 72–73), classical phonology is "a label sometimes applied to the bulk of the work in phonology between the mid-1920s and the mid-1960s, characterized above all by its emphasis upon the identification of phonetic features which serve, or might serve, to distinguish one word or utterance from another of different meaning, and hence by its emphasis upon representations, with a corresponding lack of interest in rules." Basically, the main goal of the classical phonology is to establish the phonemes (and allophones of phonemes) and to explain the phonemic and morphophonemic processes of a particular language. The phoneme, the smallest unit in the sound system of a language, is often regarded as "the most conspicuous characteristic of classical phonology" Trask (1996).

Contrasts between phonemes are usually established with minimal pairs. For instance, contrast between /p/ - /b/ in the Urdu language can be demonstrated in the following example:

/pəl/   'moment (n)'

/bəl/   'curl (n), twist (n)'

2.2.2 Metrical phonology

Metrical phonology was created by Liberman (1975) in his doctoral dissertation. It was further developed by a number of scholars, i.e., Halle and Vergnaud (1978), Hayes (1985) and Goldsmith (1990). This theory organizes stress into rhythmic hierarchies to categorize stress and stress rules. The rhythmic organization is represented by two distinct formalisms in Metrical phonology; one uses metrical trees and the other uses metrical grids (Liberman 1975; Goldsmith 1990). Metrical phonology was originally expressed with an 'arboreal' framework, the approach that uses Metrical trees (Liberman 1975; Goldsmith 1990). The segments of sounds in a metrical tree, as shown in Figure 5, are organized into syllables (σ), syllables into phonological feet (F), feet into phonological words, and so on.
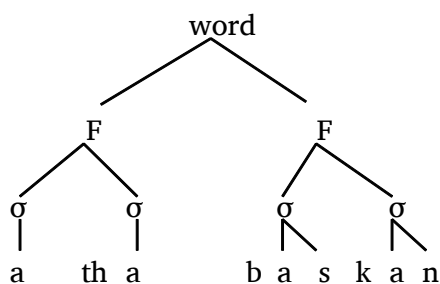
Figure 5 Metrical tree (adapted from Goldsmith 1990: 169)

Whereas in the metrical grid approach, the grid is organized by arranging the constituents along the bottom and then the grid is built in rows of levels, i.e., the rhyme units (moras) level, the syllable-stress level, and the word-stress level. The prosodic prominence is marked with an 'x' on each level. The most prominent constituent is marked with the highest number of 'x's, as shown in Figure 6.

```
              x              word-level stress

    x         x              stress

    x    x    xx      xx     rhyme units (moras)

    a    tha  bas     kan
```

Figure 6 Metrical grid (Goldsmith 1990: 169)

In the arboreal approach, relative stress is marked with 's' and 'w' on the word and foot level. The 'w' indicates weaker prominence, and the 's' indicates relative stronger prominence as illustrated in Figure 7.

```
                        word
               w                    s
               F                    F
          s         w          s         w
          σ         σ          σ         σ
          |         |          ⋀         ⋀
          a       th a        b a s     k a n
```
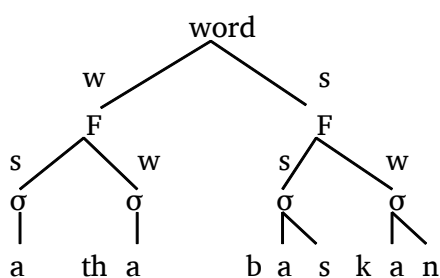
Figure 7 Metrical tree indicating stress prominence (Goldsmith 1990: 171)

As mentioned earlier, there are three hierarchical levels in construction of phonological words in the Metrical phonological theory: syllable or mora level, foot level and word level. Depending on each language, more or less, five parameters are required in constructing phonological feet:

1. Binary versus n-ary: while binary feet require two syllables in each foot, n-ary or unbounded feet on the other hand are not limited to two syllables. This is determined as binary or bounded versus n-ary or unbounded.
2. Foot headedness: one of the syllables of each foot becomes the head of the foot. Stress can be an indication identifying the head of the foot that is more prominent. This is specified as left-headed versus right-headed.
3. Directionality: the rules for building the feet can be left-to-right or right-to-left.
4. Defective or degenerate feet: construction of feet consisting of a single syllable is called defective or degenerate feet.
5. Quantity Sensitivity: many languages are quantity sensitive if the syllables are formed in the basis of the weight, i.e., syllables without codas and diphthongs are usually considered light and the syllables with codas and diphthongs or long vowels are heavy. This parameter is determined as sensitive versus insensitive.

Two more parameters are needed in the construction of phonological words in the next level of the hierarchy in the Metrical phonology:

1. Word-headedness: The stress can be a good indication in identifying the most prominent foot that is considered to be the head of the word. This is determined as left-headed versus right-headed.
2. Suppression of secondary stress: secondary stress in some languages is not allowed. Those languages are called stress suppression languages.

There are way more insights in regards to the Metrical phonological theory; an excellent summary of this theory can be seen in Burquest (2006) and a more complete and elegant description can be seen in Goldsmith (1990).

2.3 Wadiyari

The Wadiyari language has been reported in two previous surveys. The first survey was Grainger & Grainger (1980). The second survey report, edited by David Jeffery, was completed in 1999 but remained unpublished. Findings of both surveys are given briefly below.

2.3.1 A preliminary survey of the languages of Sind [h] , Pakistan

Grainger and Grainger (1980) carried out a preliminary language survey focused mainly on the tribal languages spoken in the areas of interior Sindh. It was the very first published survey in which Wadiyari was reported as a distinct language. The surveyors collected data using a simple questionnaire for metadata, a wordlist of 120 words, and a list of phrases to elicit words and phrases in more than 20 speech varieties. They included the following 20 varieties in their analysis: Urdu, Sindhi, Siraiki, Dhatki (Thar), Dhatki (Rajasthan), Marwari (Megwar, Jaiselmer), Marwari Bhil, Marwari Bhil (Jodhpur), Gujarati, Kachi[8] Koli, Parkari Koli (Nagar Parkar), Parkari Koli (Kunri/Mirpur Khas), Wadiyara Koli[9], Tharadari Koli, Odki (Dadu), Odki (Shikarpur), Odki (Pithoro), Bagari, Vaghari, and Sansi. The data on Wadiyari in the survey presents it as a distinct language.

---

[8] Alternative spelling of the Kachhi language.

[9] Grainger & Grainger (1980) used the term 'Wadiyara' as the name of the language, but this is incorrect. The speakers of this language call themselves 'Wadiyara Koli' or simply Wadiyara and call their language Wadiyari (Jeffery 1999).

A combined inventory of the consonants and vowels of the 20 speech varieties was provided in the report. An overview of the consonants found in the languages studied in the survey is laid out in Table 2.

Table 2 Consonants of the tribal languages in Sindh (Grainger & Grainger 1980: 46)

		Labial	Dental	Retroflex	Palatal	Velar	Glottal
PLOSIVE VOICELESS	unaspirated	p	t̪	ʈ	tʃ	k	
	aspirated	pʰ	t̪ʰ	ʈʰ	tʃʰ	kʰ	
PLOSIVE VOICED	unaspirated	b	d̪	ɖ	dʒ	g	
	aspirated	bʰ	d̪ʰ	ɖʰ	dʒʰ	gʰ	
IMPLOSIVE	voiced	ɓ	ɗ̪	ɗ	ʄ	ɠ	
NASAL	voiced	m	n	ɳ	ɲ	ŋ	
FRICATIVE	voiceless	f	s		ʃ ç	x	h
	voiced		z			ɣ	
LATERAL	voiced		l	ɭ			
VIBRANT	voiced		ɾ	ɽ			
SEMI-VOWEL	voiced	ʋ			j		

The surveyors included some notes regarding the consonants and stated that all sounds in the languages of the survey are made with egressive lung air except the implosive sounds. The sounds listed under the palatal plosives in Table 2 above are actually affricates but they function as plosives. Based on the survey report, velar fricatives do not occur in the tribal languages of Sindh except [x] which occurs in the Marwari language and seems to vary with [ç]. A sound variation is also noted in some of the languages studied. According to Grainger & Grainger (1980: 45), "In Marwari, Kachi Koli, Wadiyara Koli, [s] and [z] tend to fluctuate with the affricates [ts] and [dz] respectively."Grainger & Grainger (1980: 44) state in their findings that "apart from Urdu and Gujarati, all the languages have at least some implosives which are characteristic of Sindhi... several of the Koli [i.e., Kachhi, Wadiyari, Parkari] languages seem to have a dental implosive which is not found in Sindhi." For this reason, surveyors argue that the Sindhi orthography is the most suitable orthography to

represent any of the tribal languages. In addition, a retroflex lateral is found in Marwari and in some of the Koli languages which is not found in Sindhi, therefore a new alphabetical symbol is needed to represent it in the Sindhi orthography.

An overview of the vowels found in the languages studied in the survey is given in Table 3.

Table 3 Vowels of the tribal languages in Sindh (adapted from Grainger & Grainger 1980: 47)

	FRONT (unrounded)	CENTRAL (unrounded)	BACK (rounded)
CLOSE	i ɪ		u ʊ
HALF-CLOSE	e		o
HALF-OPEN	ɛ	ʌ	ɔ
OPEN		a	

The surveyors used a colon to mark vowel length throughout the data but only where they heard it clearly. They found that in general, three vowels /ɪ, ʊ, ʌ/ were shorter than the other vowels.

According to the surveyors, all of the vowels given in the vowel inventory above can be nasalized. However, the surveyors did not clarify whether all of the nasal vowels are contrastive in the languages or whether they are only nasalized because of some nasalization processes.

Regarding suprasegmental features of the languages studied, Grainger & Grainger (1980: 48) said that "none of the languages has phonemic word or syllable-tone", however, they had great difficulty in defining word-stress and they did not mark stress. They assumed that stress in all of the languages is predictable.

2.3.2 Sindh Survey Month

Jeffery (1999) was a broad-based linguistic survey carried out by a team of expatriate linguists and local workers. Data was collected from thirty-four ethnic groups within Sindh province, in the southeastern corner of Pakistan. Most of the groups reached in

the survey were small in size, having a population of less than 50,000 people in each group. Of the thirty-four ethnic groups, twenty-seven (Aer, Bhat, Bhaya, Ghera, Goaria, Gujarati Sweepers, Gurgula, Hasoria Bhil, Hasoria Koli, Jandavra, Jogi, Kabutra, Kachi Bhil, Katai Meghwar, Kathiavari Kachi, Loar, Malhi (Dhatki), Marwari Sweepers, Mewasi Koli, Rabari, Rardharo Bhil, Shikari Bhil, Sindhi Meghwars, Sochi, Tharadari Bhil, Vagria Meghwar, and Zalavaria Koli[10]) were not reported previously, not even in Grainger & Grainger (1980).

Data from all of the varieties was analyzed and then the varieties were grouped together based on morphological and lexical comparisons. See Section 2.5 for the classification of these varieties and a diagram of the full classification system in Figure 14. The area covered in Jeffery (1999) is shown in the map given in Figure 8.

Figure 8 Map of the survey area (adapted from Jeffery 1999)

Andy Woodland and Richard Hoyle, who were part of the survey team, carried out the Wadiyari surveys separately in two villages. Andy Woodland conducted the survey on 14 November 1996 in Achi Masit village, and Richard Hoyle conducted the survey on 22 November 1996 in Tapedar Jo Goth[11] (village), near Digri. They used a questionnaire for collecting information on various topics (general background, sociolinguistics, literacy) and a wordlist for collecting 125 basic vocabulary items.

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[10] Spellings of the language names have been kept the same as they were spelled in the survey report.

[11] The word 'Goth' in Sindhi means 'village'.

According to the survey, the Wadiyara people originally came from around the town Wadiyar in Gujarat, India. In the survey, an estimate of 50,000 Wadiyara people living in Pakistan was reported in the year of 1996. It was reported that Wadiyaras are located around Judo, Mulkani, Digri, Wirwah, Mirpur Khas, Tando Allahyar, Tando Gulam Ali, Chambar, Kunri, Matli, Hyderabad, Kali Mori, Sanghar, Tando Adam, and Kotri.

The survey does not provide any lists of consonants and vowels for any languages examined in the survey. However, under a brief note regarding the needs of the orthography, it mentions that Wadiyari has not previously been written and three additional letters are required to write the three sounds [ɖ, ɭ, h]. It does not clearly say to which orthography these three sounds are supposed to be added; it might be pointing to the Sindhi orthography, which does not represent these three sounds.

In conclusion, the Wadiyari language has not been studied in depth before, but it is evident that Wadiyari has been reported as a unique language in two language surveys carried out in the Sindh province in Pakistan.

2.4 General background of the Indo-Aryan language family

This section provides some general information about the Indo-Aryan (IA) language family. The speakers of IA languages are currently located in the South Asian region. Many scholars believe the hypothesis that the Indo-Aryans' migration occurred in more than one wave (Grierson 1927: 116), beginning around 200 BC from the east of the Caspian sea down to the south via Central Asia, initially settling in Northeastern Iran, Afghanistan, and Bactria[12], and eventually moving to Northwestern Iran. According to Masica (1991)[13], around 1500 BC the Indo-Aryans began moving from Afghanistan and Bactria towards the Northwest of the Indian subcontinent which is now Pakistan. The area where the IA languages are spoken covers more than 4.5 million square kilometers (Jain & Cardona 2003).

The long history of about 3,500 years of IA languages is linguistically divided into three main stages: "Old, Middle, and New Indo-Aryan, abbreviated as OIA, MIA, and NIA", respectively (Masica 1991: 49). OIA languages include different speech varieties on

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[12] Bactria was a province of the Persian Empire located in the area of modern Afghanistan, Uzbekistan, and Tajikistan.

[13] See Masica (1991) for a more complete description of the migration and historical background of the Indo-Aryan speakers.

which Vedic and other ancient texts of the Indian subcontinent are preserved. The MIA varieties, from the third century BC all the way until the sixth century AD, were used for literary, philosophical and religious works. The NIA languages, which include most of the modern languages of India (i.e., Hindi, Bengali, Gujarati, etc.), are represented in numerous literary documents from the twelfth century on.

The IA languages are now mainly spoken in India, Pakistan, Bangladesh, Nepal, Sri Lanka and the Maldive Islands. According to Grierson (1927: 120) the population of the IA languages speakers reported in the 1921 census was 229,560,555[14]. The number of speakers of the IA languages, according to Masica (1991: 8), was at least 640,000,000 (an estimate from 1981). According to Jain & Cardona (2003), the population has increased to 1.06 billion. The Ethnologue lists 225 languages under the Indo-Aryan family, some of which are yet to be definitively classified.

2.5 Classification of the Indo-Aryan languages

This section briefly reviews the classification of the Indo-Aryan languages presented by many scholars. The phrase 'classification of languages' in linguistics usually means 'genetic classification' which Crystal (2008: 209) simply defines as, "the classification of languages according to a hypothesis of common origin." Different scholars have proposed different classifications of the IA languages based on the knowledge they had about the IA languages. Even though classification of the IA languages had been an unresolved puzzle for many decades, most of the scholars have agreed that the IA languages form a group under the Indo-Iranian branch of the Indo-European language family, as shown in Figure 9 below.

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[14] Grierson did not treat the "Dardic" languages as a group of IA languages (see Section 2.4 for more details) therefore he did not include the number of Dardic speakers in this total. He listed their population 1,304,319 separately.

Indo-European
|
Indo-Iranian
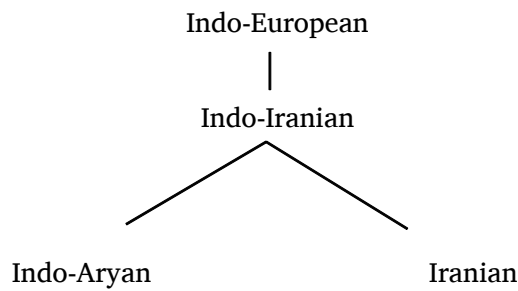
Indo-Aryan   Iranian

Figure 9 Indo-Aryan as a subgroup of the Indo-Iranian branch[15]

It is believed that Hoernle (1880, cited in Masica 1991) was the first scholar who successfully attempted to resolve the IA puzzle. Hoernle first classified the NIA languages into four groups (Northern, Western, Southern, and Eastern), and then he reduced the four groups into two; a Northwestern group which is based on the 'Sauraseni' dialect of OIA and a Southeastern group which is based on the 'Magadhi' dialect of the OIA. Hoernle thought that the Southeastern speakers once occupied the Northwest but they were pushed back by a later 'invasion' of the 'Sauraseni' speakers. Figure 10 below is the classification of the IA languages by Hoernle (1880 cited in Masica 1991).

Vernacular OIA

Northwestern   Southeastern

("Sauraseni")   ("Magadhi")

dialect   dialect

Northern dialect   Western dialect   Eastern dialect   Southern dialect

Nepali   Sindhi   Marathi

Kumauni   "Punjabi"   Bengali

Garhwali   Gujarati   "E. Hindi"   Oriya

"W. Hindi"   (=Bihari)

"Baiswari"
(= Awadhi)
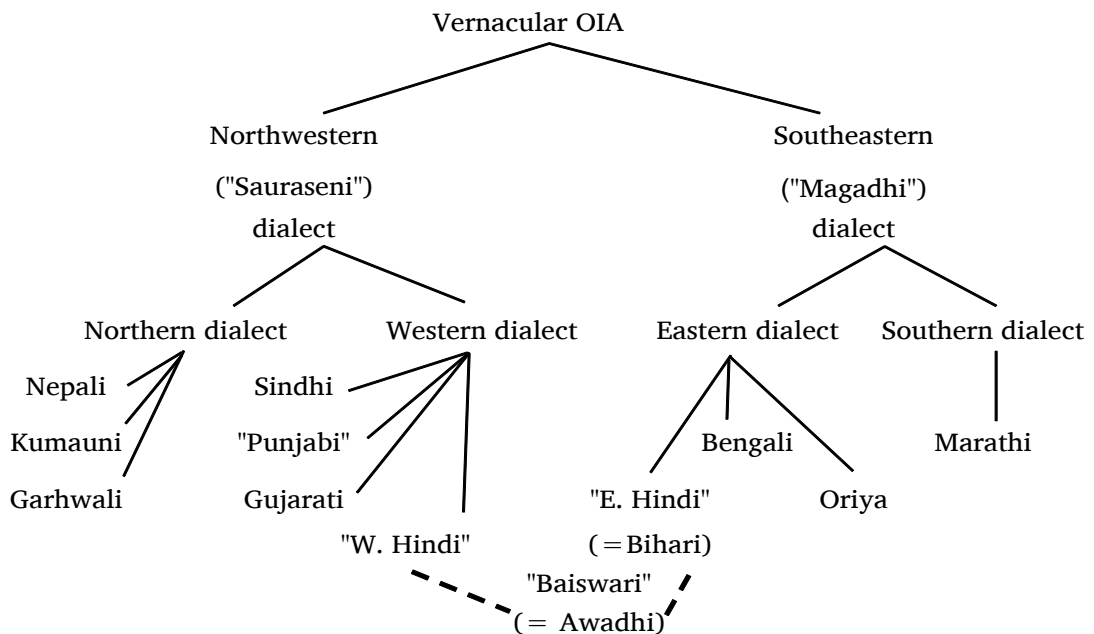
Figure 10 Classification of Indo-Aryan languages by Hoernle (adapted from Masica 1991: 447)

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[15] This language family tree was created by the researcher based on the data from Lewis, M. Paul, et al. (2015).

Grierson (1927: 120) arranged the IA languages that he knew into three sub-branches, with each sub-branch having subgroups. He called the three sub-branches: A–"Outer Sub-branch" (this sub-branch includes the North-Western, Southern, and Eastern Groups), B–"Mediate Sub-branch" (this includes the Mediate group), and C–"Inner Sub-branch" (this includes the Central and Pahari Groups). This is illustrated in Figure 11 below.
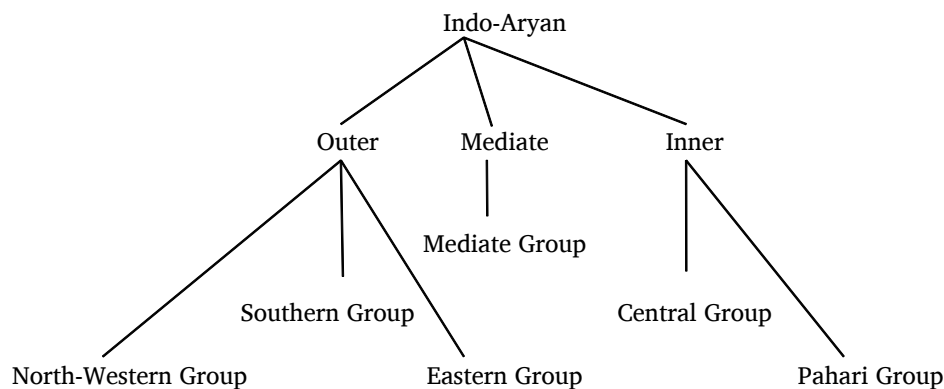
Figure 11 Sub-branches of Indo-Aryan languages (based on Grierson 1927: 120)

Grierson did not classify the Dardic languages (i.e., Khowar, Kashmiri, Pashai, Torwali, etc.) under the IA languages, rather he classified them as an independent group of the Indo-Iranian branch. He divided the Dardic branch into three sub-branches, namely, "Kafiri," "Central," and "Dard." Figure 12 illustrates the overall picture of the classification of the IA and Dardic languages as proposed by Grierson (1927 cited in Masica 1991).
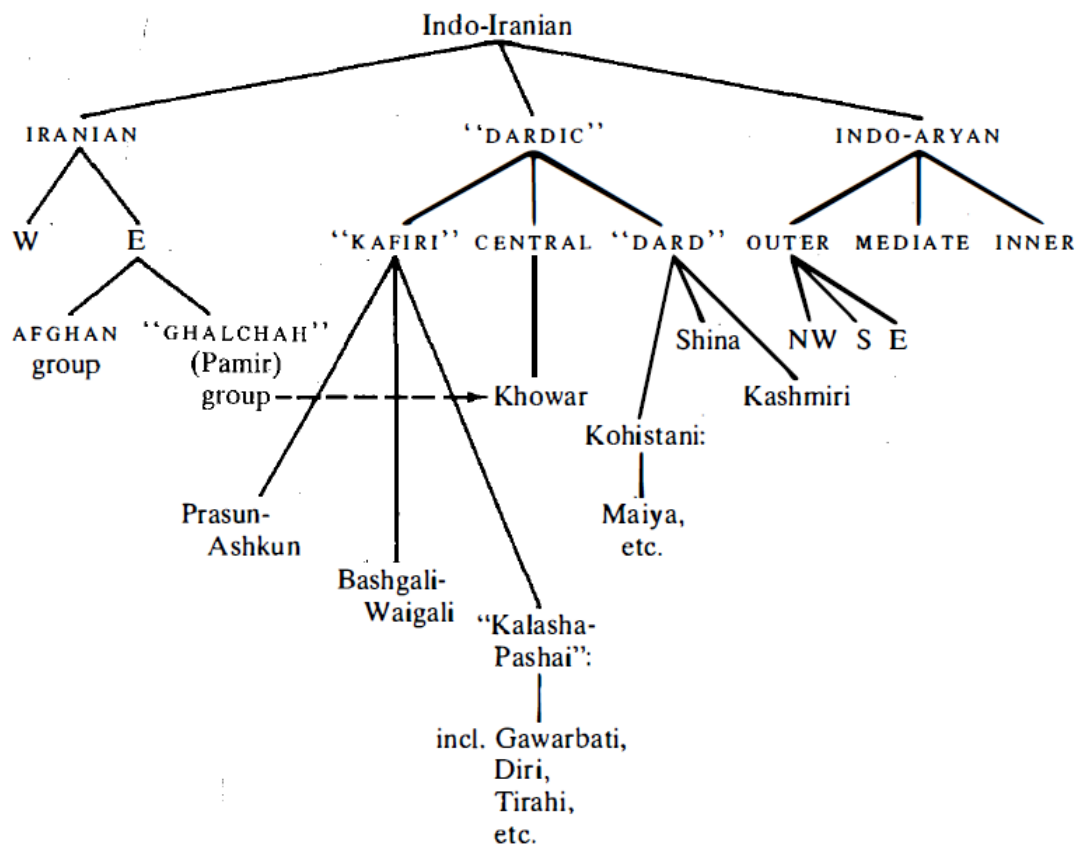
Figure 12 Dardic and Indo-Aryan languages by Grierson (Masica 1991: 461)

The Dardic languages, during the time of Grierson, were not well known, but since then scholars have learned a great deal about those languages. Grierson's classification of the IA languages has been challenged and, according to Masica (1991: 461), is not valid anymore.

The most widely accepted classification of the IA languages among the scholars so far is the model Morgenstierne (1926) proposed. He treated the entire Dardic group as a subgroup of the IA branch; but later he revised it by separating the 'Kafiri' group as an independent sub-branch of Indo-Iranian. Masica (1991: 462) states that "this view is now the one generally accepted by most close students of this special field." This view is represented in Figure 13 below which is based on Strand (1973 cited in Masica 1991).

Indo-Iranian

Iranian | Nuristani (=Kafiri) | Indo-Aryan

Kati (=Bashgali) | Waigali (=Kalaṣā-alā, Wai-alā) | Ashkun

Prasun (=Wasiweri) | Tregami (=Gambiri)

NW group

"Dardic"

Chitral group | Kunar group | Central (Kohistani) group | Shina group

Khowar | Kalasha

Dameli
Gawarbati
Ningalami-
Grangali
Shumashti

Bashkarīk (=Gāwrī)
Torwali
Maiyā̃ Wotapuri-
Katarqalaī
Tirahi

Shina
Phalura
Kashmiri
K. Kashta-wari

Pashai

NW dial. | NE dial.
SW dial | SE dial.

Figure 13 Classification of Indo-Aryan languages (Strand 1973 cited in Masica 1991: 463)

The first elaborate attempt of classifying 34 IA speech varieties spoken in Sindh province, Pakistan, appears to be made in Jeffery (1999), mentioned earlier in Section 2.3.2. Based on the zones (Northwestern, Central and Southern) identified by Masica (1991), Jeffery (1999) grouped the speech varieties into several groups (Lahnda, Sindhi, Gujarati, Rajasthani and Western Hindi) within the zones.

The grouping of the varieties was based on morphological and lexical comparisons. One criterion for distinguishing groups was the word for the genitive particle 'of'. The beginning consonant of the genitive particle word has been used to split language varieties within zones into smaller groups. These groups, along with the determining genitive particles, are given in Table 4 below.

Table 4 Language groupings based on the genitive particle 'of' (adapted from Jeffery 1999)

Zone	Groups	Genitive particle
Northwestern	Lahnda	d- (da)
	Sindhi	ʤ- (ʤo)
Central	Gujarati	n- (no)
	Rajasthani	ɾ- (ɾo)
	Western Hindi	k- (ka)
Southern	Unclassified	ʧ- (ʧa)

The Gujarati and Rajasthani groups were further divided into subgroups based on the comparisons of morphemes used for indicating masculine singular, masculine plural and feminine plural, and comparing the words used in the languages for 'I', 'you', 'what', 'is', and 'woman'. The Gujarati group was split into three subgroups. The three subgroups were labeled Western, Central and Eastern. Wadiyari was classified under the subgroup of Central Gujarati. The Rajasthani group was also split into three subgroups, which were labeled Marwari, Loarki and Unclassified.

Some of the speech varieties (i.e., Bhat, Jandavra, Jogi, Loar, Malhi, Marwari Meghwar, Mewasi, Rardharo, Tharadari) studied in the survey were not treated as separate languages. The overall classification of the languages spoken in Sindh (including some languages which were not studied in the survey) is displayed in Figure 14 below.

MARATHI ——————— Marathi

S. ZONE ——< UNCLASSIFIED ——————— Odki

HINDI ——— Urdu

HINDUSTANI <

Kabutra

SANSI ——< Sansi Bhil

W. HINDI <

Ghera

UNCLASSIFIED —< Bhaya

E. Unclassified ——————— Gurgula

LOARKI ——————— Loarki

Parkari Koli

Sindhi Bhil

Dhatki

RAJASTHANI < MARWARI < S. Marwari

N. Marwari

Jogi

W. UNCLASSIFIED ——— Goaria

C. ZONE <

Gujarati

W. GUJARATI < Kachhi Koli

Aer

GUJARATI < C. GUJARATI ——— Wadiara Koli

Vaghri

E. GUJARATI < Baghri

Jandavra

INDO-ARYAN

Jadgali

SINDHI < Lasi

Sindhi

N. ZONE <

Siraiki

LAHNDA < Panjabi W.

Figure 14 Classification of the languages of Sindh province (adapted from Jeffery 1999)[16]

In conclusion, Hoernle (1880) was the first scholar who successfully attempted to classify the IA languages, Grierson (1904-1927) proposed an Inner-Mediate-Outer model and classified most of the New Indo-Aryan (NIA) languages according to that model, though he classified the Dardic group of languages under the Indo-Iranian branch. Morgenstierne (1926) then classified the Dardic group under the IA branch

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[16] S. Zone = Southern Zone, C. Zone = Central Zone, N. Zone = Northwestern Zone, C. = Central, E. = Eastern, W. = Western.

except the Kafiri group, which was kept under the Indo-Iranian branch. Strand's (1973) classification of the IA languages which was based on Morgenstierne (1926) became a more widely accepted model.

2.6 Linguistic background of Indo-Aryan languages

This section describes some of the linguistic features, particularly phonological features, of the Indo-Aryan languages. The IA language family and several IA languages have been the focus of studies among many devoted scholars, such as Grierson (1903-1929), Bailey (1908-1956) and so on. A massive amount of data was collected by those scholars in past decades, yet it is very challenging to provide a simple summary of the phonological description, grammar, and such, of the entire IA language family. However, Masica (1991) and Jain & Cardona (2003) produced very comprehensive work and took a large number of IA languages into account.

Masica (1991) produced a very high quality work, which provides a massive amount of linguistic background for the Indo-Aryan Language family and its historical development, including a detailed descriptive phonology of the New Indo-Aryan (NIA) languages, a discussion of different writing systems of NIA languages, and a description of the morphology and syntax of NIA languages.

The descriptive phonology and word order of the NIA languages, mainly based on the work of Masica (1991) and Jain & Cardona (2003), are summarized in the following subsections.

2.6.1 Descriptive phonology of New Indo-Aryan languages

Scholars have described and analyzed the segmental and suprasegmental phonology of the New Indo-Aryan (NIA) languages. The following three subsections review the descriptions and analysis related to consonants, vowels, and stress and tones.

2.6.1.1 Consonants of New Indo-Aryan languages

Masica (1991: 86–132), in Chapter 5 'NIA descriptive phonology' of his book 'The Indo-Aryan Languages', discusses consonants and vowels of the NIA languages in great detail. According to his analysis, there are five distinctive places of articulation in the NIA stop system, namely labial, dental, retroflex, palatal and velar /p, t, ṭ, c, k/[17]. He mentions a tendency in some speech varieties that pronounce the palatal stop /c/ as an alveolar or dental affricate [ts]. However, it does not affect the basic number of places

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[17] The transcriptions throughout the references are kept the same as in the original work.

of articulation. He also explains that the [ts] pronunciation of /c/ in some NIA varieties (i.e., in the Southern Mewari dialect of Rajasthani, in the Chittagong dialect of Bengali, and in Assamese) has progressed to a fricative [s].

Five nasal stops [m, n, ɳ, ɲ, ŋ], according to Masica (1991: 95), were observed in the Old Indo-Aryan (OIA) languages corresponding to the five oral stops of Sanskrit. He mentions that even though five alphabetic symbols were provided, they were not all functional and were often transcribed by using a diacritic within predictable environments. He points out, however, that among the NIA languages, such as Dogri, Kachhi, and Sindhi, all of the five nasals have been analyzed as distinct phonemes /m, n, ɳ, ɲ, ŋ/. He mentions that the last two nasals became distinct phonemes, mainly as the result of the loss of the stop from a homorganic nasal + stop cluster (ɲj > ɲ, ŋg > ŋ).

Laterals and flaps are nicely explained by Masica (1991: 97–98). OIA was once divided into three dialects, one having only a lateral /l/, one with a flap /r/ and one with both a lateral /l/ and a flap /r/. However, such typology no longer fit, and all NIA varieties now have both sounds, with some varieties adding retroflex [ɭ] and [ɽ]. He mentions that there is a contrast between the retroflex lateral [ɭ], and the retroflex flap [ɽ], which is a prominent feature among the varieties of Rajasthani, Gujarati, Lahnda, and some other varieties of Indo-Aryan languages.

Native fricatives in Indo-Aryan languages are said to be very limited. According to Masica (1991: 98–99), the most widespread pattern in NIA consists of one sibilant, usually [s], plus /h/. He says that the [s] and [ʃ] are in complementary distribution (CD) in many languages. For instance, in standard Bengali the allophone [ʃ] becomes [s] before dental consonants. Some specific languages make a two-way distinction between [s] and [ʃ]. For example, in Marathi, they are in CD, i.e., [s] before back vowels, [ʃ] before front vowels, yet they are contrastive before central vowels. He also mentions that the distinction between [s] and [ʃ] is well established in Hindi-Urdu, Punjabi and Sindhi, but [ʃ] is only found in loan words from Sanskrit, English and Persian.

Voicing, according to Masica (1991: 100), is found in all of the NIA languages, for example voicing contrast in stops /p, t, ʈ, c, k/ vs. /b, d, ɖ, j, g/. However, this is not the case in affricates. For instance, Shina has contrast between / j̣/ and /j/ to match /c̣/ and /c/ but no [dz] to match the /ts/. He also says that distinction of aspiration of all voiced and voiceless stops at the five basic points of articulation is normal.

In additional consonants, the author mentions the implosive voiced stops of Sindhi, Kachhi and Siraiki /ɓ, ɗ, ʄ, ɠ/. He also mentions that in Marwari implosive voiced stops are found at all five points of articulation /ɓ, ɗ, ɖ, ʄ, ɠ/.

2.6.1.2 Vowels of the New Indo-Aryan languages

A great extent of scholarly work has been done on the Indo-Aryan languages. A good historical comparative study and descriptive phonology of Indo-Aryan languages was done by Masica (1991). A very good account of the NIA vowel system is given in the section on descriptive phonology in Masica (1991: 109–113). The minimal NIA vowel system is a six-vowel system and it generally goes up to a thirteen-vowel system. Hindi and Punjabi have a ten-vowel system /i, ɪ, e, æ, a, ə, u, ʊ, o, ɔ/ that is considered to be a normative NIA vowel system which is the closest to Sanskrit (Masica 1991). Masica (1991) describes that the "ten-vowel system" is shared by Sindhi, Lahnda, Kachhi, and most varieties of Rajasthani. However, he mentions that some analyses of Sindhi lack the /ɔ/ vowel, and in many varieties of Marwari and Rajasthani, the higher and lower-mid vowels, both back and front, collapse. He also states that languages with a larger number of vowels in NIA, for example Kashmiri and Shina languages with sixteen vowels.

A common "problematic" vowel issue in the IA languages, as Masica (1991: 114) points out, is the distinctions between the mid-vowels "e/eː and o/oː". He mentions that "there is often a suspicious restriction of occurrence of the short vowel to certain environments (e.g., closed syllables, unstressed syllables), plus certain form classes (e.g., pronouns)". According to Masica (1991: 111) "the quantitative distinctions of Sanskrit (iː/i, uː/u, etc.) have been replaced, or at least accompanied, by qualitative distinctions".

Masica (1991) discusses the nasalized vowels and says that there are two kinds of vowel nasalization in NIA. One kind is predictable in certain environments and the other is contrastive. Vowel nasalization in the IA languages is one of the areas where analyses differ from one another; for instance, Masica (1991: 117) refers to various disagreements regarding Hindi nasal vowels. For example, he states that according to Dixit (1963 cited in Masica 1991) "there is no nasalized ẽ or õ", but according to Misra (1967) and Kelkar (1968), cited in Masica (1991) "there is phonemic nasalization of all vowels"; however, according to Narang and Becker (1971 cited in Masica 1991) "all vowel nasalization is predictable", and yet according to Ohala (1983 cited in Masica 1991) "there is phonemic nasalization of the 'long' vowels -ĩː, ẽː, ãː, ɔ̃ː, õː, ũː- finally

and before voiceless stops, but it is predictable before voiced stops…". Masica's observations show a great deal of complexity in vowel nasalization issues within some Indo-Aryan languages.

2.6.1.3 Stress and tones in the New Indo-Aryan languages

The suprasegmental features of the Indo-Aryan languages are also discussed by Masica (1991: 118–122). He claims that several NIA languages are reported to have contrastive tones, for example, varieties of Bengali, Shina, Khowar, Lahnda, Rajasthani, and varieties of West Pahari. The classic example of a tonal language in NIA, according to Masica (1991: 118), is Punjabi[18] in which there are at least two distinctive tones contrasting with the neutral tone: the High (or Falling) /´/ and the Low (or Rising) /`/. Some count the neutral (unmarked) tone as a contrastive Mid tone. Examples of the three tones based on Masica (1991: 118) are illustrated in Table 5 below.

Table 5 Tones in the Punjabi language

Tone	Example	Gloss
High (or Falling)	/kóɽa/	'leper'
Mid (or unmarked)	/koɽa/	'whip'
Low (or Rising)	/kòɽa/	'horse'

According to Lunsford (2001), Torwali, another NIA language spoken in northern Pakistan, has four contrastive tones: High, Low, Rising and Falling. Examples of the four tones taken from Lunsford (2001: 36) are shown in Table 6 below.

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[18] The researcher of this study is not aware of any research exhibiting enough evidence to prove that Punjabi has contrastive tones, therefore the researcher does not necessarily agree with Punjabi being a tonal language.

Table 6 Tones in the Torwali language[19]

Tone	Example	Gloss
High	/z̤átʰ/	'blood (sg)'
Low	/z̤àtʰ/	'blood (pl)'
Rising	/z̤ǎtʰ/	'morning'
Falling	/z̤âtʰ/	'night'

Stress in IA languages, according to Masica (1991), is generally predictable, but the stress patterns are different from one language to another. According to him, IA languages are syllable or mora-timed instead of stress-timed. However, stress in Assamese has been proven to be contrastive by Goswami (1966 cited in Masica 1991: 121). Examples are as follows.

/banˈdhɒ/ 'you fasten' /ˈbandhɒ/ 'friend'

/ˈpise/ 'he is drinking' /piˈse/ 'then'

Having predictable stress in a language does not necessarily mean that the stress always falls on a certain syllable. Some languages do have rather simple stress patterns which always fall on a certain syllable, for example according to Chatterji (1926 cited in Masica 1991: 121) stress falls on the "initial syllable of the phrase or breath group in Standard Bengali." A number of IA languages, such as Hindi (Mehrotra 1965), Gujarati (Cardona 1965, Mistry 1997), and Punjabi, form complex sets of rules (Masica 1991) for generalizing the stress system of the language. Masica (1991: 122) claims that "in general, Hindi and Punjabi permit more final stresses than other NIA languages".

2.6.2 Word order of the New Indo-Aryan languages

The basic word order in the NIA languages seems to be SOV (Subject-Object-Verb). Masica (1991: 332), however, avoids using the term 'Subject' in describing the word order of the NIA languages. He argues that the subject in NIA in some cases is problematic. According to his analysis, the final position of the verb is the core of NIA syntax. He describes a simple sentence as composed of one or more Noun Phrases (NP) plus a Verb (Vb): NP + Vb (intransitive), NP + NP + Vb (transitive), and NP + NP + NP + Vb (double transitive).

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[19] The phonetic markings of the tones are inserted by the researcher of this study.

Similarly, Schmidt (2003) also avoids using the term 'Subject' in the description of the basic word order in Urdu sentences. For the basic Urdu word order Schmidt uses the same formulation given by Masica (1991), that the basic sentence is formed by one more noun phrases plus a verb. Examples of Urdu basic sentences from Schmidt (2003: 339-340) are as follows:

1) NP + Vb (intransitive):
    laṛka   khel   rah-a   h-ai
    boy   play   CON-m-sg   AUX-3sg[20]
    'The boy is playing.'

2) NP + NP + Vb (transitive):
    arif   xabrẽ   sun   rah-a   h-ai
    Arif   news   listen CON-m-sg   AUX-3sg
    'Arif is listening to the news (a broadcast).'

3) NP + NP + NP + Vb (double transitive):
    arif   hamẽ   xabr   suna-e   g-a
    Arif   us-Obl-DAT   news   tell-3sg   FUT-m-sg
    'Arif will tell us the news (what he heard).'

In summary, this section has presented an overview of the consonants, vowels, tones, stress, the variations of consonants and vowels, and the basic word order of the New Indo-Aryan languages which was based on previous literature.

2.7 Phonology of languages related to Wadiyari

Brief phonological sketches of three Indo-Aryan languages (Gujarati, Kachhi and Sindhi) and presented below. Two of which (Gujarati and Kachhi) belong to the same group of languages as Wadiyari.

2.7.1 Phonology of Gujarati

The Gujarati language belongs to the central zone of Indo-Aryan languages (illustrated in Figure 14 above), spoken by over forty million speakers (Cardona & Suthar 2003: 660; Mistry 1997: 653). It has a long literary history and has been studied by several

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[20] 3sg = 3rd Person Singular, AUX = Auxiliary, CON = Continuous, DAT = Dative, FUT = Future, m = Male, Obl = Oblique, and sg = Singular.

highly skilled scholars (Grierson 1927; Pandit 1961; Cardona 1965; Masica 1991; Kaye & Daniels 1997; Cardona & Suthar 2003) in the past several decades.

Mistry (1997) presents a brief description of the phonology of Gujarati and gives inventories of the Gujarati consonants and vowels, which include thirty-three consonants and eight vowels. He discusses the articulation, distribution, and realization of the consonants and vowels briefly. He also describes the phonological processes that show links between phonology and other levels of the language. According to Mistry (1997), in Gujarati, the consonants have six contrasting places of articulation: bilabial, dental, retroflex, palatal, velar, and glottal. The inventories of the Gujarati consonants and vowels are shown in Table 7 and Table 8, respectively.

Table 7 Consonants of the Gujarati language

	Bilabial	Dental	Retroflex	Palatal	Velar	Glottal
Stop [-voiced, -aspirated]	p	t	ṭ	c	k	
[-voiced, +aspirated]	pʰ	t̪ʰ	ṭʰ	tʃʰ	kʰ	
[+voiced, -aspirated]	b	d̪	ḍ	ʤ	g	
[+voiced, +aspirated]	bʰ	d̪ʰ	ḍʰ	ʤʰ	gʰ	
Fricative		s		š		h
Nasal	m	n	ṇ	(ñ)	(ŋ)	
Lateral		l	ḷ			
Flap		r				
Glide	v			y		

Table 8 Vowels of the Gujarati language[21]

i		u
e	ə	o
(ɛ)		(ɔ)
	a	

Mistry (1997) points out that the phonemes in parentheses in the above consonant and vowel inventories are less frequent and have limited distribution. The vowels also contrast in terms of nasalization and murmur. The following examples are given in Mistry (1997: 656) to show contrast between oral, nasal and murmured vowels:

[– nasal, – murmur]	/mɔr/	'blossom'
[– nasal, + murmur]	/mɔ̤r/	'gold coin'
[+ nasal, – murmur]	/mɔ̃gʰi/	'expensive'
	/pɔ̃k/	'parched grain'
[– nasal, + murmur]	/mɔ̤̃/	'face'
	/mɔ̤̃ci/	'stupid'

2.7.2 Phonology of Kachhi

The Kachhi language belongs to the central zone of the Gujarati group of languages, spoken in India and Pakistan (displayed in Figure 14 above). Woodland (1991), in his brief phonological study of Kachhi, describes the phonology of Kachhi and gives the inventories of the Kachhi consonants and vowels. Thirty-nine consonants are included in the consonant inventory but six of them, the voiced unaspirated plosives and a bilabial fricative (marked with parentheses), only occur in the loanwords. Nine oral vowels and six nasal vowels are reported by the author. The inventories of consonants and vowels are given in Table 9 and Table 10 respectively.

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[21] No tongue height or tongue advancements were included in Mistry's (1997) vowel inventory.

Table 9 Consonants of the Kachhi language[22]

	Labial	Dental	Retroflex	Palatal	Velar	Post-Velar
PLOSIVE						
voiceless unaspirated	p	t	T	c	k	
voiceless aspirated	ph	th	Th	ch	kh	
voiced unaspirated	(b)	(d)	(D)	(j)	(g)	
voiced aspirated	bh	dh	Dh	jh	gh	
IMPLOSIVE	bb	dd	DD		gg	
FRICATIVE voiceless	(f)	s		sh		h
voiced	v	z				H
NASAL	m	n	N	NY		
LATERAL		l				
FLAP		r	R			
SEMI-VOWEL				y		

Table 10 Vowels of the Kachhi language[23]

	FRONT		MID		BACK	
	ORAL	NASAL	ORAL	NASAL	ORAL	NASAL
CLOSE	ii	ii=			uu	uu=
LOWERED	i				u	
HALF CLOSE	ee	ee=			oo	oo=
HALF OPEN	e		a	a=		
OPEN			aa	aa=		

---

[22] The symbols in this inventory are kept the same as those used in the original paper.

[23] The symbol= is used to represent nasal vowels.

The author also very briefly presented some phonological features such as syllable types, length, stress and palatalization. He also accounts for some morphophonemic processes in the Kachhi language. The syllable structure of Kachhi allows six possible syllable types:

V	/aa/	'this'
VC	/eem/	'thus'
CV	/ddee/	'give it'
CVC	/bhat/	'cooked rice'
CCV	/**trii**zii/	'third'
CCVC	/triiH/	'thirty'

Vowel length[24] is phonemic and the long vowels receive greater stress, as shown in the following examples (lighter stress is marked with a single superscript bar (ꞌ) and the heavier stress is marked with two bars (ꞌꞌ)):

/ꞌman/ 'heart' /ꞌꞌmaan/ 'with difficulty'

According to the author, stress in Kachhi falls on the penultimate syllable of the word. Examples are as follows:

/taꞌꞌmaaroo/	'your'
/bbaꞌꞌtriizoo/	'nephew'
/ꞌparaa/	'over there'
/ꞌbbilaph/	'light bulb'

However, if the vowel in final syllable is long, followed by a consonant, the final syllable will receive greater stress. For example:

/ꞌpara/ 'over there' /paꞌꞌraaR/ 'chaff'

The author discussed some morphophonemic changes in Kachhi such as palatalization which is illustrated in the 2nd person singular imperative tense, as in the following examples:

t => c	pootvoo	- 'to arrive'	pooc	- 'arrive!'
th => ch	mathvoo	- 'to try'	mach	- 'try!'
dh => jh	bbaa=dhvoo	- 'to tie up'	bbaa=jh	- 'tie it up!'
k => c	bhuu=kvoo	- 'to bray'	bhuu=c	- 'bray!'
kh => ch	naakhvoo	- 'to put down'	naach	- 'put it down!'
s => sh	puusvoo	- 'to ask'	puush	- 'ask!'
h => sh	bbeehvoo	- 'to sit'	bbeesh	- 'sit!'

---

[24] It is assumed that the long vowels are interpreted as single segments.

2.7.3 Phonology of Sindhi

Sindhi belongs to the northwestern zone of the Indo-Aryan (IA) language family (shown in Figure 14 above), mainly spoken in Pakistan and India by approximately 18 million native speakers according to the 1991 estimates (Khubchandani 2003). Nihalani (1999), in his brief description of the Sindhi phonology, gives a chart of forty-six contrastive consonants and ten oral vowels. There are four contrastive implosives in Sindhi. These implosive sounds in Sindhi are considered a special characteristic of Sindhi among the IA languages. The consonants of the language are presented in Table 11 below.

Table 11 Consonants of the Sindhi language (Nihalani 1999)

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	p b pʰ bʱ		t d tʰ dʱ		ʈ ɖ ʈʰ ɖʱ		k g kʰ gʱ	
Implosive	ɓ			ɗ		ʄ	ɠ	
Affricate						c ɟ cʰ ɟʱ		
Nasal	m mʱ			n nʱ	ɳ ɳʱ	ɲ	ŋ	
Fricative		f	s z		ʂ		x ɣ	h
Tap			r		ɽ ɽʱ			
Approximant		ʋ				j		
Lateral Approximant			l lʱ					

Another brief but good study of Sindhi phonology, presented by Khubchandani (2003), is worth mentioning here. In his consonant inventory, the aspirated nasals [mʱ, nʱ, ɳʱ], the aspirated retroflexed tap [ɽʱ], and the aspirated lateral [lʱ] are not included. Instead, an additional uvular stop /q/ is included in Khubchandani's inventory of consonants with a note that /q, x, ɣ/ only occur in words borrowed from Persio-Arabic.

Nihalani (1999) and Khubchandani (2003) both give the same number of oral vowels. The inventory of Sindhi vowels is shown in Figure 15 below.
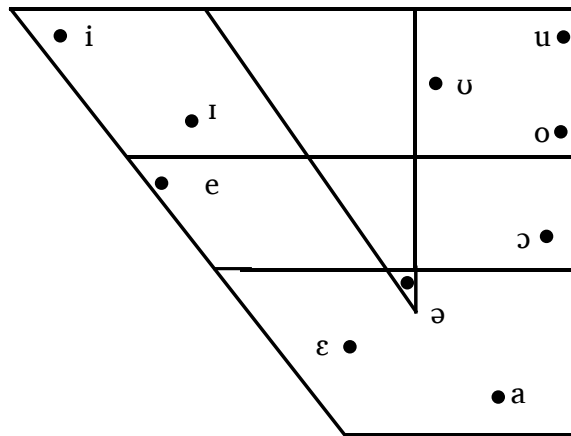
Figure 15 Vowels of the Sindhi language (Nihalani 1999)

Nihalani (1999) point outs that two vowels /ɛ/ and /ɔ/ tend to diphthongize as [ɛə] and [əʊ] respectively. He demonstrates a few words in Sindhi in which three nasal vowels /ĩ/, /ã/ and /ɔ̃/ are contrastive with their oral counterparts. Examples from Nihalani (1999: 133) are as follows:

/əsi/	'eighty'	/əsĩ/	'we'
/adʱi/	'half-rupee'	/ãdʱi/	'storm'
/ɗəhi/	'yogurt'	/ɗɔ̃hi/	'tenth'

According to Khubchandani (2003: 632), "every vowel has a nasalized counterpart" in Sindhi. He gives the following examples to show contrast between oral and nasal vowels:

/dehI/	'body'	/mẽɦĨ/	'buffalo'
/mɛdo/	'fine flour'	/mɛ̃s/	'within'
/kɔɽi/	'bitter'	/tɔ̃ri/	'mat'
/həthyo/	'handle'	/məthyõ/	'upper'
/mohU/	'attachment'	/mŨɦŨ/	'face'
/khau/	'glutton, bribe-taker'	/khãũ/	'let's eat'

Based on Nihalani (1999) and Khubchandani (2003), the oral vowels become nasalized before nasal consonants. In the analysis of Khubchandani (2003), /v, h, y/ are determined as semivowels and "nasalization runs through the sequence of vowels, and often two vowels are intercepted by semivowels." The semivowels are also nasalized before and after a nasal consonant.

Word-level stress in Sindhi is predictable and has only one prominent syllable with a primary stress and other syllables may have secondary or weak stresses (Nihalani 1999;

Khubchandani 2003). According to Nihalani (1999) the word-level stress is fixed on the first syllable of the morpheme.

2.8 Summary

In order to acknowledge the previous research and give an overview of the languages that Wadiyari is related to, this chapter laid out reviews of a number of scholarly works related to the group of Indo-Aryan (IA) languages, the Wadiyari language and a few other IA languages related to Wadiyari. The IA languages are mainly spoken in the South Asian region. The area covers more than 4.5 million square kilometers and the number of speakers of IA languages is more than 1.06 billion (Jain & Cardona 2007). Based on the Ethnologue there are 225 languages in the IA language family (Lewis, et al. 2015). The history of IA languages is linguistically divided into three main stages: Old, Middle, and New Indo-Aryan (Masica 1991). The IA language group falls under the Indo-Iranian branch of the Indo-European language family.

The basic word order of the IA languages is SOV but it is preferred not to use the term Subject; instead, scholars (Masica 1991; Schmidt 2003) divide the basic sentence structure into constituents of noun phrases and a predicate. The consonants of the IA languages include: implosives and plosives at five places of articulation, nasals at five places of articulation, fricatives at three places of articulation, flaps, laterals and approximants at two places of articulation. Voicing and aspiration in consonantal sounds are very common features among the IA languages. The typical vowel system of the IA languages is a ten-vowel system but languages can vary from a six-vowel system to a fifteen-vowel system (Masica 1991). Oral vowels, in a number of IA languages tend to become phonetically nasalized around nasal environments but in many IA languages nasal vowels are also distinct phonemes. Stress in most of the IA languages is predictable and some of the IA languages have been found to have contrastive tones.

Chapter 3
Segmental Phonology

3.1 Introduction

This chapter describes the phonemic elements of Wadiyari, which mainly include the consonant and vowel segments. The chapter is divided into two major sections: consonants and vowels. The consonants are presented in subsections that are categorized according to their manners of articulation: implosives, plosives, nasals, fricatives, affricates, liquids, and approximants. Variations between consonants are discussed separately in Section 3.3. The vowels are presented in the following groups: oral monophthongs, nasal monophthongs, and diphthongs in Section 3.4. Each group is discussed and evidence of contrasts between phonetically similar segments (PSS) is provided with minimal pairs called "Contrast in Identical Environment" (CIE). In the case of no minimal pairs, "Contrast in Analogous Environment" (CAE) pairs are given. Some hypotheses of phonological processes in relation to vowels are presented along with the rules in Section 3.5.

3.2 Consonants

There are 38 contrastive consonants in Wadiyari that have seven places of articulation overall and eight manners of articulation. The phonemic consonants are laid out in Table 12 below.

Table 12 Consonants of Wadiyari

Place of articulation / Manner of articulation		Bilabial	Alveolar[25]	Post-alveolar	Retroflex	Palatal	Velar	Glottal
IMPLOSIVES	voiced	/ɓ/	/ɗ/		/ᶑ/	/ʄ/		/ɠ/
PLOSIVES	voiceless	/p/	/t/		/ʈ/		/k/	
	vl. asp.[26]	/pʰ/	/tʰ/		/ʈʰ/		/kʰ/	
	voiced	/b/	/d/		/ɖ/		/g/	
	vd. asp.[27]	/bʱ/	/dʱ/		/ɖʱ/		/gʱ/	
NASALS	voiced	/m/	/n/		/ɳ/		/ŋ/	
FRICATIVES	voiceless		/s/	/ʃ/				
	voiced		/z/					/ɦ/
AFFRICATES	voiceless			/tʃ/				
	vl. asp.			/tʃʰ/				
	voiced			/dʒ/				
FLAPS	voiced		/ɾ/		/ɽ/			
LATERALS	voiced		/l/		/ɭ/			
APPROXIMANTS	voiced	/w/				/j/		

Each group of consonants is discussed and evidence of contrasts is provided in the following subsections. The flaps and laterals are presented in one group called liquids.

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[25] The implosive and plosive stops /ɗ, t, d, tʰ, dʱ/ are actually dental in articulation [ɗ̪, t̪, d̪, t̪ʰ, d̪ʱ], and /s, z, r, l/ are alveolar. To simplify the chart, the dental stops are listed with the alveolar consonants together in the alveolar column.

[26] vl. asp. = Voiceless aspirated.

[27] vd. asp. = Voiced aspirated.

3.2.1 Implosives

The implosive sounds in the Indo-Aryan languages are considered to be a special set of additional consonants. According to Ladefoged & Maddieson (1996: 82), "Implosives are stops that are produced with a greater than average amount of lowering of the larynx during the time that the oral closure for the stop is maintained." Masica (1991: 104) mentions two different sets of four contrastive implosives that occur in some of the Indo-Aryan languages; /ɓ, ɗ, ʄ, ɠ/ in Kachhi, Sindhi and Siraiki, and /ɓ, ɗ, ɖ, ɠ/ in Marwari. A similar set of implosives is presented for Sindhi in an aerodynamic study of stops in Sindhi by Nihalani (1974).

The Wadiyari language appears to have a system of implosives that involves five places of articulation. The system includes five voiced implosive sounds /ɓ, ɗ, ɖ, ʄ, ɠ/. Bilabial and dental implosives /ɓ, ɗ/ do not occur in word final position. The other three implosives are unrestricted and may occur in any position in a word, however, the palatal /ʄ/ seems to be less frequent in occurrence compared to the rest of the implosives in the language. Wadiyari has a very similar set of implosives to what Sindhi has, therefore, based on the results of the aerodynamic study of Sindhi stops (Nihalani 1974), it can be hypothesized that the Wadiyari implosives are produced with the pulmonic ingressive mechanism of drawing ingressive air into the lungs and releasing the glottis simultaneously to vibrate the vocal cords. However, this hypothesis needs to be checked and confirmed with a similar aerodynamic study.

Evidence of contrasts between the implosives and their related phonetically similar segments (PSS) is given in Table 13. Some evidence of contrasts of the non-PSS implosive segments are also presented in Table 14 below.

Table 13 Evidence of contrasts for the implosive phonemes

PSS	Contrast	No.	Transcription	Gloss
/ɓ/ - /b/	CIE	1544	/ɓaɾ/	'twelve'
		1515	/baɾ/	'weight'
	CAE	545	/ˈɓo.ɽo/	'deaf person'
		734	/ˈbo.po/	'sorcerer (male)'
	CAE	605	/ɓik/	'fear (n)'
		221	/bit/	'wall of house'

PSS	Contrast	No.	Transcription	Gloss
/ɗ/ - /d/	CAE	1627	/ɗan/	'donation'
		1007	/dəŋ/	'herd (n)'
	CAE	342	/ˈkʰoɗ.wũ/	'to dig (with a tool)'
		1647	/ˈpad.wũ/	'to flatulate'
/ɖ/ - /ɖ/	CAE	1271	/ɖə̃ŋ/	'stinger'
		914	/ɖɪg/	'heap'
	CAE	1262	/ʈiɖ/	'locust'
		568	/goɖ/	'leprosy'
/ɗ/ - /ɖ/	CAE	014	/ˈɗa.ɽo/	'day'
		1299	/ˈɖã.ŋo/	'kernel (of corn)'
	CAE	963	/ˈlõ.ɗo/	'lump (clay, mud)'
		435	/ˈɓõ.ɖo/	'to be bad'
/ɖ/ - /d/	CIE	487	/ˈɖo.ɭo/	'pupil'
		651	/ˈdo.ɭo/	'white man'
	CAE	1298	/ˈɖo.ɖo/	'corn cob'
		1629	/ˈsa.do/	'simple'
	CAE	463	/ɖil/	'body'
		165	/dɪl/	'heart'
/ʄ/ - /j/	CAE	765	/ʄãŋ/	'announcement'
		598	/jad/	'remembrance'
	CAE	1543	/ə.ˈʄaɽ/	'eleven'
		592	/ɦʊʃ.ˈjaɽ/	'intelligent'

/ɠ/ - /g/	CAE	100	/ɠai/	'cow'
		1284	/gaɦi/	'weeds'
	CAE	174	/pəɠ/	'leg'
		1418	/ɗag/	'spot (n)'

Table 14 Evidence of contrasts for the non-PSS implosive phonemes

Non-PSS	Contrast	No.	Transcription	Gloss
/ʄ/ - /ɠ/	CIE	1358	/ˈʄa.ɾo/	'slime (organic)'
		032	/ˈɠa.ɾo/	'mud'
	CAE	1113	/baʄ/	'tobacco'
		174	/pəɠ/	'leg'

3.2.2 Plosives

As shown in the inventory of consonants earlier, Wadiyari has a set of 16 plosives at four places of articulation: bilabial, alveolar[28], retroflex, and velar. The system of Wadiyari plosives has contrasts between voicing and unvoicing, and aspiration and unaspiration.

Except two voiced aspirated stops, /bɦ, ɖɦ/, which do not occur word finally, the rest of the plosives do not have any restriction and may occur in word-initial, word-medial, and word-final positions. Frequencies of some of the other aspirated stops /pʰ, dɦ, gɦ/ also appear to be very low in the final positions. For instance, /pʰ/ occurs three times /dɦ/ occurs twice and /gɦ/ occurs only once in the final position. The examples of the plosive contrasts are given in Table 15 below.

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[28] As mentioned in Footnote 25, the implosive and plosive stops are actually dental in articulation.

Table 15 Evidence of contrasts for the plosive phonemes

PSS	Contrast	No.	Transcription	Gloss
/p/ - /b/	CIE	1322	/ˈpət.ti/	'tealeaf'
		952	/ˈbət.ti/	'lamp'
	CAE	1206	/ˈsip.jo/	'kingfisher'
		1209	/ˈsib.ɾi/	'owl'
	CIE	1351	/kəp/	'river bank'
		542	/ɖub/	'hump (of a hunch back)'
/p/ - /pʰ/	CIE	1615	/pəl̺/	'but'
		1163	/pʰəl̺/	'kid (child goat)'
	CAE	324	/ˈpəɽ.wũ/	'to fall (from a height)'
		1459	/ˈpʰaɽ.wũ/	'tear (tr)'
	CAE	1372	/se.ˈlap/	'flood (n)'
		423	/sapʰ/	'to be smooth'
/b/ - /bʱ/	CAE	156	/ˈbe.ɖã/	'gums'
		1314	/ˈbʱẽ.ɖi/	'okra'
	CAE	170	/bə.ˈgəl/	'armpit'
		390	/bʱə.ˈrəl/	'to be full'
/pʰ/ - /bʱ/	CAE	135	/ˈpʰu.ɖi/	'butterfly'
		263	/ˈbʱu.ʃo/	'to be hungry'
	CAE	1459	/ˈpʰaɽ.wũ/	'tear (tr)'
		096	/ˈbʱaɾ.wũ/	'to bark'

PSS	Contrast	No.	Transcription	Gloss
/t/ - /d/	CIE	1465	/ˈtoɽ.wũ/	'break (tr)'
		524	/ˈdoɽ.wũ/	'to run'
	CAE	382	/ˈpat.ɭo/	'to be thin (thing)'
		393	/ˈpad.ɾo/	'to be straight (road)'
	CAE	793	/wat/	'story'
		598	/jad/	'remembrance'
/t/ - /tʰ/	CIE	363	/ɦat/	'seven'
		168	/ɦatʰ/	'arm'
	CAE	1379	/ˈtəɽ.ko/	'sunshine'
		522	/ˈtʰɪɽ.wũ/	'stumble'
	CAE	400	/ˈɾa.tũ/	'red'
		306	/ˈgo.tʰũ	'epilepsy'
/d/ - /dɦ/	CAE	1168	/də̃ŋ/	'flock (of sheep, goats)'
		1025	/dɦək/	'wound'
	CAE	374	/ˈɦəɾ.dũ/	'half (quantity)'
		1643	/ˈsɪ.dɦũ/	'vertical'
	CAE	1286	/ɠõd/	'sap'
		101	/dudɦ/	'milk'
/tʰ/ - /dɦ/	CAE	154	/tʰʊk/	'spit (n)'
		1025	/dɦək/	'wound (animal)'
	CAE	168	/ɦatʰ/	'arm'
		101	/dudɦ/	'milk'

PSS	Contrast	No.	Transcription	Gloss
	CAE	140	/ˈma.tʰũ/	'head'
		1643	/ˈsi.dꞪũ/	'verticle'
/ʈ/ - /ɖ/	CAE	044	/ʈaɭ.jũ/	'branch (tree)'
		934	/ˈɖa.jũ/	'sitting room'
	CAE	1043	/kʰoʈ/	'(be) scarce'
		568	/goɖ/	'leprosy'
	CAE	916	/ˈweʈ.wũ/	'wrap up'
		338	/ˈwaɖ.wũ/	'to slice'
/ʈ/ - /ʈʰ/	CAE	1554	/ˈʈe.wi/	'twenty-three'
		498	/ˈʈʰe.ʈʰi/	'earwax'
	CAE	890	/paʈ/	'cooking stone'
		364	/aʈʰ/	'eight'
/t/ - /ʈ/	CIE	793	/wat/	'story'
		292	/waʈ/	'to wait'
	CAE	251	/tiɾ/	'arrow'
		1260	/ʈiɖ/	'grasshopper'
/tʰ/ - /ʈʰ/	CIE	168	/Ɦatʰ/	'arm'
		1564	/Ɦaʈʰ/	'sixty'
	CAE	1015	/ˈtʰa.pa/	'footprint'
		1636	/ˈʈʰe.lo/	'pushcart'
	CAE	140	/ˈma.tʰũ/	'head'
		084	/ˈme.ʈʰũ/	'salt'

PSS	Contrast	No.	Transcription	Gloss
/ɖ/ - /ɖʱ/	CAE	902	/ˈɖoɽ.wũ/	'to spill (liquid)'
		247	/ɖʱol/	'drum'
	CAE	039	/ˈlo.ɖũ/	'iron'
		141	/ˈmo.ɖʱũ/	'face'
	CAE	156	/ˈbe.ɖã/	'gums'
		1371	/ˈgə̃.ɖʱa/	'hail'
/ʈʰ/ - /ɖʱ/	CAE	006	/ʈʰar/	'mist/fog'
		247	/ɖʱol/	'drum'
	CAE	084	/ˈme.ʈʰũ/	'salt'
		141	/ˈmo.ɖʱũ/	'face'
/dʱ/ - /ɖʱ/	CAE	1025	/dʱək/	'wound'
		1173	/ɖʱel/	'guinea fowl'
	CAE	1643	/ˈsɪ.dʱũ/	'vertical'
		152	/ˈmo.ɖʱũ/	'mouth'
/k/ - /g/	CIE	956	/ˈkəɽ.wũ/	'act, do'
		1440	/ˈgəɽ.wũ/	'hold'
	CAE	372	/kãk/	'some'
		1418	/ɗag /	'spot (n)'
	CAE	082	/u.ˈkəɽ.wũ/	'to boil (rice)'
		917	/ʊ.ˈgaɽ.wũ/	'unwrap'
/k/ - /kʰ/	CIE	017	/ˈka.li/	'yesterday'
		905	/ˈkʰa.li/	'(be) empty'

PSS	Contrast	No.	Transcription	Gloss
	CIE	1576	/ˈkaɖ.wũ/	'subtract'
		079	/ˈkʰaɖ.wũ/	'to pound (rice)'
	CAE	149	/nak/	'nose'
		173	/nəkʰ/	'fingernail'
/g/ - /gɦ/	CAE	468	/ˈgə.ɭo/	'throat'
		1448	/ˈgɦe.ɾo ˈkəɾ.wo/	'surround'
	CAE	1149	/ɦog/	'mourning'
		1357	/gogɦ/	'foam'
/kʰ/ - /gɦ/	CAE	1239	/ˈkʰek.ʈo/	'crab'
		1448	/ˈgɦe.ɾo ˈkəɾ.wo/	'surround'
	CAE	602	/ɖʊkʰ/	'sorrow (n)'
		1357	/gogɦ/	'foam'

3.2.3 Nasals

Four contrastive nasal phonemes are detected in Wadiyari. They occur at four places of articulation: bilabial /m/, alveolar /n/, retroflex /ɳ/, and velar /ŋ/. The bilabial and alveolar nasals /m, n/ may occur in word-initial, word-medial and word-final positions without any restrictions. The retroflex and velar nasals on the other hand have restriction in their occurrences.

The retroflex/ɳ/ occurs in word-medial and word-final positions but it never occurs in the beginning of a word in Wadiyari. However, it does occur in the beginning of a syllable in non-monosyllabic words. Examples are found as follows:

#020	/ʊ.ˈgəm.ɳũ/	'east'
#293	/ˈgə̃ɳ.wũ/	'to count'
#1018	/mẽɳ/	'quiver'

The velar nasal /ŋ/ is also restricted to occur in the word-medial and word-final positions. This nasal is furthermore restricted to only occur in the coda position of a syllable which means /ŋ/ is always preceeded by a vowel. Most of the time it is followed by the voiced velar stop /g/ but it can also be followed by lateral retroflex /ɭ/. It can also occur by itself in some cases. The examples are given below:

#057	/ˈlə.wẽŋ/	'clove'
#172	/ˈãŋ.ɭi/	'finger'
#496	/kʰə̃ŋ.ˈga.ɾo/	'phlegm'
#228	/ˈɾə̃ŋ.wũ/	'to dye'

Evidence of the four nasal consonants are given and PSS of the plosive and nasal consonants are also included in Table 16 below.

Table 16 Evidence of contrasts for the nasal phonemes

PSS	Contrast	No.	Transcription	Gloss
/m/ - /n/	CIE	196	/ma/	'mother'
		1624	/na/	'no'
	CIE	957	/kam/	'work'
		151	/kan/	'ear'
	CAE	1362	/də.ˈma.ɽi/	'fireplace'
		098	/mə.ˈna.ɽi/	'cat'
/n/ - /ŋ/	CAE	179	/ˈpa.ni/	'heel'
		022	/ˈpã.ŋi/	'water'
	CAE	023	/ˈɦo.nu/	'to be hot'
		1124	/ˈɦõ.ŋũ/	'vision, dream'
	CAE	1627	/ɗan/	'donation'
		1159	/də̃ŋ/	'herd'

PSS	Contrast	No.	Transcription	Gloss
/n/ - /ŋ/	CAE	1627	/ɗan/	'donation'
		1271	/ɟə̃ŋ/	'stinger'
	CAE	1051	/ˈpɪn.wũ/	'to beg (for money)'
		228	/rə̃ŋ.wũ/	'to dye (cloth)'
/ɳ/ - /ŋ/	CAE	1159	/də̃ŋ/	'herd'
		1271	/ɟə̃ŋ/	'stinger'
	CAE	249	/ɓãɳ/	'bow'
		060	/bə̃ŋ/	'cannabis, hemp'
/b/ - /m/	CAE	965	/ˈbə.ʈʰi/	'potter's kiln'
		033	/ˈma.ʈi/	'dust'
	CAE	899	/t͡ʃʰab/	'stopper, plug'
		1611	/t͡ʃəm/	'why?'
	CAE	120	/ˈkas.bo/	'turtle'
		003	/sə.ˈdər.mo/	'moon'
/d/ - /n/	CAE	1492	/ˈdok.ɽũ/	'fade'
		727	/no.ˈkər/	'servant'
	CAE	374	/ˈɦər.dũ/	'half'
		1619	/ˈɦas.no/	'really'
	CAE	598	/jad/	'remembrance'
		151	/kan/	'ear'
/ɖ/ - /ɳ/	CAE	820	/ˈwəɖ.wũ/	'to quarrel'
		958	/ˈwə̃ɳ.wũ/	'to mend, repair'

PSS	Contrast	No.	Transcription	Gloss
	CAE	387	/ˈɦõ.ɖo/	'to be deep'
		1124	/ˈɦõ.ɳũ/	'vision, dream'
/g/ - /ŋ/	CAE	914	/ɖɪg/	'heap (n)'
		1271	/ɖə̃ŋ/	'stinger'
	CAE	505	/ˈɦog.ɾu/	'belch (n)'
		296	/ˈɦõŋ.wũ/	'to sleep'
	CAE	725	/bˤəg.ˈtã.ɳi/	'nun'
		694	/sə̃ŋ.ˈtã.ɳi/	'girlfriend'

Some evidence of contrasts between non-PSS nasal retroflex and flap retroflex phonemes are also given in Table 17.

Table 17 Evidence of contrasts for non-PSS nasal and flap

Non-PSS	Contrast	No.	Transcription	Gloss
/ɳ/ - /ɽ/	CAE	1124	/ˈɦõ.ɳũ/	'vision, dream'
		386	/ˈɦo.ɽũ/	'to be narrow'
	CAE	958	/ˈwə̃ɳ.wũ/	'to mend'
		453	/ˈwəɽ.wũ/	'to bend'
	CAE	359	/tə̃ɳ/	'three'
		1340	/teɽ/	'crevice'

3.2.4 Fricatives

Despite the fact that the Indo-Aryan languages are reported to be "notoriously poor in native fricatives" (Masica 1991: 98), four contrastive fricatives are detected in the Wadiyari language. The fricatives contrast at three places of articulation: alveolar (voiceless and voiced) /s, z/, post-alveolar /ʃ/, and glottal /ɦ/. All of the fricatives may occur in word-initial, word-medial and word-final positions without any restrictions.

According to Woodland (1991), the Kachhi language has a similar system of distinction in fricatives. In fact, his chart of Kachhi phonemes (see Table 9 in Section 2.7.2) also has an additional voiced labio-dental /v/ and a voiceless glottal fricative /h/ which were not evident in the system of Wadiyari fricatives.

An additional labio-dental fricative [f] is also detected but this does not seem to be a native Wadiyari fricative phoneme. It is only found in the loanwords produced by the younger speakers. The /s, z/ phonemes are sometimes realized as affricates [ts, dz] respectively. These phones are discussed in more detail in Section 3.3.2.

Evidence of contrasts between PSS of the four fricatives and non-PSS fricatives is given in Table 18 and Table 19 respectively.

Table 18 Evidence of contrasts for the fricative phonemes

PSS	Contrast	No.	Transcription	Gloss
/s/ - /z/	CIE	1536	/ˈɦa.so/	'truth'
		576	/ˈɦa.zo/	'alive'
	CAE	558	/saʈʰ/	'sprain'
		696	/zat/	'clan'
	CAE	1213	/sãs/	'beak, bill'
		1397	/az/	'today'
/s/ - /ʃ/	CAE	470	/ˈsa.ti/	'chest'
		1086	/ˈʃã.ti/	'peace'
	CAE	361	/pãs/	'five'
		133	/maʃ/	'fly'
/ʃ/ - /z/	CAE	442	/ʃũ/	'what'
		127	/zu/	'louse (head)'
	CAE	1530	/ɓaʃ/	'odour, smell (n)'
		051	/ɓiz/	'seed (tree)'

PSS	Contrast	No.	Transcription	Gloss
/z/-/ɦ/	CIE	696	/zat/	'clan'
		363	/ɦat/	'seven'
	CIE	126	/ˈza.ɭi/	'spider web'
		687	/ˈɦa.ɭi/	'sister-in-law'
	CIE	550	/ˈɦa.zo/	'healthy'
		092	/ˈɦa.ɦo/	'rabbit'

Table 19 Evidence of contrasts for the non-PSS fricative phonemes

Non-PSS	Contrast	No.	Transcription	Gloss
/s/-/ɦ/	CIE	362	/so/	'six'
		368	/ɦo/	'hundred'
	CAE	470	/ˈsa.ti/	'chest'
		105	/ˈɦa.tʰi/	'elephant'
	CAE	189	/pas/	'pus'
		492	/maɦ/	'muscle'

3.2.5 Affricates

Three distinctive affricates are found at one place of articulation: voiceless and voiced post-alveolar /tʃ/, /dʒ/ and voiceless aspirated post-alveolar /tʃʰ/. The voiceless aspirated/ tʃʰ/ cannot occur word-finally but the other two affricates may occur in any position in a word. The frequency of /tʃ, dʒ/ in the final position is very low. No voiced aspirated affricate is found in the language. Some of the peculiarities of the voiced affricate /dʒ/ are discussed separately in Section 3.3.3 below. The evidence for PSS of affricates and fricatives are given in Table 20 below.

Table 20 Evidence of contrasts for the affricate phonemes

PSS	Contrast	No.	Transcription	Gloss
/tʃ/ - /dʒ/	CAE	1611	/tʃəm/	'why?'
		1582	/dʒam/	'enough'
	CAE	054	/gəwtʃ/	'bamboo shoot (edible)'
		1087	/pʰodʒ/	'army'
	CAE	1024	/ˈbətʃ.wũ/	'to escape'
		1556	/ˈpə̃dʒ.wi/	'twenty-five'
/ʃ/ - /tʃ/	CAE	1186	/ʃaɭ/	'jackal'
		360	/tʃaɾ/	'four'
	CAE	279	/ˈɦəʃ.wũ/	'to laugh'
		1024	/ˈbətʃ.wũ/	'to escape'
	CAE	134	/maʃ/	'fly'
		1101	/natʃ/	'dance (n)'
/z/ - /dʒ/	CAE	1308	/ˈze.tun/	'guava'
		1164	/ˈdʒe.ʈũ/	'sheep'
	CAE	051	/ɓiz/	'seed (tree)'
		1212	/gɪdʒ/	'vulture'
	CAE	848	/ˈzo.ɭa/	'shoe, sandal'
		181	/dʒoɽ/	'joint'
/tʃ/ - /tʃʰ/	CAE	1335	/ˈtʃo.ʈi/	'summit'
		1355	/ˈtʃʰo.li/	'wave'

PSS	Contrast	No.	Transcription	Gloss
	CAE	949	/ˈtʃa.ɽi/	'ladder'
		1557	/ˈtʃʰə.wi/	'twenty-six'
	CAE	1246	/ka.ˈtʃe.ɽo/	'chameleon'
		1500	/pə.ˈtʃʰa.ɽi/	'end'

3.2.6 Liquids

In this section, flaps and laterals are described first in two subsections separately and then the evidence of contrasts for the phonemic flaps and laterals is presented together.

3.2.6.1 Flaps

In Wadiyari, two flaps are found to be contrastive at two places of articulation: the alveolar flap /ɾ/, and the retroflex flap /ɽ/. The alveolar flap /ɾ/ is sometimes phonetically realized as a trill [r] (for more details see Section 3.3.4).

Regarding the retroflex flap, according to Masica (1991: 97) in many Indo-Aryan languages "the retroflex [ɽ] flap is often taken as an allophone of /ɖ/, with which it often stands in complementary distribution: initial, geminate, and postnasal for [ɖ]; intervocalic, final, and before or after other consonants for [ɽ]." Masica goes further and claims that the retroflex flap "has, however, come to contrast with the [ɖ] in at least some environments in Punjabi, Sindhi, Modern Standard Hindi…".[29]

Similarly, in Wadiyari, the retroflex flap /ɽ/ appears to be in contrast with the voiced retroflex plosive[ɖ], and with its other PSSs, in at least some environments. No words begin with /ɽ/, for it is rather restricted to the word-medial and word-final positions in the language. Just like the retroflex nasal /ɳ/ (discussed in Section 3.2.3), the /ɽ/ can occur in both the onset and the coda position in the syllable of a word. Examples of the environments in which the retroflex flap occurs are given below:

#02	/ˈɗa.ɽo/	'sun'
#1340	/teɽ/	'crevice'
#1492	/ˈdõk.ɽũ/	'fade'

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[29] The original author used traditional symbols for the retroflex which have been modified to match the symbols used in this study.

3.2.6.2 Laterals

There are two laterals in Wadiyari that are contrastive at two places of articulation: alveolar /l/ and retroflex /ɭ/. Distribution of the alveolar lateral /l/ is unrestricted in any position. The retroflex lateral /ɭ /, on the other hand, is restricted to occur in word-medial and word-final positions. This retroflex phoneme, just like most of the other retroflex consonants, can occur both in the onset and coda position of the syllable. Examples of the retroflex lateral are follows:

#114	/kə.ˈpaɭ/	'forehead'
#166	/ˈkaɭ.zũ/	'liver'
#651	/ˈdo.ɭo/	'white man'

Evidence of contrasts between PSS of the voiced plosive retroflex, nasal retroflex, flap and lateral phonemes is given in Table 21 below.

Table 21 Evidence of contrasts for the liquid phonemes

PSS	Contrast	No.	Transcription	Gloss
/ɾ/ - /ʈ/	CIE	1545	/teɾ/	'thirteen'
		1340	/teʈ/	'crevice'
	CIE	325	/ˈtəɾ.wũ/	'to swim'
		883	/ˈtəʈ.wũ/	'fry'
	CAE	393	/ˈpad.ɾo/	'to be straight'
		048	/ˈpad.ʈũ/	'leaf'
/ɾ/ - /l/	CIE	1544	/ɓaɾ/	'twelve'
		143	/ɓal/	'hair'
	CIE	1424	/ˈɾefi.wũ/	'to remain, stay'
		351	/ˈlefi.wũ/	'to buy'
	CAE	1339	/ˈʃe.ɾũ/	'hole'
		1386	/ˈwe.lũ/	'early'
/ɖ/ - /ʈ/	CIE	720	/ˈwa.ɖo/	'carpenter'
		940	/ˈwa.ʈo/	'bathing place'

PSS	Contrast	No.	Transcription	Gloss
	CIE	387	/ˈɦo.ɖũ/	'to be deep'
		386	/ˈɦo.ɽũ/	'to be narrow'
	CAE	079	/ˈkʰaɖ.wũ/	'to pound'
		303	/ˈkʰəɽ.wũ/	'to scratch oneself'
/ɽ/ - /ɭ/	CIE	713	/ˈɦa.ɽi/	'farmer'
		687	/ˈɦa.ɭi/	'sister-in-law'
	CIE	949	/ˈtʃa.ɽi/	'ladder'
		1562	/ˈtʃa.ɭi/	'forty'
	CIE	888	/ˈgə.ɽo/	'pot'
		468	/ˈgə.ɭo/	'throat'
/l/ - /ɭ/	CIE	389	/gol/	'to be round'
		1369	/goɭ/	'noise'
	CIE	017	/ˈka.li/	'yesterday'
		1539	/ˈka.ɭi/	'ugly'
	CAE	143	/ɓal/	'hair'
		1533	/ɓəɭ/	'strength'

3.2.7 Approximants

There are two contrastive approximants at two places of articulation: bilabial approximant /w/, and palatal approximant /j/. The bilabial approximant /w/ occurs in word-initial, medial and final positions. The palatal approximant /j/ is limited to occur in word-initial and word-medial positions in the onset of the syllable.

Examples of the palatal approximant are given below:

#29	/ˈdəɾ.jo/	'river'
#598	/jad/[30]	'remembrance'
#604	/ˈɖɪ.ja/	'pity'

Evidence of contrasts for stop versus approximant and fricative versus approximant is presented in Table 22. Evidence of contrasts between a non-PSS flap and approximant is given in Table 23.

Table 22 Evidence of contrasts for the approximant phonemes

PSS	Contrast	No.	Transcription	Gloss
/b/ - /w/	CIE	153	/zib/	'tongue'
		1118	/ziw/	'soul'
	CAE	1515	/baɾ/	'weight'
		019	/wəɾ/	'year'
/ʃ/ - /j/	CAE	1186	/ʃal/	'jackal'
		598	/jad/	'remembrance'
	CAE	147	/ˈã.ʃũ/	'eye'
		934	/ˈɖa.jũ/	'sitting room'

Table 23 Evidence of contrasts for the non-PSS approximant and flap

Non-PSS	Contrast	No.	Transcription	Gloss
/ɾ/ - /j/	CAE	032	/ˈɠa.ɾo/	'mud'
		011	/ˈsa.jo/	'shadow/shade'
	CAE	586	/mə.ˈɾəl/	'(be) dead'
		1148	/mə.ˈjət/	'funeral'

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[30] This is one of the two examples found in the data which shows the palatal approximant /j/ in the word-initial position. This is a common word used in many other neighboring languages.

3.3 Consonant variations

A number of consonants in Wadiyari are found to have phonetic variation of some sort. Some of the consonants occur in free variation throughout the speech of Wadiyari speakers, and some variation occurs among the speech of certain individuals. The variations are discussed and examples are provided in each of the subsections below.

3.3.1 Plosives

The voiceless and voiced plosives vary between released and unreleased in the final position. For instance, word finally [p, b, t, d, ʈ, ɖ, k, g] can vary with [p˺, b˺, t˺, d˺, ʈ˺, ɖ˺, k˺, g˺] in the speech of any speaker of the language. Some examples are as follows:

#117	[ɦə.ˈrəp]	~	[ɦə.ˈrəp˺]	'snake'
#899	[tʃʰab]	~	[tʃʰab˺]	'stopper, plug'
#221	[bit]	~	[bit˺]	'wall of house'
#1618	[ʃa.ˈɦɪd]	~	[ʃa.ˈɦɪd˺]	'perhaps'
#1129	[pɪʈ]	~	[pɪʈ˺]	'curse'
#568	[goɖ]	~	[goɖ˺]	'leprosy'
#372	[kak]	~	[kak˺]	'some'
#1149	[ɦog]	~	[ɦog˺]	'mourning'

It is noteworthy that this type of variation was not found in the other Indo-Aryan works reviewed in this study.

3.3.2 Fricatives

As mentioned earlier in Section 3.2.4, in addition to the four phonemic fricatives, a voiceless labio-dental fricative [f] phone is also found in Wadiyari. It is also noted that the voiceless and voiced alveolar phonemes /s, z/ are sometimes substituted with [ts, dz] affricates in the language.

The phone [f] appears to be in variation with [p] and [pʰ] in the speech of certain speakers. This phone is mainly found in loanwords from neighboring languages such as Sindhi, Urdu, English, etc. Interestingly, the frequency of occurrences of the phone in the wordlist of LRP1 (63-years old) is zero, in LRP2 (51-years old) is 13, and in LRP3 (25-years old) is 30. These statistics show that the older generation has maintained the original system of the fricatives by phonologically modifying the non-native fricative [f] to either an aspirated or an unaspirated plosive /pʰ/, /p/ in producing the loanwords. If the trend of borrowing words without the phonological modification continues, it can be predicted that the voiceless labio-dental fricative may evolve in the

overall system of the Wadiyari fricatives in the future. This variation can be seen in the examples of the Urdu loanwords in Table 24 below.

Table 24 Variation between [f] and [p, pʰ] in the speech of different LRPs

No.	Gloss	Urdu	LRP 1	LRP 2	LRP 3
614	'decide'	[fes.la kər.na]	[ˈpʰəĩs.lo ˈkər.wo]	[ˈfəis.lo ˈkər.wũ]	[ˈfes.lo ˈkər.wũ]
1049	'gift'	[toh.fa]	[ˈtofi.pʰo]	[ˈto.fo]	[ˈto.fo]
1065	'traveler'	[mʊ.sa.fɪr]	[mʊ.sa.ˈpər]	[mʊ.sa.ˈfɪr]	[mʊ.sa.ˈfɪr]

It is also noted that in the speech of the younger LRP3, the voiceless aspirated plosive [pʰ] sometimes becomes a voiceless labio-dental fricative [f]. This variation is evident in native Wadiyari words as well as in loanwords. Examples of such variation in speech of LRP3 are shown in Table 25 below.

Table 25 Examples of native Wadiyari words pronounced with [f] by LRP3

No.	Gloss	LRP 1	LRP 2	LRP 3
0980	'(be) torn'	[pʰa.ˈʈəl]	[zəi.ˈʈəl]³¹	[fa.ˈʈəl] ~ [pʰa.ˈʈəl]
1096	'plunder (a town)'	[pʰʊr.ˈmaɾ]	[pʰʊr.ˈmaɾ]	[fʊr.ˈmaɾ] ~ [pʰʊr.ˈmaɾ]
1197	'elephant's trunk'	[pʰaɳ]	[pʰoɳ]	[foɳ] ~ [pʰoɳ]
1453	'spread out (maize) (tr)'	[ˈpʰo.ꞁwũ]	[ˈpʰo.ꞁwũ]	[ˈfo.ꞁwũ] ~ [ˈpʰo.ꞁwũ]

As mentioned above, /s, z/ are sometimes pronounced as [ts, dz] affricates by a broad spectrum of speakers of the Wadiyari language. This variation was also reported in the language survey by Grainger & Grainger (1980: 76), (see Section 2.3.1 for more details of this survey). Examples of such variation are as follows:

    #655   [ˈsok.ɾo]   ~   [ˈtsok.ɾo]   'boy'

    #1366   [ɓiz]   ~   [ˈɓidz]   'new moon'

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³¹ It is worth noting that LRP2 gave a different lexical item than the other two LRPS for lexical item #0980.

The voiced glottal fricative /ɦ/ sometimes tends to become devoiced [ɦ̥] and sometimes it is completely lost in the speech of LRP3. Examples of variation between [ɦ] ~ [ɦ̥] ~ Ø are shown in Table 26 below.

Table 26 Examples of variation between [ɦ] ~ [ɦ̥] ~ Ø in Wadiyari

No.	Gloss	LRP 1	LRP 2	LRP 3
402	'yellow'	[ɦ̥ər.ˈda.ɾu]	[ɦər.ˈdaɾ.wo]	[pi.l̥ũ][32]
607	'surprise'	[ɦie.ˈɾan]	[ɦie.ˈɾan]	[ɦ̥ie.ˈɾan]
773	'oath'	[ɦiəm]	[ɦiəm]	[Øəm]
1060	'inheritance'	[ˈɦɪs.sa]	[ˈɦɪs.so]	[ˈɦ̥ɪs.sa]

3.3.3 Affricates

Although a number of evidence of contrasts (illustrated in Table 20) are found to establish that /z/ and /ʤ/ are distinct phonemes in Wadiyari, a few examples of loanwords are found where [z] and [ʤ] appear to vary according to the choice or dialect of individual speakers. Examples of such words are given in Table 27 below.

Table 27 Choice of using [z] and [ʤ] in loanwords

No.	Gloss	Urdu[33]	LRP 1	LRP 2	LRP 3
0042	'jungle/forest'	[ʤən.gəl]	[ʤə̃ŋ.ˈgəl]	[zə̃ŋ]	[zə̃ŋ.ˈgəl]
0729	'soldier'	[fo.ʤi]	[ˈpʰo.ʤi]	[ˈfo.zi]	[ˈfo.ʤi]
1087	'army'	[foʤ]	[pʰoʤ]	[foz]	[foʤ]

It is interesting to compare some of the Wadiyari words with the words from neighboring languages to see which fricatives and affricates Wadiyari uses. For example, Wadiyari uses the fricative /ɦ/ over /s/ and /s/ over /ʧ/ in some of the

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[32] This word does not appear to be a native Wadiyari word. Its form is similar to the Urdu word [piː.laː].

[33] The data under Urdu is based on the researcher's language background of Urdu. The stress has been omitted.

words that are in common in a number of languages in the South Asian region. These patterns can be seen in the words (mostly numeric) given in Table 28 below.

Table 28 Comparison of fricatives and affricates[34]

No.	Gloss	Balochi	Persian	Sindhi	Urdu	Wadiyari
253	'knife'	[t͡ʃa.ku]	[t͡ʃa.ɣu]	[t͡ʃa.ku]	[t͡ʃa.qu]	[ˈsa.ku]
360	'four'	[t͡ʃaɾ]	[t͡ʃaɾ]	[t͡ʃaɾ]	[t͡ʃaɾ]	[t͡ʃaɾ]
361	'five'	[pənt͡ʃ]	[pənd͡ʒ]	[pənd͡ʒ]	[pant͡ʃ]	[põs]
362	'six'	[ʃəʃ]	[ʃɪʃ]	[t͡ʃʰe]	[t͡ʃʰe]	[so]
363	'seven'	[ɦəpt]	[həft]	[sət]	[sat]	[ɦat]
368	'hundred'	[səd]	[səd]	[səo]	[so]	[ɦio]
1565	'seventy'	[ɦəp.tad]	[həf.tad]	[sət.təɾ]	[sət.təɾ]	[ɦət.ˈtəɾ]

3.3.4 Flaps

The flap /ɾ/ fluctuates with the trill [r] in free variation. This variation is evident in the speech of many Wadiyari speakers. Some examples of the variation between [ɾ]~[r] are as follows:

#121	[ˈməg.ɾi]	~	[ˈməg.ri]	'crocodile'
#1440	[ˈgəɾ.wũ]	~	[ˈgər.wũ]	'hold'
#1547	[pə.nəɾ]	~	[pəˈnər]	'fifteen'

Table 29 Free variation between [ɾ] ~ [r] in Wadiyari

No.	Gloss	LRP 1	LRP 2	LRP 3
019	'year'	[wəɾ]~[wər]	[wəɾ]~[wər]	[wəɾ]~[wər]
88	'bear'	[ɾẽs]~[rẽs]	[ɾẽs]~[rẽs]	[ɾẽs]~[rẽs]
217	'house'	[gəɾ]~[gər]	[gəɾ]~[gər]	[gəɾ]~[gər]

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[34] The data of Balochi, Persian, Sindhi, and Urdu presented in this table is based on the researcher's knowledge.

It is noteworthy that this type of variation was not noticed in the literature of the Indo-Aryan languages reviewed during this study.

3.4 Vowels

Eight distinctive oral monophthongs and five distinctive nasal monophthongs are found in the Wadiyari language. Seven sequences of vowels are analyzed as diphthongs, five oral and two nasal. The system of Wadiyari vowels is presented in Table 30 and Table 31 below.

Table 30 Oral and nasal monophthongs of Wadiyari

	Front	Central	Back	
Close	/i/ /ɪ/		/ʊ/ /u/	Oral
			/ʊ̃/ /ũ/	Nasal
Close-mid	/e/		/o/	Oral
	/ẽ/		/õ/	Nasal
Open-mid		/ə/		Oral
Open		/a/		Oral
		/ã/		Nasal

Table 31 Oral and nasal diphthongs of Wadiyari

Long	Short	
/oi/	/oɪ/	Oral
/oĩ/		Nasal
	/əi/	Oral
/ai/	/aɪ/	Oral
/aĩ/		Nasal

The vowels are discussed in groups of oral monophthongs, nasal monophthongs, and diphthongs. Each group is discussed and evidence of contrasts between PSSs is provided with Contrast in Identical Environment (CIE) and Contrast in Analogous Environment (CAE).

3.4.1 Oral monophthongs

Within the eight distinctive oral monophthongs, five monophthongs /i, e, a, u, o/, are phonetically long and three monophthongs /ɪ, ə, ʊ/, are phonetically short, i.e., [ĭ, ă, ŭ]. The three short vowels appear to have no difference in quality, rather they only differ in length with /i, a, u/ respectively. In order to prevent using extra diacritics in the transcription and prevent causing any confusion with the nasal vowels, these short vowels are transcribed as /ɪ, ə, ʊ/ in this paper. In other words, /ɪ, ə, ʊ/ have phonetic realization as short vowels [ĭ, ă, ŭ] while the vowels /i, e, a, u, o/ have phonetic realization as long vowels [iː, eː, aː, uː, oː].

All of the oral monophthongs occur in word-initial, medial and final positions but the three short vowels /ɪ, ə, ʊ/ cannot appear in word-final position. The length contrast is neutralized in word-final position. The oral monophthongs are laid out in Table 32.

Table 32 Oral monophthongs of Wadiyari

	Front	**Central**	**Back**
Close	/i/ /ɪ/		/ʊ/ /u/
Close-mid	/e/		/o/
Open-mid		/ə/	
Open		/a/	

Evidence of contrasts for the oral monophthongs are shown in Table 33.

Table 33 Evidence of contrasts for the oral monophthongs

PSS	Contrast	No.	Transcription	Gloss
/i/ - /ɪ/	CIE	412	/ˈtʰi.kũ/	'spicy'
		417	/ˈtʰɪ.kũ/	'sharp'
	CAE	463	/ɖʲil/	'body'
		165	/dɪl/	'heart'
	CAE	1253	/i.ˈte.ɽa/	'flea'
		1059	/ɪ.ˈnam/	'tribute'

PSS	Contrast	No.	Transcription	Gloss
/i/ - /e/	CIE	251	/tiɾ/	'arrow'
		1545	/teɾ/	'thirteen'
	CAE	1256	/ˈtʃi.ɽi/	'ant'
		1601	/ˈtʃe.ɽe/	'behind'
	CAE	1253	/i.ˈte.ɽa/	'flea'
		1566	/ˈe.ʃi/	'eighty'
/a/ - /e/	CIE	195	/ɓa/	'father'
		358	/ɓe/	'two'
	CAE	363	/ɦat/	'seven'
		037	/ɦem/	'gold'
	CAE	421	/ˈak.ɾo/	'to be hard (rock)'
		1552	/ˈek.wi/	'twenty-one'
/a/ - /ə/	CIE	1442	/ˈpaɽ.wũ/	'drop (tr)'
		324	/ˈpəɽ.wũ/	'to fall'
	CIE	874	/ˈwaɖ.wũ/	'cut'
		820	/ˈwəɖ.wũ/	'to quarrel'
	CAE	1154	/ˈa.kʰo/	'bull'
		590	/ˈə.kəl/	'wisdom'
/u/ - /o/	CIE	685	/ˈɦa.ɦu/	'mother-in-law'
		092	/ˈɦa.ɦo/	'rabbit'
	CAE	484	/ɓuɽ/	'earlobe'
		1215	/poɽ/	'crop (of bird)'

PSS	Contrast	No.	Transcription	Gloss
	CAE	231	/utʰ.ŋi̯/	'trousers'
		449	/ˈol.ja/	'they (3p)'
/u/ - /ʊ/	CAE	1116	/bɦut/	'demon, evil spirit'
		974	/kʰʊt/	'splinter (n)'
	CAE	020	/u.ˈgəm.ŋũ/	'east'
		917	/ʊ.ˈgaɽ.wũ/	'unwrap'

It is important to note that the frequency of occurrences of the close front oral monophthong /i/ is almost none in word initial position, it only occurs in one item in the wordlist of all three LRPs. The close back monophthong /u/ is the most frequent in its overall occurrences yet it is significantly low in word initial position. The occurrences of all oral monophthongs in word initial, word medial and word final positions are shown in Table 34.

Table 34 Frequency of occurrences of the oral monophthongs

	LRP1			LRP2			LRP3		
	Initial	Medial	Final	Initial	Medial	Final	Initial	Medial	Final
/i/	1	473	356	1	451	344	1	485	366
/ɪ/	6	102	0	4	90	0	5	104	0
/e/	12	300	56	14	390	49	17	316	60
/a/	72	989	185	65	952	155	63	974	169
/ə/	29	745	0	29	768	0	25	766	0
/o/	12	591	309	15	604	313	13	561	278
/ʊ/	33	119	0	23	103	0	36	120	0
/u/	9	679	600	17	746	662	6	731	654

3.4.2 Nasal vowels

There are five contrastive nasal monophthongs /ẽ, ã, õ, ũ, ʊ̃/ in the Wadiyari language. Oral vowels phonetically become nasalized before nasal consonants. Some of the possible vowel nasalization processes are separately presented in Section 3.5 later. The contrastive nasal monophthongs are laid out in Table 35 below.

Table 35 Nasal monophthongs of Wadiyari

	Front	Central	Back
Close			/ʊ̃/ /ũ/
Close-mid	/ẽ/		/õ/
Open-mid			
Open		/ã/	

Evidence of contrasts for the nasal monophthongs are given in Table 36.

Table 36 Evidence of contrasts for the oral and nasal monophthongs

PSS	Contrast	No.	Transcription	Gloss
/e/ - /ẽ/	CIE	780	/beʃ/	'argument'
		102	/bẽʃ/	'buffalo'
	CAE	838	/des/	'country'
		088	/ɾẽs/	'bear'
	CAE	1581	/ˈek.lo/	'(be) alone'
		113	/ˈẽ.ɖa/	'egg'
/a/ - /ã/	CIE	189	/pas/	'pus'
		361	/pãs/	'five'
	CAE	192	/ˈad.mi/	'man'
		544	/ˈãd.ɽo/	'blind person'

PSS	Contrast	No.	Transcription	Gloss
/u/ - /ũ/	CAE	526	/ˈpa.ʈu/	'stamp (with foot)'
		410	/ˈkʰa.ʈũ/	'to be sour'
	CAE	061	/ˈɗa.ɾu/	'liquor'
		1529	/ˈkʰa.ɾũ/	'salty'
	CAE	127	/zu/	'louse'
		445	/ˈtũ/	'you (2s)'
/ʊ/ - /ʊ̃/	CAE	970	/kʊ.ˈwa.ɻi/	'axe'
		660	/kʊ̃.ˈwa.ɾi/	'virgin'
	CAE	1303	/ˈkʊʈ.ʈi/	'chaff'
		1031	/ˈkʊ̃.ɖi/	'fishhook'
/ũ/ - /ʊ̃/	CAE	546	/ˈʈũ.ʈo/	'cripple (n)'
		1031	/ˈkʊ̃.ɖi/	'fishhook'
/o/ - /õ/	CAE	375	/ˈmo.ʈũ/	'to be big'
		144	/ˈmõ.sũ/	'mustache'
	CAE	446	/ˈol.jo/	'he/she (3s)'
		091	/ˈõʈ.jo/	'camel'
	CAE	068	/ˈɖo.ɖo/	'corn'
		963	/ˈlõ.ɗo/	'lump (clay, mud)'
/õ/ - /ũ/	CAE	435	/ˈɓõ.ɖo/	'to be bad'
		546	/ˈʈũ.ʈo/	'cripple (n)'
	CAE	1044	/ˈmõ.ɠo/	'(be) expensive'
		1117	/ə.ˈʃũ.bo/	'ghost'

The frequency of occurrences of the short nasal monophthong /ũ/ is significantly lower than the rest of the nasal monophthongs. The mid back nasal monophthong /õ/ does not occur in word final position. The overall occurrences of all nasal monophthongs in word initial position are very low. In order to give a more complete representation of nasal vowels, the frequencies of occurrences of all phonetic and phonemic nasal monophthongs in all three positions are shown in Table 37. For clarity, the frequencies of the phonetic nasal vowels are displayed in the top three rows and the frequencies of the phonemic nasal vowels are displayed in the bottom rows.

Table 37 Frequency of occurrences of phonetic and phonemic nasal monophthongs

	LRP1			LRP2			LRP3		
	Initial	Medial	Final	Initial	Medial	Final	Initial	Medial	Final
[ĩ]	0	13	4	0	9	4	0	5	4
[ɪ̃]	0	0	0	0	2	0	0	2	0
[ɔ̃]	2	61	0	3	57	0	4	70	0
/ẽ/	2	31	2	1	31	1	3	32	1
/ã/	9	121	40	10	108	22	9	71	26
/õ/	6	40	0	9	50	1	5	40	0
/ũ/	1	8	0	1	8	0	1	9	0
/ũ/	2	9	536	0	3	588	2	14	590

3.4.3 Diphthongs

Five oral diphthongs are found in Wadiyari which have been categorized in two types of diphthongs in terms of length (vowel length was discussed earlier in Section 3.4.1). The first type of diphthong has a combination of two vowels which are either both phonetically longer vowels /ai, oi/ or a combination of a short vowel which has a short beginning followed by a vowel which has a phonetically long ending /əi/. The second type is a combination of one phonetically long and one phonetically short vowel /aɪ, oɪ/. Two contrastive nasal diphthongs /aĩ, oĩ/ are also detected in the language which fall under the category of long diphthongs. None of the oral diphthongs can occur in word initial position. The first type of diphthongs can occur word-medially and word-finally, but the second type can only occur in word-medial position. The chart of diphthongs was presented in Section 3.4 as Table 31 and is given in Table 38 again below.

Table 38 Oral and nasal diphthongs of Wadiyari

Long	Short	
/oi/ /oĩ/	/ʊɪ/	**Oral** **Nasal**
/əi/		**Oral**
/ai/ /aĩ/	/aɪ/	**Oral** **Nasal**

Examples of lexical items which have the oral and nasal diphthongs are as follows:

/ai/	#100	/ɠai/	'cow'
	#1126	/bo.ˈpai/	'witchcraft'
	#1141	/ɦɪə.gai.ˈtʰal/	'engagement'

/oi/	#137	/zə.ˈɭoi/	'water leech'
	#233	/ɦoi/	'needle'
	#830	/ɓe.ˈɖoi/	'innocent'

/əi/	#093	/ʃe.ˈɖəi /	'porcupine'
	#200	/zə.ˈməi/	'son-in-law'
	#1042	/ˈpəi.ʃa/	'money'

/aɪ/	#012	/ˈwaɪ.ɾo/	'air'
	#193	/ˈɓaɪ.ɽi/	'woman'
	#772	/ˈwaɪ.do/	'promise'

/oɪ/	#041	/ˈboɪ.ɾũ/	'cave'
	#977	/ˈɖoɪ.ɽo/	'thread (n)'
	#1363	/ˈkoɪ.la/	'charcoal'

| /aĩ/ | #1592 | /aĩ/[35] | 'here' |

| /oĩ/ | #1593 | /oĩ/[36] | 'there' |

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[35] This diphthong has only appeared once as a word in the entire wordlist.

[36] This diphthong is also the only example that appeared in the wordlist.

Diphthongs are very limited in occurrence and some can only occur word-medially and others word-finally, therefore, the evidence of contrasts for most of the diphthongs given in Table 39 are limited to one pair.

Table 39 Evidence of contrasts for the oral and nasal diphthongs

PSS	Contrast	No.	Transcription	Gloss
/ai/ - /aɪ/	CAE	1141	/ɦiə.gai.ˈtʰəl/	'(be) engaged'
		078	/ɦiu.ˈkaɪ.ɾũ/	'to dry (rice)'
/ai/ - /əi/	CAE	1141	/ɦiə.gai.ˈtʰəl/	'(be) engaged'
		1445	/ˈgəiɾ.wũ/	'to drag'
/aɪ/ - /əi/	CAE	012	/ˈwaɪ.ɾo/	'wind'
		1396	/ˈməi.no/	'month'
	CAE	193	/ˈɓaɪ.ɾi/	'woman'
		1198	/ˈɗəi.ɭo/	'den, lair, hole'
	CAE	995	/ˈkʰaɪ.ɾo/	'hoe (n)'
		1042	/ˈpəi.ʃa/	'money'
/oi/ - /oĩ/	CAE	233	/ɦoi/	'needle'
		1593	/oĩ/	'there'
/ai/ - /aĩ/	CAE	100	/ɠai/	'cow'
		1592	/aĩ/	'here'

The number of occurrences of all diphthongs are given in Table 40.

Table 40 Frequency of occurrences of diphthongs

	LRP1			LRP2			LRP3		
	Initial	Medial	Final	Initial	Medial	Final	Initial	Medial	Final
/ai/	0	1	11	0	0	7	0	1	13
/oi/	0	0	9	0	1	13	0	0	11
/aɪ/	0	10	0	0	8	0	0	10	0
/əi/	0	21	13	0	19	17	0	19	9
/oɪ/	0	7	0	0	6	0	0	6	0
/aĩ/	0	0	1	0	0	1	0	0	1
/oĩ/	0	0	1	0	0	1	0	0	1

3.5 Hypotheses on phonological processes and neutralization

Vowel nasalization in many Indo-Aryan languages (Masica 1991) is an important characteristic and perhaps a complex feature to analyze. In addition to having contrastive nasal vowels in Wadiyari, some phonological processes such as possible vowel nasalization and nasal deletion are found and are discussed in Section 3.5.1 - 3.5.2 below. Neutralization of consonants is also observed in Wadiyari which is presented in Section 3.5.3.

3.5.1 Nasalization

There are five contrastive nasal monophthongs and two contrastive nasal diphthongs in the Wadiyari language. Additionally, any oral vowel (monophthong or diphthong) can be nasalized when it is immediately followed by a nasal consonant.

For instance, even though the three monophthongs [i], [ɪ], [ə], and most of the diphthongs are not found to be contrastive nasal vowels, they usually (not always) tend to be nasalized when they occur before a nasal consonant. Rule for the nasalization process and its application is shown below.

Nasalization rule:

$$V \rightarrow [+nas] \text{ /\_C } [+nas]$$

Derivations:

Gloss:	#1109 'decorate'	#359 'three'
Underlying Representation:	/ˈʃəŋ.gar kərwũ/	/təiɲ/
	↓	↓
Nasalization:	ə̃	ə̃ĩ
Surface Representation:	[ˈʃə̃ŋ.gar kərwũ]	[tə̃ĩɲ]

Besides the vowel nasalization, a possible vowel nasalization and nasal deletion process is also observed in Wadiyari. That process is discussed below.

3.5.2 Vowel nasalization and nasal deletion

Having the advantage of speaking several other Indo-Aryan languages related to Wadiyari, the researcher noticed a number of lexical similarities between Wadiyari and those related languages such as Urdu and Sindhi. The lexical item that has similarities in form between Wadiyari and Sindhi or Urdu has probably derived from the same root. Looking at those lexical items, it is evident that the lexicon of Wadiyari has gone through a diachronic sound change of dropping nasal consonants in some environments. It appears that when an oral vowel is immediately followed by homorganic nasal and oral consonants, the oral vowel is nasalized and then the nasal consonant is deleted. In a number of lexical items, bilabial and alveolar nasal consonants that can be seen in Urdu and/or Sindhi are lost in Wadiyari. The nasal feature of the lost consonant is assigned on the preceding vowel. Rules for the vowel nasalization and nasal deletion are given below. The rule ordering is obligatory, vowel nasalization must occur before nasal deletion.

Rules:
1)   Vowel nasalization: V → [+nas] /_C[+nas]
2)   Nasal deletion: N → Ø /Ṽ_C[α place]

Derivations:

Gloss:	#377 'to be long'	#38 'silver'	#172 'finger'
Underlying Representation:	/ˈlam.bo/	/ˈsan.ɗi/	/ˈaŋg.ɭi/
	↓	↓	↓
Vowel nasalization:	ã	ã	ã
	↓	↓	↓
Nasal deletion:	Ø	Ø	Ø
Surface Representation:	[ˈlã.bo]	[ˈsã.ɗi]	[ˈãg.ɭi]

Examples of diachronic sound change with vowel nasalization and nasal deletion in Wadiyari are shown in Table 41.

Table 41 Diachronic sound change in Wadiyari

	No.	English	Sindhi	Urdu	Wadiyari
/ẽ/	113	'egg'	[be.do][37]	[ə̃n.ɖa]	[ˈẽ.ɖa]
/ã/	38	'silver'	[tʃã̃n.di]	[tʃã̃n.di]	[ˈsã.ɗi]
	361	'five'	[pən.ʤə]	[pãntʃ]	[pãs]
	377	'to be long'	[ɖɪ.gʱo][38]	[ləm.ba]	[ˈlã.bo]
	1213	'beak'	[tʃʊmb]	[tʃõntʃ]	[sãs]
	1569	'five-hundred'	[pənʤ so]	[pãntʃ so]	[ˈpã.so]
/õ/	144	'moustache'	[mʊ.tʃʰũ]	[mũn.tʃʰẽ]	[ˈmõ.sũ]

The nasal deletion rule does not automatically apply when the oral and nasal consonants that follow a vowel are not homorganic. Examples of such lexical items are as follows:

#321	[ˈtã̃ɳ̩.wũ]	'to pull'
#785	[ˈman.wi]	'admit (to a wrong)'
#1109	[ʃə̃ɳ̩.ˈgaɾ ˈkəɾ.wũ]	'decorate'

3.5.3 Neutralization of consonants

According to Crystal (2008: 352) neutralization is "a term used in phonology to describe what happens when the distinction between two phonemes is lost in a particular environment." In Wadiyari, the contrast between bilabial and alveolar nasal consonants seems to be neutralized in a consonant cluster environment. The bilabial nasal /m/ is only followed by the voiced bilabial plosive /b/ as the second member of a cluster in the coda position of a syllable. Examples of this type of cluster are as follows:

---

[37] This word is not a cognate with the Urdu and Wadiyari words.

[38] This word is also not a cognate.

#63	/ˈãmb.ɽi/	'mango'
#186	/ˈsãmɓ.ɽi/	'skin'
#1416	/ʧʊ̃mb/	'point'

The alveolar nasal /n/, on the other hand, can be followed by either a dental /t, d/ or a retroflex plosive /ʈ, ɖ/ in the coda of a syllable. For example:

#160	/ˈʃãn.ti/	'peace'
#547	/ˈbĩnd.ɾo/	'dwarf'
#689	/ˈrə̃nɖ.wo/	'widower'
#1560	/ˈʊ̃n.ʈi/	'twenty-nine'

This phenomenon was not observed in the other Indo-Aryan literature reviewed in this study.

3.6 Summary

There are 38 contrastive consonants in Wadiyari that have overall seven places of articulation. The consonants include five implosives /ɓ, ɗ, ᶑ, ʄ, ɠ/, sixteen plosives /p, pʰ, b, bʱ, t, tʰ, d, dʱ, ʈ, ʈʰ, ɖ, ɖʱ, k, kʰ, g, gʱ/, four nasals /m, n, ɳ, ŋ/, four fricatives /s, z, ʃ, ɦ/, three affricates /ʧ, ʧʰ, ʤ/, two flaps /ɾ, ɽ/, two laterals /l, ɭ/ and two approximants /w, j/. All of the consonants occur in word-initial and word-final positions, except the nasal, flap and lateral retroflex which do not occur word-initially. Some consonants show variation but the allophones are not conditioned.

There are eight contrastive oral monophthongs; five of them are long /i, e, a, u, o/, and three are short /ɪ, ə, ʊ/. There are five nasal monophthongs /ẽ, ã, ũ, ʊ̃, õ/. Five oral diphthongs /ai, aɪ, əi, oi, oɪ/, and two nasal diphthongs /aĩ, oĩ/ are found in Wadiyari. Generally oral vowels are nasalized when they are followed by nasal consonants.

Chapter 4

Syllable Structures and Word Structures in Wadiyari

4.1 Introduction

Segments of Wadiyari sounds, including consonants and vowels were described in the previous chapter. A number of those sound segments are phonetically ambiguous [i, u, j, w] and can be analyzed either as vowels or consonants. According to Burquest (2006: 155), "the most common instance of this sort of ambiguity concerns high vowels and glides." Nasal vowels are ambiguous and also need to be interpreted. The sound system of Wadiyari also includes sequences of segments such as aspirated plosives, affricates, aspirated affricates and others, which can be analyzed as two phonological units or as a single unit. In order to describe the syllable and word structures of Wadiyari, it is necessary to determine whether to analyze those phonetically ambiguous segments as vowels or consonants.

This chapter deals with the ambiguous segments and sequences of segments first. After determining the ambiguous segments and sequences, this chapter gives a brief background of the notion of syllables in general, and then it discusses the syllable and word structures in Wadiyari.

4.2 Ambiguous segments and sequences

As mentioned above, it is necessary to label each phonological segment as either consonant or vowel in the syllable and word analysis. In the Wadiyari language, a number of segments and sequences of segments appear to be potentially ambiguous and need be determined to be C, CC, V or VV. The ambiguous consonant and vowel interpretations in Wadiyari are individually presented respectively in the two subsections below.

4.2.1 Consonants

Bilabial and palatal approximants [w, j] are phonetically ambiguous segments which can be interpreted as either consonants ([w, j] = C) or high vowels ([w, j] = V, i.e., [w] = [u], and [j] = [i], respectively) in the language. These approximants [w] and [j] are interpreted as consonants in Wadiyari for primarily two reasons. First, the consonants

that are not ambiguous do occur in similar environments where the ambiguous approximants [w, j] occur. For instance, almost all of the consonants occur word-initially including the approximants which suggests that the approximants function as consonants. Examples are as follows:

#019	[waɾ]	CVC	'year'
#598	[jad]	CVC	'remembrance'
#052	[gaɦi]	CVC	'grass'
#1515	[baɾ]	CVC	'weight'

Second, the syllable structure becomes very complex if the approximant [w] is analyzed as a high vowel in the following words:

#1143	[ˈui.ua]	VV.VV *	'wedding'
#688	[uəu]	VVV*	'daughter-in-law'
#1148	[mə.iət]	CV.VVC*	'funeral'
#011	[sa.io]	CV.VV*	'shadow/shade'

In order to keep the syllable structure of Wadiyari less complex, the approximant [w] needs to be analyzed as a consonant. It is shown in the examples below:

#1143	[ˈwi.wa]	CV.CV	'wedding'
#688	[wəw]	CVC	'daughter-in-law'
#1148	[mə.ˈjət]	CV.CVC	'funeral'
#011	[ˈsa.jo]	CV.CV	'shadow/shade'

Therefore, the approximants are interpreted as consonants, as shown below:

/w, j/ = C.

There are several ambiguous sequences of consonants in Wadiyari which can be grouped into two kinds of sequences: a) plosives followed by a glottal fricative [ph, bɦ, th, dɦ, ʈh, ɖɦ, kh, gɦ], and b) dental plosives followed by post-alveolar fricatives plus a glottal fricative [tʃ, tʃh, dʒ]. These segments can either be interpreted as sequences of segments or single units. Burquest (2006: 166) argues that "if an ambiguous sequence has a particular widespread occurrence, this supports its being considered as a unit rather than a sequence." In Wadiyari these ambiguous sequences do occur frequently and across all places of articulation. Therefore, all of the following segments are interpreted as single phonological units:

/pʰ, bɦ, tʰ, dɦ, ʈʰ, ɖɦ, kʰ, gɦ/   = C

/tʃ, dʒ, tʃʰ/   = C.

A number of sequences of identical sounds are found in Wadiyari, i.e., [pp, tt, dd, ʈʈ, ɖɖ, kk, gg, nn, ss, zz, ll]. These sounds appear to be in a juxtaposition of two identical sounds and are called 'false geminates' (Marlett 2014: 144). These false geminates can also be interpreted either as sequences of two segments or as single units, i.e., long consonants. It is decided to interpret the geminates as sequences of two consonants for a few reasons. First of all, they do not have a widespread occurrence in the data. Second, this interpretation allows the maximal onset principle[39] to be followed in marking the syllable breaks in the word-medial position. For example, it makes more sense to analyze the geminates as a sequence of consonants in the word #1549 [ɦət.təɾ] CVC.CVC 'seventeen' than as a long consonants [ɦət:.əɾ] CVC.VC or [ɦətt.əɾ] CVCC.VC. This interpretation also involves the basic principle that when the maximal syllable template can accommodate the sequences as clusters then there is no need to add additional phonemes in the inventory. Therefore, the following geminates are interpreted as sequences of consonants:

/pp, tt, dd, ʈʈ, ɖɖ, kk, gg, nn, ss, zz, ll/ = CC.

4.2.2 Vowels

As established in the previous chapter, there are five contrastive nasal vowels in Wadiyari which can possibly be interpreted either as sequences of a vowel and a nasal consonant [VC] or as a single unit with a nasal diacritic [Ṽ]. All of the five contrastive nasal vowels are interpreted as a single unit, as shown below:

/ẽ, ã, ũ, ʊ̃, õ/ = V.

All five oral diphthongs in Wadiyari are interpreted as sequences of two phonological units. This interpretation helps to prevent positing more phonemes in the vowel inventory and keep it rather simple. The oral diphthongs are shown below:

/ai, oi, əi, aɪ, oɪ/ = VV.

The nasal diphthongs are also interpreted as sequences of two phonological units, as shown below:

/aĩ, oĩ/ = VV.

---

[39] "The maximal onset principle (or 'CV rule') states that a . . . VCV . . . string is universally syllabified as . . . V.CV." (Crystal 2008:339).

4.3 An overview of syllables and syllable structures

The importance of the syllable has developed over time in phonological studies and defining it is not easy. Marlett (2014: 24) defines a syllable simply as "a sequence of sounds that cluster together around a single peak of sonority." According to Pike (1967) and Burquest (2006) the syllable is a "rhythm wave" with an onset, peak and coda. Burquest (2006: 148) visualizes the notion by Figure 16 which displays "a peak of sonority (commonly a vowel), forming the nucleus or peak of the syllable, with a tapering off in sonority on both sides (commonly consonants)".
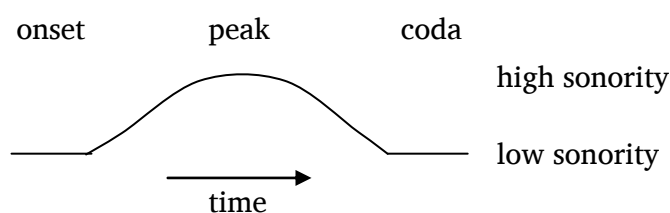
Figure 16 Sonority sequencing (Burquest 2006: 148)

As described above, a syllable must contain a nucleus (n), commonly a vowel sound. Onset (o) and coda (c), commonly consonants, are optional in the syllable. Syllable patterns are usually represented as a string of C (consonant) and V (vowel) symbols. The most common type of syllable is CV which occurs in every language, and some languages allow only an onset and a nucleus (CV) in their syllable structure. Based on these and other facts, Burquest (2006) argues that the onset position is stronger than the coda position, and since many languages do not allow a coda in the syllable, the coda position must be a subordinated syllable position in the syllable structure. This notion of syllable structure is displayed in Figure 17 below.
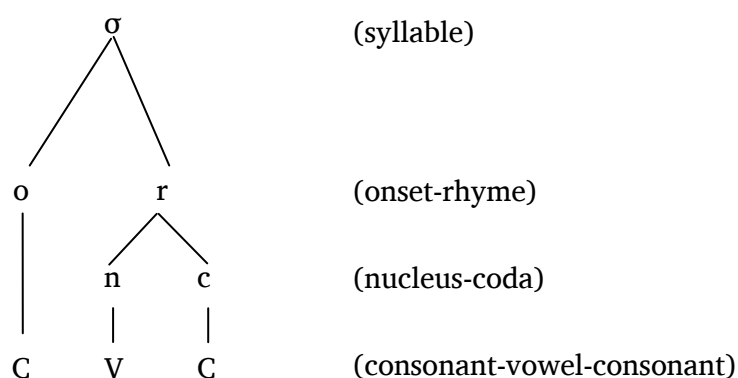
Figure 17 Syllable structure (Burquest 2006: 150)

The notions of syllable and syllable structure described in this section will be applied in describing the syllable, syllable structure and word structure in the Wadiyari language.

4.4 Syllable structures in Wadiyari

The syllable structures in Wadiyari can be categorized as having complex syllable structures. The largest syllable in the language can be divided into two maximal syllable templates. According to the first template, the syllable can have a complex onset which can be followed by a simple nucleus (a single vowel), and then followed by a complex coda. The smallest syllable, according to the first template, can be formed with only a simple nucleus. According to the second syllable template, the largest syllable can have a simple onset followed by a complex nucleus then followed by a simple coda. The smallest syllable can be formed with only a complex nucleus. The syllable structures and the maximal syllable templates are given in Table 42.

Table 42 Syllable structures and syllable templates in Wadiyari

Syllable Structures	Maximal Syllable Template
V, CV, CCV, CVC, CVCC, CCVC, VC	(C)(C)V(C)(C) and
VV, CVV, CVVC	(C)VV(C)

Every word in Wadiyari can be parsed with the two maximal templates given in Table 42 above, in which, C stands for Consonant, V stands for Vowel, and ( ) means that the element is optional. Both of the maximal syllable templates show that syllables in Wadiyari can be either 'light' or 'heavy'. A 'light syllable' refers to the syllable that contains a rhyme with only a simple nucleus. A 'heavy syllable' refers to the syllable that contains a rhyme with a complex nucleus or a coda. In other words, an open syllable with a monophthong is called a light syllable, and a closed syllable or a syllable with a diphthong is called a heavy syllable.

According to the description of the syllable structure displayed in Figure 16, a Wadiyari syllable (which also happens to be a monosyllabic word) with a complex coda can be analyzed as in Figure 18 below.

σ

o   r

     n   c

C   V   C   C

ɾ   a   ɦ   ʈ   'bruise (n)'   #507
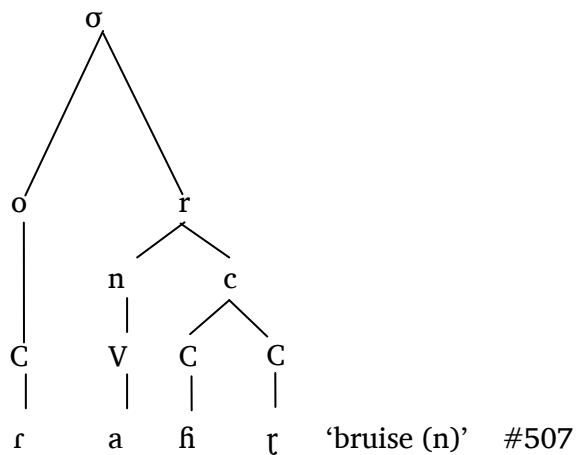
Figure 18 Structure of a Wadiyari syllable

The maximal syllable template given in Table 42 allows for 13 possible syllable structures in the language. Ten syllable structures were found in the data, nine of those structures occur in monosyllabic words and one syllable structure is shown in non-monosyllabic words. Examples are listed in Table 43. The non-monosyllabic words have been separated into syllables using a period for marking the syllable break and have been emboldened to mark the syllable structure being illustrated in the Table below.

Table 43 Examples of syllable structures

	Syllable structure	Example	Gloss	Reference No.
1	V	/a/	'this'	396
		/**a**.ɖi/	'beam, rafter'	929
		/**e**.na/	'because'	1617
2	CV	/ɓe/	'two'	358
		/mu/	'I'	444
		/tu/	'you'	445
3	CVC	/ɦem/	'gold'	037
		/ɠam/	'village'	427
		/ɓuʈ/	'earlobe'	484
4	CCV	/ˈas.**tɾi**/	'wife'	202
		/**ɖɾe**.ˈwəɾ/	'driver'	1066
		/ˈpəɾ.**tmi**/	'world'	1331
5	CCVC	/tjaɾ/	'awake, alert'	539
		/**pɾem** kəɾ.wũ/	'to love'	289
		/**tɾɪk**.wũ/	'to slide'	1431

	Syllable structure	Example	Gloss	Reference No.
6	CVCC	/dost/	'friend'	212
		/ɾafiʈ/	'bruise'	507
		/ləwz/	'word'	750
7	VC	/ek/	'one'	357
		/aʈʰ/	'eight'	364
		/az/	'today'	1397
8	VV	/aĩ/	'here'	1592
		/oĩ/	'there'	1593
9	CVV	/ɠai/	'cow'	100
		/ɦoi/	'needle'	233
		/**koi** ˈɗa.ɭo ne/	'never	1394
10	CVVC	/gəĩɳ/	'rainbow'	008
		/maɪʈ/	'relative'	664
		/təĩɳ/	'three'	359

Based on the maximal syllable templates, it is assumed that the language allows three more syllable patterns (CCVCC, VCC, and VVC). However, it is obvious that they are not common syllable structures since no examples of these three syllable structures are found in the data.

4.4.1 The syllable onset

The consonants and vowels in the syllable template are usually abbreviated with a subscript number as C_1, C_2, and so on, depending on how many consonants are allowed in the templates. The syllable structure of Wadiyari allows all consonants but /ŋ/ to occur as the first consonant, for example [C_1V] /ˈgə.ɭo/ 'throat' #468, and [C_1VV] /məi.no/ 'month' #1396.

The syllable structure of Wadiyari does allow consonant clusters in the onset position, with a maximum of two consonants. However, the sequences of consonants possible in the consonant clusters (C_1C_2) in the onset position are quite limited. Only /p, t, ɖ, k, s, ʃ, tʃ, ʤ, ɾ/ can occur as the C_1 in a consonant cluster in the onset of the syllable which can only be followed by /ɾ/, /m/ or /j/ as the C_2 in the cluster. Table 44 shows the distribution of the consonant clusters which occur in the onset position of the syllable.

Table 44 Distribution of consonant clusters in the onset position

C₂ / C₁	ɾ	m	j
p	x		
t	x	x	x
ɖ	x		
k	x		
s			x
ʃ			x
tʃ			x
ʤ			x
ɾ			x

Based on the distribution of the initial consonant clusters presented in Table 44 above, eleven clusters occur in the onset position of the syllable in Wadiyari. They occur in the syllable structure [C₁C₂V], i.e., /pɾ-, tɾ-, tm-, ɖɾ-, kɾ-, tj-, sj-, ʃj-, tʃj-, ʤj-, ɾj-/. Examples are shown in Table 45 below.

Table 45 Consonant clusters in the onset position

Initial Clusters	Examples	Gloss	Reference No.
/pɾ-/	/pɾem ˈkaɾ.wũ/	'to love'	289
/tɾ-/	/ˈas.tɾi/	'wife'	202
/tm-/	/ˈpəɾ.tmi/	'world'	1331
/ɖɾ-/	/ɖɾe.ˈwəɾ/	'driver'	1066
/kɾ-/	/ˈməʃ.kɾo/	'funny'	1542
/tj-/	/tjaɾ/	'awake, alert'	539
/sj-/	/ˈaɭ.sjũ/	'bait'	1032
/ʃj-/	/ˈpəɾ.ʃjo/	'sweat'	188
/tʃj-/	/ˈpʰəɭ.tʃjũ/	'window'	928
/ʤj-/	/ˈsu.ʈi ʤjũ/	'to set free'	461
/ɾj-/	/ɦaɦ.ɾjã/	'in-law'	683

As mentioned above, most of the consonant clusters in the onset position are very limited and the occurrences of the clusters are very rare. Some of the clusters, for example, /tm-, ɖɾ-, kɾ-, sj-, tʃj-, ʤj-/ occur only one time and the occurrences of the rest of the clusters are not more than ten.

4.4.2 The syllable nucleus

The syllable nucleus in Wadiyari can be a simple nucleus which contains an oral or nasal monophthong (V_1), or a complex nucleus which contains an oral or nasal diphthong (V_1V_2). A minimum of one V and a maximum of two Vs can occur in the nucleus position in the syllable. All of the oral and nasal monophthongs can occur in the nucleus position of the syllable with a simple nucleus with no restrictions.

However, the inventory of vowels in a complex nucleus (V_1V_2) is rather restricted to only three vowels as the first V_1: the central vowels /a, ə/, and the close-mid back vowel /o/. Two vowels can occur in a complex nucleus as the second V_2: the close front /i, ɪ/. The vowels /a, o/ are followed by /i, ɪ/ and /ə/ is only followed by /i/. The complex nucleus may also have nasalized vowels. For instance, /a/ and /o/ may be followed by the nasal vowel /ĩ/. The complex nucleus inventory is presented in Table 46 below.

Table 46 Distribution of oral and nasal diphthongs in the nucleus position

V_2 V_1	i	ĩ	ɪ
a	x	x	x
ə	x		
o	x	x	x

According to the inventory of complex nuclei in Table 46, seven complex nuclei can occur in the syllable structures of the forms [V_1V_2], [$C_1V_1V_2$] and [$C_1V_1V_2C_3$], i.e., /ai, aĩ, aɪ, əi, oi, oĩ, oɪ/. Examples are given in Table 47 below.

Table 47 Examples of complex nuclei in Wadiyari

Complex Nucleus	Examples	Gloss	Reference No.
/ai/	/ɓəd.ˈdai/	'all'	371
/aĩ/	/aĩ/	'here'	1592
/aɪ/	/ˈwaɪ.ɾo/	'wind'	012
/əĩ/	/təĩɳ/	'three'	359
/oi/	/zə.ˈɭoi/	'water leech'	137
/oĩ/	/oĩ/	'there'	1593
/oɪ/	/ˈɖoɪ.ɽo/	'string'	850

The frequency of occurrences of the complex nuclei discussed above is high in the data, but the nasal complex nuclei /əĩ, oĩ/, occur infrequently.

4.4.3 The syllable coda

All of the phonemic consonants are permissible as a single final consonant (C_3) in the coda position. Consonant clusters are also allowed in the coda position of the syllable but they are not very productive. Maximally, two consonants, abbreviated as C_3 and C_4, can occur in the coda position. The first consonant (C_3) of the cluster in the coda position is limited to /k, s, ɦ, ɾ, ɭ, w/ which can be followed by /t, d, k, s, z, ʧ, ɾ, ɽ/ as the second consonant (C_4) of the cluster. Table 48 shows the possible consonant clusters occurring in the coda position in the syllable.

Table 48 The distribution of consonant clusters in the coda position

C₃ \ C₄	t	d	k	tʃ	s	z	ɾ	ʈ
k	x				x			
s	x							
ɦ					x		x	x
ɾ	x					x		
ɭ						x		
w		x	x	x		x		

Based on the distribution of the final consonant clusters shown in Table 48 above, thirteen possible clusters can occur in the coda position of the syllable. For instance, they occur in the syllable structure [VC₃C₄], i.e., /-kt, -ks, -st, -ɦs, -ɦɾ, -ɦʈ, -ɾt, -ɾz, -ɭz, -wd, -wk, -wtʃ, -wz/. Examples are shown in Table 49 below.

Table 49 Consonant clusters in the coda position

Final Clusters	Examples	Gloss	Reference No.
/-kt/	/ˈzo.no wəkt/[40]	'olden times'	1400
/-ks/	/ʈeks/[41]	'tax'	1058
/-st/	/dost/	'friend'	212
/-ɦs/	/beɦs/[42]	'argument'	780
/-ɦɾ/	/ˈneɦɾ.wũ/	'to exit'	319

[40] This example is taken from LRP2 and LRP3. LRP1 inserted a vowel between the cluster /-kt/ and pronounced the item as [wə.kət].

[41] This is a borrowed word recorded in the speech of LRP2 and LRP3. LRP1 again inserted a vowel between the cluster /-ks/ and pronounced the item as [ʈe.kəs].

[42] This example is also taken from LRP2 and LRP3. LRP1 pronounced this word slightly different as /beʃ/.

Final Clusters	Examples	Gloss	Reference No.
/-ɦɽ/	/ɾaɦɽ/	'groan'	507
/-ɾt/	/be.ˈsʊɾt/	'senile person'	548
/-ɾz/	/pʰəɾz/	'duty'	811
/-ɭz/	/kʰaɭz awi/	'to be itchy'	302
/-wd/	/səwd/	'fourteen'	1546
/-wk/	/tʃəwk/	'crossroads'	1071
/-wtʃ/	/gəwtʃ/	'bamboo shoot (edible)'	054
/-wz/	/ləwz/	'word'	750

As illustrated above, the frequency of occurrences of consonant clusters in the coda position is very low. Eight of the clusters /-kt, -ks, -ɦs, -ɭz, -wd, -wk, -wz, -wtʃ/ only occur once, two /-st, -ɦɽ/ occur twice and the rest occur less than ten times.

4.5 Word structures

As the syllable structures of Wadiyari have been described and the syllable-construction parameters given, the next stage is to describe the word structures of Wadiyari. The common words in Wadiyari tend to be monosyllabic, disyllabic and trisyllabic. Tetrasyllabic words are found in the language but they do not seem to be very common, in fact the total number of their occurrences in the wordlist is only seven. The common word structures, one to three syllable-long words, can be both open syllable and closed syllable words. The tetrasyllabic words can only be open syllable words in the language. The most complex disyllabic word can be analyzed in a tree diagram shown in Figure 19 below.
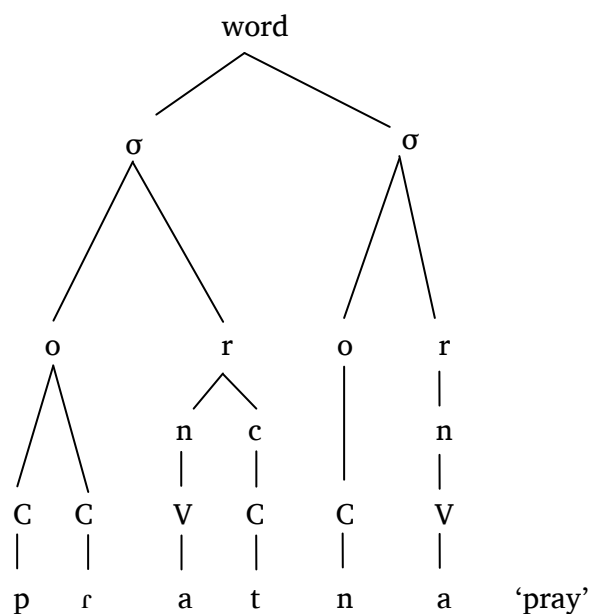
Figure 19 Structure of a complex disyllabic word in Wadiyari

Examples of each type of word are given in Table 50 below.

Table 50 Examples of word structures

Word structures[43]	Examples	Gloss	Reference No.
1. Monosyllabic words			
V	/a/	'this'	396
CV	/ɓe/	'two'	358
VC	/ek/	'one'	357
CVC	/ɦem/	'gold'	037
CCVC	/tjaɾ/	'awake, alert'	539
CVCC	/dost/	'friend'	212
VV	/aĩ/	'here'	1592

---

[43] In order to display the syllable and word structures clearly, the stress is omitted from the syllable structures in this column.

Word structures[43]	Examples	Gloss	Reference No.
CVV	/ɠai/	'cow'	100
CVVC	/təĩŋ/	'three'	035
2. Disyllabic words			
CV.CV	/ˈsa.ɾi/	'machete'	997
CV.CVC	/ɾe.ˈwəl/	'clear (v)'	092
CVC.CVC	/mas.ˈtəɾ/	'teacher'	723
CVC.CV	/ˈlʊg.ɽa/	'cloth'	098
CVC.CCV	/ˈpəɾ.ʃjo/	'sweat (n)'	188
CCVC.CV	/ˈtrɪk.wũ/	'to slide'	1431
CCV.CVC	/ɖɾe.ˈwaɾ/	'driver'	1066
CVCC.CV	/ˈnefiɾ.wũ/	'come out'	1427
CV.CVV	/zə.ˈməi/	'son-in-law'	200
CVVC.CV	/ˈkəiɽ.wũ/	'to bite'	097
V.CV	/ˈõ.sũ/	'up'	1594
V.CVC	/ə.ˈɖaɾ/	'eighteen'	1550
VC.CV	/ˈãŋ.l̪i/	'finger'	172
VC.CCV	/ˈas.tɾi/	'wife'	202
3. Trisyllabic words			
CV.CV.CV	/ɖə.ˈma.ɽo/	'smoke'	246
CV.CV.CVC	/ɖɪ.ja.ˈwən/	'(be) kind'	625
CVC.CV.CV	/bəd.ˈla.wũ/	'alter, change'	1464
CVC.CVC.CV	/kən.ˈkʊɽ.jo/	'bat'	1191

Word structures[43]	Examples	Gloss	Reference No.
CVC.CVC.CCV	/ʈək.ʈək.ˈɽjũ/	'hornbill'	1207
CV.CVC.CVC	/mə.gəɾ.ˈməʧ/	'crocodile'	121
CV.CVV.CV	/ɦu.ˈkaɪ.ɾũ/	'to dry (rice)'	078
CV.CVV.CVC	/ɦə.gai.ˈtʰəl/	'(be) engaged'	1141
V.CV.CV	/o.ˈʃi.gũ/	'pillow'	224
V.CVC.CV	/ʊ.ˈpəɽ.wũ/	'to lift'	454
V.CVC.CVC	/i.man.ˈdaɾ/	'honest'	628
VC.CV.CV	/əz.ˈwa.ɭũ/	'light'	1378
VC.CVC.CV	/atʰ.ˈmeɾ.wo/	'sunset'	1404
4. Tetrasyllabic words			
CV.CV.CV.CV	/ʃe.wa.ˈda.ɾi/	'host'	700
CVC.CV.CV.CV	/pʰəɾ.pʰə.ˈɽa.wũ/	'flap the wings'	1225
VC.CV.CV.CV	/əz.wa.ˈɭɪ.jũ/	'light'	1378
CV.CVC.CV.CV	/pə.ɾəm.ˈɗa.ɭe/	'tomorrow'	1398

4.6 Stress

In Indo-Aryan (IA) languages (discussed in Section 2.6.1.3), stress is generally predictable but there are some IA languages which have contrastive tones (Masica 1990; Lunsford 2001). It is difficult to make a generalization but most of the languages found to be tonal belong to the Northwestern Zone of the IA language family.

Stress in the Wadiyari language is realized as a higher pitch on the stressed syllable. The stress is predictable and the primary stress falls on the penultimate syllable of the word if the final syllable is light (without coda or diphthong). However, when the final syllable is heavy, (i.e., a closed syllable word or if the final syllable has a diphthong)

the primary stress is placed on the final syllable of the word. Some examples are as follows:

Open and light syllable words:

#1015	/ˈtʰa.pa/	'footprint'
#954	/ʈə.ˈko.ɾi/	'bell'
#700	/ʃe.wa.ˈda.ɾi/	'host'

Open and heavy syllable words:

#137	/zə.ˈɭoi/	'water leech'
#371	/ɓəd.ˈdai/	'all'

Closed (heavy) syllable words:

#1204	/po.ˈpəʈ/	'parrot'
#85	/zə.na.ˈwəɾ/	'animal'

Stress patterns of Wadiyari can be elegantly described by using "Metrical Phonology". The application of this theory, here, is mainly based on Goldsmith (1990). As discussed in Section 2.2.2, Metrical phonology is a theory concerned with organizing phonological strings into groups in a hierarchy, such as segments into syllables, syllables into phonological feet, feet into phonological words, and so on. The syllable structure has already been established in Section 4.4. The next stage of hierarchy is to organize the syllables in Wadiyari into phonological feet (abbreviated as F). Goldsmith (1990: 182) presents the following four parameters for the construction of feet:

1. Boundedness[44]: bounded/unbounded
2. Foot[45] headedness: left-headed/right-headed
3. Directionality: left-to-right/right-to-left
4. Quantity sensitivity[46]: sensitive/insensitive

---

[44] According to Crystal (2008: 59), "in metrical phonology, a foot-shape parameter which governs the distribution of stresses. Bounded feet contain no more than two or three syllables, and stresses fall within limited distances from each other and from word edges. Unbounded feet have no restriction in size or on stress distribution."

[45] "The fundamental unit of rhythm in phonology, most typically consisting of a sequence of syllables one of which bears a stress or other prosodic element; this notion is of central importance in Metrical Phonology" Trask (1996: 147).

[46] This basically means that the language is counting moras – thus in the metrical grid representation we must place a mora 'x' above every vowel and every coda.

Boundedness refers to feet in relation to the numbers of syllables they have; feet with two syllables are called bounded or binary, and the feet with no limited syllables are called unbounded. Foot headedness describes the most prominent syllable of the foot; foot headedness can be left-headed if the left syllable of the foot is more prosodic than the right syllable of the foot. Directionality refers to the direction in which the feet are built, i.e. if a word has three or five syllables and directionality of feet is left-to-right then the bounded feet are built from left-to-right and the last syllable is left without a foot. Quantity sensitivity means binary distinction is established by involving the weight of a syllable and dividing the syllables into heavy and light syllables (Goldsmith 1990: 177).

Taking the four parameters above into account, the stress system of Wadiyari can be presented by using a 'metrical tree', also referred as the 'arboreal approach' (Burquest 2006: 280), or a 'metrical grid' which is another formal means of representing stress (Goldsmith 1990:190). It is rather simple to use the metrical grid approach first for illustrating the stress patterns of words in Wadiyari because Wadiyari appears to be a Quantity Sensitive (QS) language in which syllable weight is essential to building feet. The metrical grid is basically a set of levels, typically three levels, built parallel to the sequences of syllables which make up the word. The lowest level is called 'mora or syllable level' in which each mora (a unit of syllable weight that can be either a simple nucleus or a coda) is marked with an 'x'. The next level up is called 'foot level', where the syllable containing stress is marked with an x, which in effect becomes the head of the feet. The top level of the grid is called 'word level' in which the head of the word (which receives the primary stress of the word) is marked with an x.

The theory can be applied to describe the foot-construction in Wadiyari by defining the following necessary foot level parameters first:

1. Boundedness: feet are bounded (binary)
2. Foot headedness: left-headed
3. Directionality: feet are built right-to-left
4. Quantity-sensitive: the language is quantity-sensitive

As a result of the above parameters, Figure 20 - Figure 22 illustrate the foot-construction of polysyllabic words that have only open and light syllable words. The top (or third) level of the metrical grid is not given in the foot-construction process but will be given in the word construction process.

```
        x                       foot level
    (x   x)                     mora level
    /ˈɓa  ɭo/                    'bird's nest'          #109
```

Figure 20 Foot-construction in a polysyllabic word with two syllables

```
        x                       foot level
    x  (x   x)                  mora level
   /bə  ˈbo  ʈa/                'bubble                #1356
```

Figure 21 Foot-construction in a polysyllabic word with three syllables

```
    x        x                  foot level
  (x   x)  (x   x)              mora level
  /ʃe  wa  ˈda  ɾi/             'host'                 #700
```

Figure 22 Foot-construction in a polysyllabic word with four syllables

The next stage of the hierarchy in metrical phonology is to organize the feet into phonological words. To do so, the following word-level parameters need to be set for word-construction:

1. Word-headedness: right-headed
2. Secondary stress: suppression[47]

As a result of the above parameters Figure 23 - Figure 25 display the word-construction and the stress system in Wadiyari. The suppression is displayed with a circle and arrow. The stress placement can be seen on the penultimate syllable of the word.

```
        x                       word level
        x                       foot level
    (x   x)                     mora level
    /ˈɓa  ɭo/                   'bird's nest'          #109
```

Figure 23 Word-construction in a polysyllabic word with two syllables

---

[47] This means that the secondary stress on a word is not allowed in the language.

```
        x                   word level
        x                   foot level
  x   (x   x)               mora level
/bə  ˈbo  ʈa/               'bubble'           #1356
```

Figure 24 Word-construction in a polysyllabic word with three syllables

```
              x             word level
    ⟨x⟩       x             foot level
  (x    x)  (x    x)        mora level
/ʃe  wa  ˈda  ɾi/           'host'             #700
```

Figure 25 Word-construction in a polysyllabic word with four syllables

Words having a final heavy syllable have a different stress pattern. The notion of heavy syllables here is the standard and common one that has two moras (i.e., syllables with codas and diphthongs). Primary stress in words with heavy syllables is placed on final heavy syllables. By applying the four parameters of foot construction and the two parameters of word construction, the word construction with final heavy syllables results in Figure 26 and Figure 27 as examples.

```
        x                   word level
        x                   foot level
  x   (x  x)                mora level
/ɦə  ˈɾ ə p/                'snake'            #117
```

Figure 26 Word-construction in heavy syllable word with two syllables

```
              x             word level
    ⟨x⟩       x             foot level
  x   (x x)  (x x)          mora level
/ɦə  g ai  ˈtʰ ə l/         '(be) engaged'     #1141
```

Figure 27 Word-construction in heavy syllable word with three syllables

The language has tetrasyllabic words with heavy syllables - such as /bad.ˈla.wũ/, and /kʰan.kə.ˈzu.ɾo/, and so on, which need some explanation as to why they are not stressed on their heavy syllables if they are QS. Actually, the Wadiyari language is QS only at the mora level, but not at the foot level. This means that it counts moras and

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puts an x above every mora, which non-QS languages do not do. But then, at the foot level, the feet do not try to find a heavy syllable - they just build feet by counting every two moras from right to left, building binary feet, and then assigning the head on the left x. Basically, QS applies at the mora level, the rest of the stress system (foot level and word level) just uses the same set of parameters already established for words with zero heavy syllables. This is illustrated in Figure 28 and Figure 29.

```
                    x            word level
      ⟲  x          x            foot level
   (x x)  (x   x)                mora level
   /b ə d  ˈla  wũ/              'to alter'              #1464
```
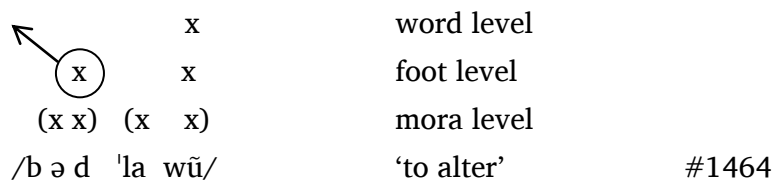
Figure 28 Word-construction in heavy syllable word with three syllables

```
                   x            word level
      ⟲  x         x            foot level
   x (x   x) (x   x)            mora level
   /kʰ ə n  kə  ˈzu  ɾo/         'centipede'            #1265
```
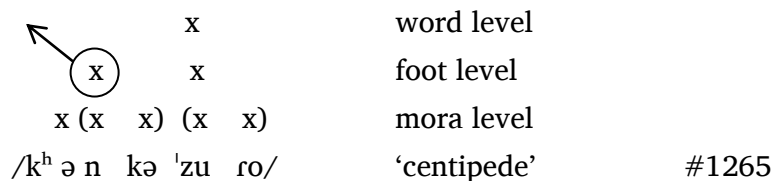
Figure 29 Word-construction in heavy syllable word with three syllables

In summary, the stress in Wadiyari is predictable and the primary stress always falls on the penultimate syllable of the word if the final word is not heavy as demonstrated in Figure 23 - Figure 25 above. However, when the final syllable is heavy, the primary stress falls on the final syllable of the word as illustrated in Figure 26 and Figure 27. Wadiyari is a secondary stress suppression language, which means the secondary stress is not allowed in the word.

4.7 Summary

A number of ambiguous segments and sequences of segments are found in the Wadiyari language. The approximants [w] and [j] are interpreted as consonants, /w, j/ = C. The sequences of a stop followed by a glottal fricative [ph, bɦ, th, dɦ, ʈh, ɖɦ, kh, gɦ] are analyzed as aspirated stops, /pʰ, bɦ, tʰ, dɦ, ʈʰ, ɖɦ, kʰ, gɦ/ = C. The sequences of a dental stop followed by a fricative [tʃ, dʒ, tʃh] are interpreted as single units, /ʧ, ʤ, ʧʰ/ = C. Since consonant clusters are permissible in the syllable template of Wadiyari and the occurrences of the geminate consonants is very limited, therefore the geminates [pp, bb, tt, dd, ʈʈ, ɖɖ, kk, gg] are analyzed as sequences of two consonants = CC. Five sequences of two oral monophthongs [ai, əi, aɪ, oi, oɪ] are analyzed as diphthongs. For instance, /ai, əi, aɪ, oi, oɪ/ = VV. Nasal monophthongs and diphthongs are interpreted

as nasal vowels. For example, nasal monophthongs /ẽ, ã, ũ, ŭ, õ/ $= \tilde{V}$, nasal diphthongs /aĩ, oĩ/ $= V\tilde{V}$.

The maximal syllable template is presented in two rules: (C)(C)V(C)(C) and (C)VV(C), however, examples of CCVCC, VCC and VVC structures are not found in the data. Except for /ŋ/, all of the consonants can occur in the onset position as a single consonant. In the coda position of the syllable, all consonants may occur as single consonant. A maximum of two consonants (C_1C_2) may occur in the onset and two consonants (C_3C_4) in the coda positions, and a maximum of two vowels (V_1V_2) may occur in the nucleus position of the syllable. The distribution of C_1C_2 in the onset position is restricted to /p, t, ḍ, k, s, ʃ, tʃ, ʤ/ as the C_1 followed by /m, ɾ, j/ as the C_2, i.e., /pɾ-, tɾ-, tm-, ḍɾ-, kɾ-, tj-, sj-, ʃj-, tʃj-, ʤj-, ɾj-/. The distribution of C_3C_4 in the coda position is also restricted to /k, s, ɦ, ɾ, ḷ, w/ as the C_3, followed by /t, d, k, s, z, tʃ, ɾ, ʈ/ as the C_4, i.e., /-kt, -ks, -st, -ɦs, -ɦɾ, -ɦʈ, -ɾt, ɾz-, -ḷz, -wd, -wk, -wtʃ, -wz/.

Generally, words in Wadiyari can be from one to four syllables long. Monosyllabic, disyllabic and trisyllabic words can be open and closed syllables, but tetrasyllabic words, which are not common in the language, can only have open final syllables. Stress is predictable with a primary stress which always falls on the penultimate syllable of the word. But when the final syllable is heavy, or it is a closed syllable, the primary stress falls on the final syllable of the word.

Chapter 5
Conclusion

5.1 Introduction

Describing the speech sounds of the Wadiyari language spoken in Pakistan is the core objective of the present research study. Wadiyari belongs to the group of Gujarati languages which is associated with the central zone of the Indo-Aryan language family. The speakers of Wadiyari are called Wadiyara and trace back to Gujarat (Jeffery 1999), the western corner of India where the language is also still spoken. The Wadiyari language has hardly been studied before and this study is the pioneer linguistic work for the language. The literacy rate among the speakers of Wadiyari is very low and the community has kept the language alive by orally passing on the linguistic data in the form of folktales, proverbs, riddles, metaphors, idioms, etc., from one generation to the next. There are no written materials in the language so far. The findings of this research and suggestions for further studies are summarized in the following sections.

5.2 Summary of findings

The main tool used for collecting data for this study was a wordlist of 1,650 lexical items. The data was collected from three male native Wadiyari speakers. Their ages were 63, 51 and 25, and they were residents of three different villages near Mirpurkhas city in Sindh, Pakistan. The data was transcribed in IPA, then digitally recorded with a high quality recorder for a computerized analysis using Speech Analyzer, Phonology Assistant and FieldWorks programs. The phonological analysis was based on the six steps of Burquest (2006), explained in Section 1.7.5. The results of the analysis are given in four sub-sections: consonants, vowels, syllable and word structures, and phonological processes. Brief discussions on the phonological similarities and/or dissimilarities between Wadiyari and other Indo-Aryan languages, based on earlier works, will also be included.

5.2.1 Consonants

The results of the analysis show thirty-eight distinctive consonants at seven places of articulation in Wadiyari. The largest number of consonants from one manner of

articulation were found to be the sixteen plosives, /p, pʰ, b, bʱ, t, tʰ, d, dʱ, ʈ, ʈʰ, ɖ, ɖʱ, k, kʰ, g, gʱ/, at four places of articulation. Previous studies (Masica 1991; Jain & Cardona 2003) on Indo-Aryan (IA) languages suggest that there are five places of articulation in basic IA plosives; a number of languages, including Gujarati (Kaye & Daniels 1997), list the affricates as palatal plosives.

The inventory of Wadiyari consonants includes five voiced implosives, /ɓ, ɗ, ɖ, ʄ, ɠ/, at five places of articulation. Two different sets of implosives are reported in IA languages by Masica (1991): four implosives, /ɓ, ɗ, ʄ, ɠ/, in Sindhi, Siraiki and Kachhi; and four implosives, /ɓ, ɗ, ɖ, ɠ/, in dialects of Marwari. However, a set of five implosives similar to the set of Wadiyari implosives is reported in the phonological sketch of Kachhi by Woodland (1991).

Four contrastive nasals, /m, n, ɳ, ŋ/, are found in Wadiyari. A number of IA languages including the Kachhi language, according to Masica (1990) have a fifth contrastive palatal nasal consonant /ɲ/which is not found in the Wadiyari language.

Four fricatives, /s, z, ʃ, ɦ/, are found in the Wadiyari language. IA languages, according to Masica (1990), are not rich in fricatives, and the most widespread fricative system of an IA language consists of a sibilant /s/ or /ʃ/ and /h/. However, in the overall fricative system of some languages, for example, Hindi-Urdu, Punjabi, and Sindhi, Masica (1990) says that a [s-ʃ] distinction is now well-established. It is good to mention the fricative system of the Kachhi language here, where according to Woodland (1991) beside [f], there are six native fricatives /v, s, z, ʃ, h, ɦ/.

Three affricates, /tʃ, tʃʰ, dʒ/, two laterals, /l, ɭ/, two flaps, /ɾ, ɽ/, and two approximants, /w, j/ are found in the Wadiyari language.

In the earlier works of other related languages, e.g., in Kachhi (Woodland 1991) and in Sindhi (Nihalani 1999; Khubchandani 2003) an additional contrastive voiced aspirated affricate is reported which is not evident in the Wadiyari language.

All consonants occur in word initial and word final positions, except the nasal retroflex, nasal velar, flap retroflex, and lateral retroflex, /ɳ, ŋ, ɽ, ɭ/, which do not occur word-initially.

Phonetic variation of two kinds is noticed in some consonants: free variation among all speakers, and idiolect variation among certain individuals. The plosive consonant phonemes differ between released and unreleased in the final position. They are in free

variation in the final position, for instance,

[p, b, t, d, ʈ, ḍ, k, g] ~ [pˀ, bˀ, tˀ, dˀ, ʈˀ, ḍˀ, kˀ, gˀ]/ ___#.

The labio-dental fricative phone [f] is also detected in the speech of certain individuals. This phone has entered into the language through loan words from the neighboring languages. The sound [f] appears to be in idiolect variation with the phonemes [p] and [pʰ]. It does not occur in the speech of the oldest LRP at all but it does occur in the speech of LRP2 and LRP3 belonging to the middle-aged and young generation respectively.

As said above, there are four contrastive fricatives in Wadiyari. The phonemes /s, z/ are sometimes pronounced as [ts, dz] affricates respectively, i.e. they are in free variation. The variation is noticed in the speech of all speakers of the language. This variation in Wadiyari is also noted by Grainger & Grainger (1980). The voiced glottal fricative phoneme /ɦ/ sometimes becomes devoiced [ɦ̥]. Sometimes, it is dropped in the speech of some individuals, perhaps this is a dialectal variation.

The flap phoneme, /ɾ/, fluctuates with the trill phone [r]. They are in free variation [ɾ]~[r], which is evident in the speech of all speakers.

5.2.2 Vowels

The analysis of vowels in this study reveals eight contrastive oral monophthongs, /i, ɪ, e, a, ə, u, ʊ, o/ in Wadiyari. The three vowels, /ɪ, ə, ʊ/, are phonetically shorter in length and do not occur word-finally. Five nasal monophthongs, /ẽ, ã, ũ, ũ, õ/, are found in the language. Five oral diphthongs /ai, aɪ, əi, oi, oɪ/, and two nasal diphthongs, /aĩ, oĩ/, are found in the Wadiyari language. Additionally, any oral monophthong or diphthong can be nasalized in a nasal environment. For instance, an oral vowel, generally, becomes nasalized when it is followed by a tautosyllabic nasal consonant.

It is interesting to mention the vowel systems of the Indo-Aryan languages related to Wadiyari based on earlier works. Nine oral vowels are reported in Kachhi by Woodland (1991) which has one additional front mid-open oral vowel. Ten oral vowels are reported in Sindhi (Nihalani 1999; Khubchandani 2003). However, in the Gujarati language, a similar eight-vowel system is reported by Mistry (1997).

5.2.3 Interpretation of ambiguous segments and sequences

The two approximants, [w] and [j], as mentioned in the inventory of the consonants, are interpreted as consonants, /w, j/ = C in Wadiyari. The sequences of plosives and glottal fricatives [ph, bɦ, th, dɦ, ʈh, ɖɦ, kh, gɦ] are analyzed as single units, i.e., /pʰ, bɦ, tʰ, dɦ, ʈʰ, ɖɦ, kʰ, gɦ/ = C. The affricates [tʃ, dʒ, tʃh] are also interpreted as single units, for instance, /tʃ, ʤ, tʃʰ/ = C. The geminate consonants [pp, bb, tt, dd, ʈʈ, ɖɖ, kk, gg] are analyzed as sequences of two consonants = CC, because they are very limited in the frequency of occurrence. The following sequences of two vowels [ai, aɪ, əi, oi, oɪ] are analyzed as diphthongs, i.e., /ai, aɪ, əi, oi, oɪ/ = VV. Nasal vowels are interpreted as single units with a nasal diacritic. For instance, nasal monophthongs /ẽ, ã, ũ, ʊ̃, õ/ = Ṽ, nasal diphthongs /aĩ, oĩ/ = VṼ.

5.2.4 Syllable and word structures

The maximal syllable template, in Wadiyari language, is captured in two rules. According to the first rule, the structure requires an obligatory syllable type V, preceded by two optional consonants (C)(C)V, and then followed by two optional consonants (C)(C)V(C)(C). According to the second rule, the structure has an obligatory syllable type VV, preceded by an optional consonant (C)VV, and then followed by an optional consonant (C)VV(C). Ten syllable structures, V, CV, CVC, CCV, CCVC, CVCC, VC, VV, CVV, CVVC, are found in the data. According to the maximal syllable templates it is assumed that the language also allows three more syllable structures, CCVCC, VCC and VVC, but these three structures are not found in the data.

The syllable structure of Wadiyari is described in terms of an obligatory simple or complex nucleus, preceded by an optional simple or complex onset, and then followed by an optional simple or complex coda. All of the vowels are allowed to occur in the simple nucleus position as a monophthong. In the simple onset position, all phonemic consonants, except the one phoneme /ŋ/, can occur as a single consonant. On the other hand, in the simple coda position, all phonemic consonants are permissible as a single consonant.

At the complex nucleus position in the syllable, a maximum of two vowels (V_1V_2) can occur. The complex nucleus allows three vowels, /a, ə, o/, to occur as the first V_1, and three vowels, /i, ɪ, u/, are permissible as the second V_2. A total of five oral diphthongs, /ai, aɪ, əi, oi, oɪ/, and two nasal diphthongs, /aĩ, oĩ/, can occur in the complex nucleus in the syllable. Up to two consonants (C_1C_2) are allowed to occur in the complex onset position and two consonants (C_3C_4) in the complex coda position in the syllable. In the

sequences of consonants as clusters (C_1C_2) in the complex onset position, only /p, t, ɖ, k, s, ʃ, tʃ, ʤ/ can occur as the first consonant C_1 which can only be followed by /m, ɾ, j/ as the second consonant C_2. Eleven clusters /pɾ-, tɾ-, tm-, ɖɾ-, tj-, kɾ-, sj-, ʃj-, tʃj-, ʤj-, ɾj-/ occur in the complex onset position of the syllable. In the complex coda position, only /k, s, ɦ, ɾ, ɭ, w/ are allowed as the first consonant C_3 which can only be followed by /t, d, k, s, z, tʃ, ɾ, ɽ/ as the second consonant C_4. Thirteen clusters, /-kt, -ks, -st, -ɦs, -ɦɾ, -ɦɽ, -ɾt, -ɾz, -ɭz, -wd, -wk, -wz, -wtʃ/, occur in the coda position of the syllable.

Syllable weight plays a significant role in the stress system of Wadiyari. Syllables in Wadiyari can be divided into two categories in terms of weight, 'light syllables' and 'heavy syllables'. Any open syllables with a simple nucleus are treated as light syllables. Closed syllables and the syllables containing complex nuclei are treated as heavy syllables.

There are four possible word structures in Wadiyari language: monosyllabic, disyllabic, trisyllabic and tetrasyllabic. Up to three-syllable words are common in Wadiyari but the four-syllable words are not productive in the language. The monosyllabic, disyllabic and trisyllabic words can be open-syllable and closed-syllable words but the final syllable of tetrasyllabic words can only be open-syllable.

Stress is predictable in Wadiyari. The system allows a primary stress falling on the penultimate syllable of the word only if the final syllable is a light syllable. When the final syllable is heavy the primary stress always falls on the final syllable of the word.

5.2.5 Phonological processes

The findings of the study show two phonological processes: possible vowel nasalization, as well as vowel nasalization and nasal deletion.

Vowel nasalization: Any oral vowel can be nasalized when it is immediately followed by a nasal consonant. The process can be generalized as follows:

Vowel nasalization rule:

$$V \rightarrow [+nas] \ / \_C \ [+nas]$$

Vowel nasalization and nasal deletion: It is discovered that if a set of homorganic nasal and oral consonants is preceded by an oral vowel, the vowel becomes nasalized and then the nasal consonant is deleted. The process of vowel nasalization and nasal deletion is generalized in the following rules, the rule ordering is obligatory, vowel nasalization must occur before nasal deletion.

Rules:

1. Vowel Nasalization: V → [+nas] /_C[+nas]
2. Nasal deletion: N → Ø /Ṽ_C[α place]

5.3 Limitations of study

The cultural hindrances of the Wadiyara group prohibited the researcher from eliciting any data from female speakers, therefore the lack of data from female speakers may or may not have affected the results of this study in some ways.

The data elicited for the description of Wadiyari phonology only covers the variety from Pakistan, not from India. A broader phonological description could possibly show some interesting differences because of different sociolinguistic situations in each country.

This current phonological description is primarily based on a large wordlist which does provide a complete inventory of all phones and phonemes including some phonological processes, but it does not provide the morphophonemic processes of the language. A need for instrumental analysis was strongly felt for illustrating vowel length and the difference between oral and nasal vowels visually.

5.4 Suggestions for further study

The current study gives an overall picture of the Wadiyari phonology. However, there are a number of possible areas that need to be investigated in depth. For instance, vowel and consonant length is one of the problematic areas that requires an acoustic analysis. Such an investigation could provide evidence whether the distinction between a long and a short vowel is in length only or if they are also distinctive in terms of quality.

Vowel nasalization is another problematic area in a number of Indo-Aryan languages, including Wadiyari. Deeper research into this area will contribute by resolving the contradictory analysis of a nasal vowel as a distinctive phoneme or as a nasalized vowel phone resulting from a phonological process.

This phonological analysis does not provide the morphophonemic processes of the language. This is another highly valuable and important area of more research for the Wadiyari language.

Another area that deserves further study is the overall system of fricatives in Wadiyari in which the voiced glottal fricative /ɦ/ is very productive, but the voiceless fricative [h] is not evident in the system. A comparison of the patterns of Wadiyari fricatives with other related languages, such as Sindhi and Urdu, would be very interesting.

A deep comparative study of Wadiyari phonology with other Gujarati languages, such as Kachhi, Tharadari, Mewasi, and Hasoria, would be a very interesting area of research. A sociolinguistic survey of the Wadiyari language is also needed for distinguishing the dialects of the language.

The researcher observed that the Wadiyari speakers have a strong sense of identity, and their attitude towards their language is very positive. It is also noticed that the Wadiyari language is heavily influenced by a number of surrounding dominant languages, mainly Urdu and Sindhi. The media of instruction at schools where Wadiyari-speaking children study are Sindhi and Urdu. Further research should be done in order to gain clearer findings on the Wadiyari people's attitudes towards their language and the sociolinguistic situations in those areas.

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APPENDIX A
1,650 WORDLIST OF WADIYARI

The total number of lexical items on this wordlist is 1,650 which was used for data elicitation from three LRPs who speak the Wadiyari language as their mother tongue. For some lexical items, the LRPs gave different words from each other and for other lexical items there were no words given. In the case of no words, a hyphen (-) is used to show that no data was received from the LRPs. Some lexical items show no data from all three LRPs but the items are kept in the list for others to use in future descriptive or comparative phonological studies. A period is used to show the syllable breaks, and based on the best knowledge of the researcher, a space is used to show the word breaks.

No.	Gloss	LRP1	LRP2	LRP3
0001	sky	as.ˈman	as.ˈman	ə̃.ˈkaʃ
0002	sun	ˈɗa.ɽo	ˈɗa.ɽo	ˈɗa.ɽo
0003	moon	sə.ˈdəɾ.mo	sə.ˈdəɾ.mo	sə̃ˈ.dəɾ.mo
0004	star	ta.ˈɾuɽ.jã	ta.ˈɾuɽ.jã	ta.ˈɾoɽ.jũ
0005	cloud (rain)	ˈwad.ɽã	ˈwa.dɽã	ˈwad.ɽã
0006	mist/fog	ʈʰaɾ	ʈʰaɾ	dũd
0007	rain	mifi	mifi	mifi
0008	rainbow	ɓə̃ɳ	ɓə̃ɳ	gə̃ĩɳ
0009	lightning (flashing)	ˈwiz.ɽi	ˈwid.ɽi	ˈwid.ɽi
0010	thunder	ga.ˈze.ɾo	ga.ˈzeɾ.jo	ˈgaz.wũ
0011	shadow/shade	ˈsa.jo	ˈsa.jo	ˈsa.jo
0012	wind	ˈwaɪ.ɾo	ˈwaɪ.ɾo	ˈwaɪ.ɾo
0013	night	ɾat	ɾat	ɾat
0014	day	ˈɗa.ɽo	ˈɗa.ɽo	ˈɗa.ɽo
0015	morning	fiə.ˈwaɾ	fiə.ˈwaɾ	fiə.ˈwaɾ
0016	noon	bə.ˈpʰoɾ	bə.ˈpʰoɾ	ɓaɾ.ˈwa.fe
0017	yesterday	ˈka.li	ˈka.li	kal nu ˈɗa.ɽo

No.	Gloss	LRP1	LRP2	LRP3
0018	tomorrow	ɦə.ˈwa.ɾe	ɦə.ˈwa.ɾi	ɦə.ˈwaɾ
0019	year	wəɾ	sal	wəɾ
0020	east	u.ˈgəm.ɳũ	ʊ.ˈgəm.ɳi̯	ʊ.ˈgəm.ɳu
0021	west	a.ˈtʰəm.ɳũ	ə.ˈtʰəm.ɳi̯	a.ˈtʰəm.ɳu
0022	water	ˈpã.ɳi̯	ˈpã.ɳi̯	ˈpã.ɳi̯
0023	to be hot (water)	ˈɦo.nu	ˈɦo.nu	ˈɦo.nu
0024	to be hot (person)	ˈɦo.nu	ˈɦo.nu	ˈɦo.nu
0025	to be warm (water)	na.ˈʃe.kũ	no.ˈʃo.kũ	ˈʃe.kũ
0026	to be cold (person)	ˈʈa.ɖũ	ˈʈa.ɖũ	ˈʈʰa.ɖũ
0027	to be cool (water)	ˈʈa.ɖũ	ˈʈa.ɖũ	ˈʈʰa.ɖũ
0028	stream	ɦakʰ	ˈzəm.ɽu	ɦakʰ
0029	river	ˈdəɾ.jo	ˈdəɾ.jo	ˈdəɾ.ja
0030	sea	ˈdəɾ.jo	sə.ˈmũɖ	sə.ˈmũɖ
0031	soil (earth)	zə.ˈmɪn	zə.ˈmin	zə.ˈmin
0032	mud	ˈɠa.ɾo	ˈɠa.ɾo	ˈɠa.ɾo
0033	dust	ˈma.ʈi	duɭ	ˈma.ʈi
0034	stone	ˈpətʰ.ɾa	ˈpətʰ.ɾo	ˈpətʰ.ɾo
0035	sand	ˈɾe.ti	ɾet	ˈɾe.ti
0036	lime (for betel chew)	ˈso.no	ˈsu.no	ˈsu.no
0037	gold	ɦem	ɦem	ɦem
0038	silver	ˈsã.ɖi̯	ˈsã.ɖi̯	ˈsã.ɖi̯
0039	iron	ˈlo.ɖũ	ˈlo.ɖũ	ˈlo.ɖũ
0040	mountain	pə.ˈɦaɽ	dʒə.ˈbəl	pə.ˈɦaɽ
0041	cave (natural)	ˈboɪ.ɾũ	ˈboɪ.ɾo	ˈboɪ.ɾũ
0042	jungle/forest	dʒã.ˈgəl	zə̃ŋ	zã.ˈŋəl
0043	tree	ˈzaɽ.kʰũ	ˈzaɽ.kʰũ	ˈzaɽ.kʰũ
0044	branch (tree)	ˈʈaɭ.jũ	ˈʈa.ɭi̯	ˈʈa.ɭi̯
0045	tree bark	ˈso.ɖã	ˈso.ɖũ	ˈso.ɖã
0046	thorn	ˈkã.ʈa	ˈkã.ʈo	ˈkʰa.ʈũ

No.	Gloss	LRP1	LRP2	LRP3
0047	root (tree)	ˈpa.fũ	ˈpa.fũ	paɭ
0048	leaf (tree)	ˈpad.ɽũ	ˈpad.ɽũ	ˈpad.ɽũ
0049	flower	ˈpʰʊl.ɽũ	ɠʊl	ɠʊl
0050	fruit (tree)	pʰə.ˈɾuʈ	pʰəɭ	fɾuʈ
0051	seed (tree)	ɓiz	ɓiz	ɓiz
0052	grass (field/jungle)	ɠaɦi	ɠaɦi	ɠaɦi
0053	bamboo plant (large)	ˈwaɦi.ɭa	ˈwaɦi.ɭo	ˈwaɦi.ɭa
0054	bamboo shoot (edible)	ɡəwtʃ	ˈɦiə̃.ɳi	ɡəwtʃ
0055	spinach	pa.ˈləkʰ	pa.ˈləkʰ	pa.ˈləkʰ
0056	cane/rattan	ˈlak.ɽũ	ˈlak.ɽũ	ˈlak.ɽũ
0057	clove	lə.ˈwẽŋ	lə.ˈwẽŋ	lõŋ
0058	sugarcane	ˈɖo.ko	ˈɖu.ko	ˈʃel.ri
0059	betel nut	ɦo.ˈpa.ɾi	ɦo.ˈpa.ɾi	ɦo.ˈpa.ɾi
0060	cannabis, hemp	bə̃ŋ	bə̃ŋ	bə̃ŋ
0061	moonshine	ˈɗa.ɾu	ˈɗa.ɾu	ˈɗa.ɾu
0062	banana (fruit)	ˈkew.ɽa	ˈkew.ɽa	ˈkew.ɽa
0063	mango (fruit)	ˈãb.ɽi	ˈãb.ɽi	ˈãb.ɽi
0064	eggplant (fruit)	ˈɾẽŋ.ɽũ	ˈɾẽg.ɽo	ˈɾẽg.ɽa
0065	margosa (neem tree)	ˈleb.ɽi	ˈleb.ɽi	ˈleb.ɽi
0066	ginger	əd.ˈɾəkʰ	əd.ˈɾəkʰ	əd.ˈɾəkʰ
0067	garlic	la.ˈɦə̃ɳ	la.ˈɦə̃ɳ	la.ˈɦə̃ɳ
0068	corn	ˈɖo.ɖo	ˈɖo.ɖo	ˈɖo.ɖo
0069	red pepper	ˈɾa.tũ ˈməɾ.sũ	ˈɾa.tũ ˈməɾ.sũ	ˈɾa.tũ ˈməɾ.sũ
0070	dry (burned) field	ˈɦu.ki ˈɓə.ni	ˈkʰa.li ˈɓə.ni	ɦu.ˈkəl ˈɓə.ni
0071	wet rice field	ˈsaɾ.ja ni ˈɓə.ni	ˈsaɾ.jũ wa.ˈwəl ˈɓə.ni	ˈsaɾ.ja ni ˈli.li ˈɓə.ni
0072	paddy rice	ˈsaɾ.jũ	ˈsaɾ.jũ	ˈsaɾ.jũ
0073	rice seedling	ˈsaɾ.jã ni weɾ	ˈsaɾ.jã nu ɓiz	ˈsaɾ.jã nu ˈti.lo
0074	to be ripe	pa.ˈkəl	pa.ˈkəl	ˈpa.kũ
0075	pounded rice	ˈso.kʰa	ˈso.kʰa	ˈso.kʰa

No.	Gloss	LRP1	LRP2	LRP3
0076	cooked rice	bətt	ɾã.ˈdəl bətt	ɾã.ˈdəl
0077	to winnow (rice)	ˈɦup.ɻũ	ˈup.ɻũ	ʋ.ˈpəɻ.wũ
0078	to dry (rice)	ɦu.ˈkaɪ.ɾũ	ɦu.ˈkə.wũ	wu.ˈka.wũ
0079	to pound (rice)	ˈkʰaɖ.wũ	ˈkʰaɖ.wũ	ˈkʰaɖ.wũ
0080	to grind	ˈɗəɻ.wũ	ˈɗəɻ.wũ	ˈɗəɻ.wũ
0081	to cook (rice)	sə.ˈɻa.wũ	ˈɾãdɦ.wũ	ˈɾadɦ.wũ
0082	to boil (rice)	u.ˈkəɻ.wũ	u.ˈkaɻ.wũ	ʋ.ˈkaɻ.wũ
0083	rice husk (powder)	ˈtu.ɦo	sə.ɻa.ˈməɻ	ɗə.ˈɻəl
0084	salt	ˈme.ʈʰũ	ˈme.ʈʰũ	ˈme.ʈʰũ
0085	animal (tame/wild)	zə.na.ˈwəɾ	zə.na.ˈwəɾ	zə.na.ˈwəɾ
0086	tiger	ʃiɦ	ʃĩɦ	ʃiɦ
0087	chipmunk	kʰɪl.ˈku.ɻi	kʰɪl.ˈko.ɻi	kʰɪl.ˈko.ɻi
0088	bear	ɾẽs	ɾẽs	ɾẽʃ
0089	barking deer	ɦɪ.ˈɾə̃ɳ	ˈɦẽɳ.jũ	ˈɦəɾ.ɳu
0090	monkey	ˈbol.ɻo	ˈbol.ɻũ	ˈwãd.ɾũ
0091	camel	ˈõʈ.jo	ˈõʈ.jo	ˈõʈ.jo
0092	rabbit	ˈɦa.ɦo	ˈɦa.ɦo	ˈɦa.ɦo
0093	porcupine	ʃe.ˈɖəi	ʃe.ˈɖəi	ˈʃe.ɭo
0094	rat	õ.ˈɗe.ɻo	õ.ˈɗe.ɻo	ẽ.ˈɗo.ɻo
0095	dog	ˈkut.ɾo	ˈkut.ɾo	ˈkut.ɾo
0096	to bark	ˈbɦaɦ.wũ	ˈbɦaɦ.wũ	ˈbɦaɦ.wũ
0097	to bite	ˈkəiɻ.wũ	ˈkəiɻ.wũ	ˈkəiɻ.wũ
0098	cat	mə.ˈna.ɻi	mə.ˈna.ɻi	mə.ˈla.ɻi
0099	pig	ɦʋ.ˈwəɾ	ɦʋ.ˈwəɾ	ɦʋ.ˈwəɾ
0100	cow	ɠai	ɠai	ɠai
0101	milk (cow)	dudɦ	dudɦ	dud
0102	buffalo	bẽʃ	bẽʃ	bẽʃ
0103	horn (of buffalo)	ˈʃẽɠ.ɻũ	ˈʃẽɠ.ɻa	ˈʃẽɠ.ɻa
0104	tail	ˈpõs.ɻũ	ˈpõs.ɻũ	ˈpũs.ɻũ

No.	Gloss	LRP1	LRP2	LRP3
0105	elephant	ˈɦa.tʰi	ˈɦa.tʰi	ˈɦa.tʰi
0106	elephant tusk	ˈɦa.tʰi nu ɗãt	ˈɦa.tʰi na ɗãt	ˈɦa.tʰi nu ɗãt
0107	bird	zə.na.ˈwəɾ	zə.na.ˈwəɾ	zə.na.ˈwəɾ
0108	pigeon	pa.ˈre.ɾũ	kə.bu.ˈtər	kə.bu.ˈtər
0109	bird's nest	ˈɓa.ʄo	ˈma.ʄo	ˈsək.la nu ˈma.ʄo
0110	wing	ˈpẽkʰ.ɽã	ˈpakʰ.ɽa	ˈpakʰ.ɽa
0111	feather (body hair)	ɓal	pakʰ	ɓal
0112	to fly	ˈʊʄ.wũ	ˈuʄ.wũ	ˈʊʄ.wũ
0113	egg	ˈẽ.ʄa	ˈe.ʄũ	ˈẽ.ʄu
0114	chicken	ˈkuk.ɽi	ˈkuk.ɽi	ˈkuk.ɽũ
0115	crest (of chicken or bird)	moɖ	moɽ	ˈso.ʈi
0116	fish	ˈmətʃ.tʃʰi	ˈməs.si	ˈmə.tʃʰi
0117	snake	ɦə.ˈrəp	ɦə.ˈrəp	ɦə.ˈrəp
0118	poison from snake (venom)	ɦə.ˈrəp nu zeɾ	ɦə.ˈrəp nu zeɾ	ɦə.ˈrəp nu zeɾ
0119	house lizard	gə.ˈro.ʄi	gə.ˈro.ʄi	gə.ˈro.ʄi
0120	turtle	ˈkas.bo	ˈkas.bo	ˈkas.bo
0121	crocodile	ˈmag.ri	ˈməg.ri	mə.gəɾ.ˈmətʃ
0122	otter	-	-	-
0123	frog	ˈʄeʄ.kũ	ˈʄeʄ.kũ	ˈʄeʄ.kũ
0124	insect	ˈziw.ɽo	ˈziw.ɽa	ˈziw.ɽo
0125	spider	koɾ.ˈwaʄ.jo	koɾ.ˈwaʄ.jo	koɾ.ˈwaʄ.jo
0126	spider web	ˈza.ʄi	ˈza.ʄo	ˈza.ʄi
0127	louse (head)	zu	zu	zũ
0128	termite	ˈziw.ɽo	ɦẽ.ˈdoi	ɦẽ.ˈdoi
0129	ant	mə.ˈko.ɽo	mə.ˈko.ɽo	mə.ˈko.ɽo
0130	cockroach	-	ga.ˈgu.ɽũ	ga.ˈgu.ɽũ
0131	snail	-	ˈko.ʄa nu ˈziw.ɽo	ˈsi.pi

No.	Gloss	LRP1	LRP2	LRP3
0132	mosquito	ˈɗa.ɦo	ˈɗa.ɦo	ˈɗa.ɦo
0133	bee	məd ni maʃ	məd ni maʃ	məd ni maʃ
0134	fly	maʃ	maʃ	maʃ
0135	butterfly	ˈpʰu.ɗi	ˈpʰu.ɗi	ˈpə.ɗi
0136	scorpion	-	ˈwe.su	ˈwe.su
0137	water leech	zə.ˈɭoi	zə.ˈɭoi	zə.ˈɭoi
0138	land leech	ˈziw.ɻo	ˈziw.ɻo	ˈziw.ɻo
0139	earthworm	ˈziw.ɻo	ˈziw.ɻo	ˈziw.ɻo
0140	head	ˈma.tʰũ	ˈma.tʰũ	ˈma.tʰũ
0141	face	ˈmo.ɗɦũ	ˈmo.ɗɦũ	ˈmo.ɗɦũ
0142	brain	mə.ˈgəz	ˈbe.zo	mə.ˈgəz
0143	hair (head)	ɓal	ɓal	ɓal
0144	moustache	ˈmõ.sũ	ˈmo.sũ	ˈmõ.sũ
0145	forehead	kə.ˈpaɭ	kə.ˈpaɭ	kə.ˈpaɭ
0146	eyebrow	nẽɳ	nẽɳ	nẽɳ
0147	eye	ˈã.ʃũ	ˈã.ʃũ	aʃ
0148	eyelid	pã.ˈpəɻ	pã.ˈpəɻ	pa.ˈpəɻ
0149	nose	nak	nak	nak
0150	cheek	ɠal	ɠal	ɠal
0151	ear	kan	kan	kan
0152	mouth	ˈmo.ɗɦũ	ˈmo.ɗɦũ	ˈmo.ɗɦũ
0153	tongue	zib	zib	zə.ˈban
0154	spit (noun)	tʰuk	tʰuk	tʰʊk
0155	tooth	ɗãt	ɗãt	ɗãt
0156	gums	ˈbe.ɗã	ˈbe.ɗa	ˈpe.ɗã
0157	chin	ˈɗaɦi.ɗi	ˈza.ɭũ	ˈdja.ɻi
0158	beard	ˈɗa.ɻi	ˈɗa.ɗi	ˈɗa.ɻi
0159	to shave (beard)	ˈɗa.ɻi ˈtʰaɦi.wũ	ˈɗa.ɻi ˈtʰaɦi.wũ	ˈɗa.ɻi ˈkəɾ.wũ
0160	neck	go.ˈʈe.ɻo	go.ˈʈe.ɻo	go.ˈʈe.ɻo

No.	Gloss	LRP1	LRP2	LRP3
0161	shoulder	ˈkʰa.wa	ˈkʰə.wo	ˈkʊ.la
0162	back	moɦɽ	moɦɽ	ˈkeɽ.wũ
0163	belly	peʈ	peʈ	peʈ
0164	navel	ˈɖõ.ʈi	ˈɖo.ʈi	ˈɖõ.ʈi
0165	heart	dɪl	dɪl	dɪl
0166	liver	ˈkaɭ.zũ	ˈkaɭ.zũ	ˈkaɭ.zũ
0167	intestines	ã.ˈte.ɽa	ã.ˈte.ɽo	ã.ˈte.ɽa
0168	arm	ɓiatʰ	ɓiatʰ	ɓai
0169	elbow	ˈkõ.ɳi	ˈkõ.ɳi	ˈkõ.ɳi
0170	armpit	bə.ˈgəl	ˈkak.li	bə.ˈgəl
0171	palm	ɓiə.ˈtʰe.ɭi	ɓiə.ˈtʰe.ɭi	ɓia.ˈtʰe.ɭi
0172	finger	ˈãŋ.ɭi	ˈãŋ.ɭi	ˈãŋ.ɭi
0173	fingernail	nəkʰ	nəkʰ	nəkʰ
0174	leg	pəɠ	pəɠ	pəɠ
0175	thigh	ɓiã̃.ˈtʰoɭ	ˈɓia.tʰoɭ	ɓia.ˈtʰoɭ
0176	knee	ˈɠʊ.ɖa	ˈɠʊ.ɖo	ˈɠʊ.ɖa
0177	calf	ˈpe.ɖi	ˈpẽ.ɖi	ˈpe.ɖi
0178	shin	-	ˈpẽ.ɖi nu ˈɓiaɖ.kũ	ˈɠʊ.ɖa ti ˈne.se
0179	heel	ˈpa.ni	ˈpa.ni	ˈpa.ni
0180	bone	ˈɓiaɖ.kũ	ˈɓiaɖ.kũ	ˈɓiaɖ.kũ
0181	joint	dʒoɽ	ˈã.dʱa	dʒoɽ
0182	marrow	-	-	-
0183	rib	ˈpaɓi.ɭa	ˈpaɓi.ɭa	ˈpaɓi.ɭa
0184	meat/flesh (edible)	ʃakʰ	maɦ	maɦ
0185	fat/grease	ˈtʃəɽ.bi	ˈtʃəɽ.bi	ˈtʃəɽ.bi
0186	skin	ˈsãɓ.ɽi	ˈsãɓ.ɽũ	ˈsãɓ.ɽi
0187	blood	ˈlo.ɦi	ˈlo.ɦi	ˈno.ɦi
0188	sweat	ˈpaɽ.ʃjo	ˈpaɽ.ʃjo	ˈpaɽ.ʃjo
0189	pus	pas	pas	pas

No.	Gloss	LRP1	LRP2	LRP3
0190	excrement	ˈəg.wa	gu	gu
0191	urine	mo.ˈtəɾ	mo.ˈtəɾ	mo.ˈtəɾ
0192	man	ˈad.mi	ˈad.mi	mə.ˈnəkʰ
0193	woman	ˈɓaɪ.ɽi	ˈɓaɪ.ɽi	ˈɓaɪ.ɽi
0194	person	ˈad.mi	mə.ˈnikʰ	mə.ˈnəkʰ
0195	father	ɓa	ɓa	ɓa
0196	mother	ma	ma	ma
0197	to be old (person)	ˈgəĩ.ɖo	ˈɖok.ɾo	ˈɖok.ɾũ
0198	child (young person)	ˈsok.ɾũ	ˈsok.ɾo	ˈsok.ɾũ
0199	son (one's own male child)	ˈsok.ɾũ	ˈsok.ɾo	ˈsok.ɾũ
0200	son-in-law	zə.ˈməi	zə.ˈməi	zə.ˈməi
0201	husband	ˈad.mi	gər ˈwa.ʃo	gər ˈwa.ʃo
0202	wife	ˈəs.tri	gər ˈwa.ʃi	ˈɓaɪ.ɽi
0203	widow	ɾã.ɖi.ˈɾãɖ	ɾã.ɖi.ˈɾãɖ	ɾã.ɖi.ˈɾãɖ
0204	brother (elder of f)	ˈmo.ʃo bəi	ˈmo.ʃo bəi	ˈmo.ʃo bəi
0205	brother (elder of m)	ˈmo.ʃo bəi	ˈmo.ʃo bəi	ˈmo.ʃo bəi
0206	sister (elder of f)	ˈmo.ʃi ɓon	ˈmo.ʃi ɓon	ˈmo.ʃi ɓon
0207	sister (elder of m)	ˈmo.ʃi ɓon	ˈmo.ʃi ɓon	ˈmo.ʃi ɓon
0208	brother (younger of f)	ˈna.no bəi	ˈna.no bəi	ˈnã.tʃo bəi
0209	brother (younger of m)	ˈna.no bəi	ˈna.no bəi	ˈnã.tʃo bəi
0210	sister (younger of f)	ˈna.ni ɓon	ˈna.ni ɓon	ˈnã.tʃi ɓon
0211	sister (younger of m)	ˈna.ni ɓon	ˈna.ni ɓon	ˈnã.tʃi ɓon
0212	friend	dost	dost	dost
0213	name	nam	nam	nam
0214	village	ɟam	ɟam	ɟam
0215	road/path	ˈɾəs.to	ˈɾəs.to	ˈɾəs.to
0216	boat	ˈɓe.ɽi	ˈɓe.ɽi	ˈɓe.ɽi
0217	house	gər	gər	gər
0218	door	kə.ˈmaɽ	kə.ˈmaɽ	kə.ˈmaɽ

No.	Gloss	LRP1	LRP2	LRP3
0219	roof	tʃʰɪt	tʃʰɪt	tʃʰɪt
0220	area under house	-	-	-
0221	wall of house	bit	bet	bit
0222	sleeping area	ˈɖa.jũ	ˈɦõ.dʒa ni ˈdʒə.ga	ˈɖa.ˈlə̃ɳ
0223	pallet	ʃi.ˈɾokʰ	ʃi.ˈɾokʰ	ʃi.ˈɾokʰ
0224	pillow	o.ˈʃi.gũ	o.ˈʃe.gũ	o.ˈʃe.gũ
0225	blanket	ʃi.ˈɾokʰ	ʃi.ˈɾokʰ	ʃi.ˈɾokʰ
0226	clothing	ˈlʊg.ɻũ	ˈlʊg.ɻa	ˈlʊg.ɻã
0227	to weave (cloth)	-	ˈwã̃ɳ.wũ	ˈwə̃ɳ.wũ
0228	to dye (cloth)	ˈɾə̃ŋ.wũ	ˈɾə̃ŋ.wũ	ˈɾə̃ŋ.wũ
0229	sarong (male)	ˈpot.ɻi	ˈpot.ɻi	ˈpot.ɻi
0230	sarong (female)	ˈgag.ro	ˈgag.ro	ˈgag.ro
0231	trousers	ˈutʰ.ɳi	ˈutʰ.ɳi	ˈutʰ.ɳi
0232	to sew	ˈʃi.wũ	ˈʃi.wũ	ˈʃi.wũ
0233	needle	ɦoi	ɦoi	ɦoi
0234	comb	ˈɖãt.jo	ˈɖãt.jo	ˈɖãt.jo
0235	ring	ˈwe.ʈi	ˈwẽ.ʈi	ˈwẽ.ʈi
0236	pot (cooking)	ˈɗeg.ɻi	ˈɗeg.ɻi	ˈɗeg.ɻi
0237	mortar (for peppers)	ˈʊkʰ.ri	ˈukʰ.ri	ˈʊkʰ.ri
0238	pestle (for peppers)	lo.ˈɗəɻ.jũ	lo.ˈɗəɻ.jũ	we.ˈləɻ.jũ
0239	spoon	ˈtʃɪm.tʃo	ˈsəm.si	ˈtʃɪm.tʃo
0240	plate	ˈtʰa.ļi	ˈtʰa.ļi	ˈtʰa.ļi
0241	firewood	ˈɦẽd.ɻã	ˈɦẽd.ɻã	ˈɦẽd.ɻã
0242	fire	ˈɗet.wa	ˈɗet.wa	ˈɗew.ta
0243	to burn something	ɦəļ.ˈga.wũ	ɦəļ.ˈga.wũ	ɦəļ.ˈga.wũ
0244	to extinguish (fire)	ˈol.wũ	o.ˈlə.wũ	ˈol.wũ
0245	ashes	ˈʃe.li	ˈʃe.li	ˈʃe.li
0246	smoke	ɗə.ˈma.ɻo	ɗə.ˈma.ɻo	ɗə.ˈma.ɻo

No.	Gloss	LRP1	LRP2	LRP3
0247	drum (musical instrument)	ɗʱol	ɗʱol	ɗʱol
0248	tambourine	ˈɗek.lũ	ˈɗẽk.lũ	ˈɗẽk.lũ
0249	bow	ɓãɳ	ɓãɳ	ɓãɳ
0250	slingshot	gɪ.ˈlol	gɪ.ˈlol	gɪ.ˈlol
0251	arrow	tiɾ	tiɾ	tiɾ
0252	spear	ˈba.lo	ˈba.lo	ˈba.lo
0253	knife	ˈsa.ku	ˈsa.ku	ˈsa.ku
0254	to hear	ɦam.ˈbəɭ.wũ	ɦã.ˈbəɭ.wũ	ɦam.ˈbəɭ.wũ
0255	to listen	ɦam.ˈbaɭ.wũ	ɦã.ˈbəɭ.wũ	ɦam.ˈbəɭ.wũ
0256	to be smelly	ɓaʃ ˈwa.ɭo	ɓaʃ ˈwa.ɭo	ɓaʃ ˈwa.ɭo
0257	to smell (sniff)	ˈɦõŋ.wũ	ˈɦõŋ.wũ	ˈɦõŋ.wũ
0258	to see	ˈzo.wũ	ˈzo.wũ	ˈzo.wũ
0259	to stare	zoɾ te ˈza.wũ	ˈgoɾ.wũ	ˈgoɾ.wũ
0260	to weep	ˈɾo.wũ	ˈɾo.wũ	ˈɾo.wũ
0261	to eat	ˈkʰa.wũ	ˈkʰa.wũ	ˈkʰa.wũ
0262	to swallow	ˈgəɭ.wũ	ˈgaɭ.wũ	ˈgəɭ.wũ
0263	to be hungry	ˈbʱu.ʃo	ˈbʱu.ʃo	ˈbʱu.ʃũ
0264	to be full (after eating)	da.ˈpəl	da.ˈpəl	da.ˈpəl
0265	to be thirsty	ˈtə.ɾa	ˈtəɾ.ʃo	ˈtəɾ.ʃo
0266	to drink	ˈpi.wũ	ˈpi.wũ	ˈpi.wũ
0267	to be drunk (alcohol)	ʈʊn	ʈʊn	ʈʊn
0268	to vomit	ˈʊl.ʈi ˈkəɾ.wũ	ˈʊl.ʈi ˈkəɾ.wũ	ˈʊl.ʈi ˈkəɾ.wũ
0269	to spit	ˈtʰʊk.wũ	ˈtʰuk.wũ	ˈtʰʊk.wũ
0270	to cough	ˈɦʊd.ɾa ˈkəɾ.wi	ˈɦʊd.ɾo ˈkəɾ.wũ	ˈɦʊd.ɾo ˈkəɾ.wũ
0271	to sneeze	ˈʃek.wũ	ˈʃek.wũ	ˈʃek.wũ
0272	to yawn	bə.ˈga.wũ	bə.ˈga.wũ	bə.ˈga.wũ
0273	to breathe	ɦaɦi ˈle.wũ	ɦaɦi ˈle.wũ	ɦaɦi ˈle.wũ
0274	to blow (on the fire)	ˈpʰok.wũ	ˈpʰok.wũ	ˈpʰok.wũ

No.	Gloss	LRP1	LRP2	LRP3
0275	to whistle	ˈsi.ʈi ˈɦɔ̃ɳ.wi	ˈsi.ʈi ˈɦɔ̃ɳ.wi	ˈsi.ʈi ˈɦɔ̃ɳ.wũ
0276	to suck (milk)	ˈsu.wũ	ˈsu.wũ	ˈsa.wũ
0277	to lick	ˈsaʈ.wũ	ˈsaʈ.wũ	ˈsaʈ.wũ
0278	to smile	ˈɦəʃ.wũ	ˈɦəʃ.wũ	ˈɦəʃ.wũ
0279	to laugh	ˈɦəʃ.wũ	ˈɦəʃ.wũ	ˈɦəʃ.wũ
0280	to speak	ˈɓol.wo	ˈɓol.wũ	ˈɓol.wũ
0281	to tell about	ɦəb.ˈɽa.wo	ˈkeɦi.wũ	ˈkeɦi.wũ
0282	to shout	lə.ˈkʰa.ɾo	ɦʊl ˈkəɾ.wũ	ɦʊl ˈkəɾ.wũ
0283	to lie/fib	kuɽ ˈɓol.wũ	kuɽ ˈɓol.wũ	kuɽ ˈɓol.wũ
0284	to sing	ˈɠa.wũ	ˈɠa.wũ	ˈɠa.wũ
0285	to think	wɪ.ˈsaɾ ˈkəɾ.wũ	wɪ.ˈtʃaɾ ˈkəɾ.wũ	wɪ.ˈtʃaɾ ˈkəɾ.wũ
0286	to know	ˈzãɳ.wũ	ˈzãɳ.wũ	o.ˈɭək.wũ
0287	to forget	ˈwi.ɾi dʒjũ	ˈwi.ɾi ˈza.wũ	ˈwi.ɾi ˈza.wũ
0288	to choose	-	pə.ˈsɔ̃d ˈkəɾ.wũ	-
0289	to love	pɾem ˈkəɾ.wũ	pɾem kəɾ.wũ	pɾem ˈkəɾ.wũ
0290	to hate	ˈɾi.ʃi ˈɓəɭ.wũ	ˈɾi.ʃi ˈɓaɭ.wũ	ˈɾi.ʃi ˈɓəɭ.wũ
0291	to be ashamed	ʃəɾ.ˈma.wũ	ʃəɾ.ˈma.wũ	ʃəɾ.ˈma.wũ
0292	to wait	waʈ ˈzo.wũ	waʈ ˈzo.wũ	waʈ ˈzo.wũ
0293	to count	ˈɠɔ̃ɳ.wa	ɠɔ̃ɳ.wũ	ˈɠɔ̃ɳ.wũ
0294	to be afraid	ɓi ˈa.wũ	ɓi ˈa.wũ	ˈɓi ˈa.wũ
0295	to be angry	ˈɾi.ʃi ˈɓaɭ.wũ	ˈɾi.ʃi ˈɓəɭ.wũ	ˈɾi.ʃi ˈɓaɭ.wũ
0296	to sleep	ˈɦõŋ.wũ	ˈɦõŋ.wũ	ˈɦõŋ.wũ
0297	to snore	ˈpʰəɭ.wũ	ˈkõŋ.ɾa ˈɡaɖ.wã	kʰə.ˈɾũ.ka ˈkəɾ.wa
0298	to dream	ˈɦõ.ɳũ ˈa.wũ	ˈɦõ.ɳũ ˈa.wũ	ˈɦõ.ɳũ ˈa.wũ
0299	to get up (from bed)	ˈʊ.ʈʰi ˈza.wũ	ˈʊ.ʈʰi ˈza.wũ	ˈʊ.ʈʰi ˈza.wũ
0300	to be hurt (after hitting finger with hammer)	dɦək ˈlag.wũ	dɦək ˈlag.wũ	dɦək ˈləg.wo
0301	medicine	ˈɗə.wa	ˈɗə.wa	ˈɗə.wa

No.	Gloss	LRP1	LRP2	LRP3
0302	to be itchy	kʰaɭz ˈa.wi	kʰɾz ˈa.wi	kʰaɾz ˈa.wi
0303	to scratch oneself	ˈkʰəɽ.wũ	ˈkʰəɽ.wũ	kʰəɾz.ˈa.wũ
0304	to shiver	ˈɖək.ɻi ˈa.wi	ˈɖək.ɻi ˈa.wi	ˈɖək.ɻi ˈa.wũ
0305	to die	ˈmə.ɾi ˈza.wũ	ˈmə.ɾi ˈza.wũ	ˈmə.ɾi ˈza.wũ
0306	epilepsy	ˈgo.tʰũ	ˈgo.tʰũ	ˈgo.tʰũ
0307	to sit (remain)	ˈɓefi.wũ	ˈɓefi.wũ	ˈɓefi.wũ
0308	to stand (remain)	ˈʋ.bu ˈtʰa.wũ	ˈʋ.bu ˈtʰa.wũ	ˈʋ.bu ˈtʰa.wũ
0309	to kneel	ˈgʋ.ɖa ˈwa.ɭa	ˈgʋ.ɖa ˈwaɭ.wa	ˈgʋ.ɖa ˈwa.ɭ.wũ
0310	to walk	ˈfiẽ.ɖo	ˈfieɖ.wũ	ˈfieɖ.wũ
0311	to crawl on belly (like a snake)	ˈɾəɽ.wũ	ˈɾəɽ.wũ	ˈɾəɽ.wũ
0312	to go	ˈza.wũ	ˈza.wũ	ˈza.wũ
0313	to come	ˈa.wũ	ˈa.wũ	ˈa.wũ
0314	to return	wa.ˈpəs ˈa.wũ	ˈpa.su ˈa.wũ	wa.ˈpəs ˈa.wũ
0315	to run	ˈdoɽ.wũ	ˈdoɽ.wũ	ˈdoɽ.wũ
0316	to ascend	ˈma.tʰe ˈza.wũ	ˈma.tʰe ˈza.wũ	ˈma.tʰe ˈza.wũ
0317	to descend	ˈne.so ˈa.wũ	ˈne.so ˈa.wũ	ˈne.se ˈa.wũ
0318	to enter (house)	ˈma.fii ˈza.wũ	ˈma.fie ˈza.wũ	ˈma.fii ˈza.wũ
0319	to go out / exit (house)	ˈnefiɾ.wũ	ˈnefiɾ.wũ	ˈnefiɾ.wũ
0320	to push	ˈʈʰe.lo ˈal.wo	ˈʈʰe.lo ˈal.wo	ˈdɪk.wũ
0321	to pull	ˈtãɳ.wũ	tãɳ.wũ	ˈtãɳ.wũ
0322	to kick	ˈpa.ʈu ˈfiə̃ɳ.wũ	ˈpa.ʈu ˈfiə̃ɳ.wi	lət ˈfiə̃ɳ.wũ
0323	to throw	ʋ.ˈseɽ.wũ	ʋ.ˈʃəɽ.wũ	ʋ.ˈʈʃʰəl.wũ
0324	to fall (from a height)	ˈpəɽ.wũ	ˈpəɽ.wũ	ˈpəɽ.wũ
0325	to swim	ˈtəɾ.wũ	ˈtəɾ.wũ	ˈtəɾ.wũ
0326	somersault	-	fiõ.ˈde.li	fiẽ.ˈdo.ɭi
0327	to sink	-	ˈguɖ.wũ	ɖʋ.ɓũ
0328	to flow (river)	ˈpã.ɳi ˈfied.wũ	ˈfied.wũ	ˈpã.ɳi ˈfied.wũ
0329	to give	ˈal.wũ	ˈal.wũ	ˈal.wũ

No.	Gloss	LRP1	LRP2	LRP3
0330	to tie (something)	ˈɓ̃ãd.wũ	ˈɓad.wũ	ˈɓ̃ãd.wũ
0331	to wipe	ˈlos.wũ	ˈlos.wũ	ˈlos.wũ
0332	to rub/scrub	ˈɾəg.ɻo	ˈgəiɻ.wũ	ɾə.ˈgəɻ.wũ
0333	to wash (hands)	ˈdo.wũ	ˈdo.wũ	ˈdo.wũ
0334	to wash (clothes)	ˈdo.wũ	ˈdo.wũ	ˈdo.wũ
0335	to bathe	ˈzil.wũ	ˈzil.wũ	ˈzil.wũ
0336	to hit/beat (with force)	ˈɦ̃iə̃ŋ.wo	ˈɦ̃iə̃ŋ.wũ	ˈɦ̃iə̃ŋ.wũ
0337	to split	ɓe ˈkəɾ.wũ	ɓe ˈkəɾ.wa	ɓe ˈkəɾ.wũ
0338	to slice/saw	ˈwaɖ.wũ	ˈwaɖ.wũ	ˈwaɖ.wũ
0339	to cut (hair)	ka.ˈtəɾ.wũ	ka.ˈtəɾ.wũ	ka.ˈtəɾ.wũ
0340	to stab	ˈgʊtʃ.wũ	gʊ.ˈtʃa.wũ	gʊ.ˈtʃa.wũ
0341	to plant	ˈwa.wũ	ˈwa.wũ	ˈwa.wũ
0342	to dig (with a tool)	ˈkʰoɖ.wũ	ˈkʰoɖ.wũ	ˈkʰoɖ.wũ
0343	to bury (a corpse)	ˈpuɾ.wũ	ˈpuɾ.wũ	ˈpuɾ.wũ
0344	to work	kam ˈkəɾ.wũ	kam ˈkəɾ.wũ	kam ˈkəɾ.wũ
0345	to play	ˈɾəm.wũ	ˈɾəm.wũ	ˈɾəm.wũ
0346	to dance	ˈɾəm.wũ	ˈɾəm.wũ	ˈɾəm.wũ
0347	to shoot (gun)	ˈgo.li ˈɦ̃iə̃ŋ.wi	ˈgo.li ˈɦ̃iə̃ŋ.wi	ˈgo.li ˈɦ̃iə̃ŋ.wũ
0348	to hunt	ʃɪ.ˈkaɾ ˈkəɾ.wũ	ʃɪ.ˈkaɾ ˈkəɾ.wũ	ʃɪ.ˈkaɾ ˈkəɾ.wũ
0349	to kill	ˈmaɾ.wũ	ˈmaɾ.wũ	ˈmaɾ.wũ
0350	to fight (hand-to-hand)	ˈwəɖ.wũ	ˈwaɖ.wũ	ˈwəɖ.wũ
0351	to buy	ˈleɦi.wũ	ˈleɦi.wũ	ˈleɦi.wũ
0352	to sell	ˈwes.wũ	ˈwes.wũ	ˈwes.wũ
0353	to exchange	ˈal.ju ˈmel.jũ	ˈal.jũ ˈmel.jũ	ˈa.ʈa ˈma.ʈa ˈkaɾ.wũ
0354	to pay	ˈpəi.ʃa ˈal.wa	ˈpəi.ʃa ˈa.lwa	ˈpəi.ʃa ˈal.wa
0355	to steal	ˈso.ɾi ˈkəɾ.wũ	ˈso.ɾi ˈkəɾ.wi	ˈso.ɾi ˈkəɾ.wi
0356	to hide oneself	ɦə.ˈtaɭ.wũ	ɦə.ˈtaɭ.wũ	ˈɦə.ti ˈza.wũ
0357	one (person)	ek	ek	ek
0358	two (persons)	ɓe	ɓe	ɓe

No.	Gloss	LRP1	LRP2	LRP3
0359	three (persons)	təĩɳ	təĩɳ	təĩɳ
0360	four (persons)	tʃaɾ	tʃaɾ	tʃaɾ
0361	five (persons)	pãs	pãs	pãs
0362	six (persons)	so	so	so
0363	seven (persons)	ɦat	ɦat	ɦat
0364	eight (persons)	aʈʰ	aʈʰ	aʈʰ
0365	nine (persons)	ˈnə.ɦu	ˈnə.ɦu	ˈnə.ɦu
0366	ten (persons)	ɗaɦ	ɗaɦ	ɗaɦ
0367	twenty (persons)	wi	wi	wi
0368	hundred (persons)	ɦo	ɦo	ɦo
0369	thousand (persons)	ɦə.ˈzaɾ	ɦə.ˈzaɾ	ɦə.ˈzaɾ
0370	to be many (people)	wə.ˈda.ɾe	wə.ˈda.ɾe	wə.ˈda.ɾe
0371	all	ɓəd.ˈdai	ɓəd.ˈdai	ɓəd.ˈdai
0372	some (people)	kãk	kak	kak
0373	to be few (people)	ɓe təĩɳ	ɓe təĩɳ	ɓe təĩɳ
0374	half (quantity)	ˈɦəɾ.dũ	ˈɦɹ.dũ	ˈɦəɾ.dũ
0375	to be big	ˈmo.ʈũ	ˈmo.ʈũ	ˈmo.ʈũ
0376	to be small	ˈna.nũ	ˈna.nũ	ˈnã.tʃo
0377	to be long	ˈlã.ɓo	ˈlã.ɓu	ˈlã.ɓo
0378	to be short (length)	ˈna.nũ	ˈto.kũ	ˈnã.tʃo
0379	to be tall	ˈõ.so	ˈõ.so	ˈlã.ɓo
0380	to be short (height)	ˈna.no	ˈne.sũ	ˈnã.tʃo
0381	to be thick (thing)	ˈza.ɖũ	ˈza.ɖũ	ˈza.ɖũ
0382	to be thin (thing)	ˈpat.ɭo	ˈpat.ɭũ	ˈpat.ɭũ
0383	to be fat (person)	ˈza.ɖo	ˈza.ɖũ	ma.ˈta.ɾũ
0384	to be skinny (person)	ɦu.ˈkəl	ˈpat.ɭũ	ɦu.ˈkəl
0385	to be wide/broad	ˈmok.ɭũ	ˈmok.ɭũ	ˈmok.ɭũ
0386	to be narrow	ˈɦo.ɽũ	ˈɦo.ɽũ	ˈɦo.ɽũ
0387	to be deep	ˈɦõ.ɖo	ˈõ.ɖũ	ˈɦõ.ɖũ

No.	Gloss	LRP1	LRP2	LRP3
0388	to be shallow	ˈma.tʰe	ˈna.no	ˈõ.ɖu ˈnə.tʰi
0389	to be round	gol	gol	gol
0390	to be full (container)	bʱə.ˈrəl	bʱə.ˈrəl	bʱə.ˈrəl
0391	right side	ˈzəm.ŋũ	ˈzəm.ŋũ	ˈzəm.ŋũ
0392	left side	ˈɖa.jo	ˈɖa.wo	ˈɖa.mu
0393	to be straight (road)	ˈpad.ɾo	ˈpad.ɾo	ˈsi.dʱũ
0394	to be far (village many miles away)	ˈʃe.ʈũ	ˈʃe.ʈũ	ˈʃe.ʈũ
0395	to be near (village very near)	ˈɖʱuk.ɾũ	ˈɖʱuk.ɾũ	ˈɖʱuk.ɾũ
0396	this	a	a	a
0397	that	ˈol.jũ	ˈol.jũ	ˈol.wũ
0398	black	ˈka.ɭũ	ˈka.ɭũ	ˈka.ɭũ
0399	white	ˈdo.ɭũ	ˈdo.ɭũ	ˈdo.ɭũ
0400	red	ˈɾa.tũ	ˈɾa.tũ	ˈɾa.tũ
0401	green	ˈli.lũ	ˈli.lo	ˈli.lũ
0402	yellow	ɦəɾ.ˈdəɾ.wũ	ɦəɾ.ˈdəɾ.wo	ˈpi.ɭũ
0403	to be dirty (clothes)	ˈme.lũ	ˈme.lo	ˈme.lũ
0404	to be new (things)	ˈnə.wũ	ˈnə.wo	ˈnə.wũ
0405	to be old (things)	ˈzo.nũ	pʊ.ˈɾã.ŋo	ˈzo.nũ
0406	to be dark (outside)	ɦə̃.ˈda.ɾũ	ɦə.ˈda.ɾũ	ɦa.ˈda.ɾũ
0407	to shine (flashlight)	əz.ˈwa.ɭũ	əz.ˈwa.ɭũ	əz.ˈwaɭ.jũ
0408	to be the same	ek ˈɦəɾ.kʰũ	ek ˈze.wũ	ek ˈze.wũ
0409	to be sweet	ˈmɪ.ʈʰũ	ˈgəɭ.jo	ˈgaɭ.jũ
0410	to be sour	ˈkʰa.ʈũ	ˈkʰa.ʈũ	ˈkʰa.ʈũ
0411	to be bitter	ˈkʰa.ɾũ	ˈkʰa.ɾũ	ˈkʰa.ɾũ
0412	to be spicy	ˈtʰi.kʰũ	ˈʃi.kʰũ	ˈtʰi.kʰũ
0413	to be rotten	gə.ˈɭəl	gə.ˈɭəl	gə.ˈɭəl
0414	to be swollen	ɦu.ˈzəl	ɦu.ˈzəl	ɦu.ˈzəl
0415	to be dry (rice)	ɦu.ˈkəl	ɦu.ˈkəl	ɦu.ˈkəl

No.	Gloss	LRP1	LRP2	LRP3
0416	to be wet (with water)	pəl.ˈɽəl	pə.lə.ˈɽəl	pə.ˈɽəl.wũ
0417	to be sharp	ˈtʰɪ.kʰũ	ˈtʰɪ.kʰũ	ˈtʰɪ.kʰũ
0418	to be blunt	ˈɾə.di	ˈɾə.di	ˈɾə.di
0419	to be heavy	ˈbʱa.ɾũ	ˈbʱa.ɾũ	ˈbʱa.ɾi
0420	to be light	ˈɦəl.ki	ˈɦəl.kũ	ˈɦəl.kũ
0421	to be hard (rock)	ˈak.ro	ˈak.ɾũ	ˈak.ɾũ
0422	to be soft (cotton)	nə.ˈɾəm	nə.ˈɾəm	nə.ˈɾəm
0423	to be smooth (road)	sapʰ	ek ˈɦəɾ.kʰi	ek ˈɦəɾ.kʰi
0424	to be rough (road)	bʱa.ˈgəl	ukʰ.ˈɽəl	ʊkʰ.ˈɽəl
0425	to be fast	ʊt ˈwa.ʟo	ut ˈwa.ʟo	ˈtɪ.kʰo
0426	to be slow	ˈɦəʟ.we	ˈɦəʟ.we	ˈɦəʟ.we
0427	to be strong	ɓəʟ ˈwa.ʟo	ˈɖa.ɖũ	ˈɖa.ɖi
0428	to be weak	ˈɖub.ʟo	ˈpat.ʟũ	ˈpat.ʟi
0429	to be tired	tʰa.ˈkəl	tʰa.ˈkəl	tʰa.ˈkəl
0430	to be ill, sick	ˈma.ɖo	ˈma.ɖo	bi.ˈmaɾ
0431	to be blind	ˈɦãd.ʟo	ˈɦãd.ʟo	ˈɦãd.ʟo
0432	to be deaf	ˈɓo.ʟo	ˈɓo.ʟo	ˈɓo.ʟũ
0433	bald	ˈɾo.ɖo	ˈɾo.ɖo	ˈɾo.ɖo
0434	to be good	ˈɦa.ro	ˈɦəkʰ.ro	ˈɦakʰ.ro
0435	to be bad	ˈɓõ.ɖo	ˈkɪ.no	ˈkɪ.no
0436	to be correct	ˈɦa.ro	ˈɦa.ro	ˈɦakʰ.ro
0437	to be wrong	gə.ˈlət	gə.ˈlət	gə.ˈlət
0438	when (past)	ˈtʃa.ɾẽ	ˈtʃa.ɾẽ	ˈtʃa.ɾẽ
0439	when (future)	ˈza.ɾẽ	tʃe.ˈtã.ŋe	tʃe.ˈtã.ŋe
0440	where	tʃã	tʃã	tʃã
0441	who	kõɳ	kõɳ	kũɳ
0442	what	ʃũ	ʃũ	ʃũ
0443	how many (persons)	ˈtʃeʈ.la	ˈtʃeʈ.la	ˈtʃeʈ.la
0444	I (1s)	mũ	mũ	mũ

No.	Gloss	LRP1	LRP2	LRP3
0445	you (2s)	tũ	tũ	tũ
0446	he/she (3s)	ˈol.jo	ˈol.jo	ˈo.lo, ˈo.li
0447	we (1p)	ˈə.mi	ˈə.mi	ˈə.mi
0448	you (2p)	ˈtə.mi	ˈtə.mi	ˈtə.mi
0449	they (3p)	ˈol.ja	ˈol.ja	ˈo.la
0450	to take	ˈle.wũ	ˈle.wũ	ˈle.wũ
0451	to put/place	ˈmel.wũ	ˈmel.wũ	ˈmel.wũ
0452	to be lost or disappear	ˈkʰo.wũ	ˈkʰo.wũ	ˈkʰo.wi ˈza.wũ
0453	to bend	ˈwəɽ.wũ	ˈwaɽ.wũ	ˈwəɽ.wũ
0454	to lift	u.ˈpaɽ.wũ	u.ˈpaɽ.wũ	u.ˈpaɽ.wũ
0455	to do/make (something)	ˈʈʰafi.wũ	ˈʈʰafi.wũ	ˈʈʰafi.wũ
0456	don't do it	na ˈkəɾ.wo	na ˈkə.ri	na ˈkəɾ.wo
0457	to be difficult	ˈɖol.jũ	ˈwafi.mũ	ˈwafi.mu
0458	to be easy	ˈɦol.jũ	ˈɦol.jũ	ˈɦo.lũ
0459	to be loose	kʊ.ˈla.so	ˈɖɦɪ.ɾũ	ˈɖɦɪ.ɾũ
0460	to be tight	ˈɦo.ɽũ	tã.ɽəl	ˈak.ɾũ
0461	to set free, let go (animal)	ˈsu.ʈi dʒjũ	ˈme.li ˈə.lo	ˈso.ʈi dʒjũ
0462	to squeeze	ˈles.wũ	le.ˈso.wũ	ˈne.so.wũ
0463	body	ɖil	ɖil	ʃə.ˈɾiɾ
0464	eyelash	pã.ˈpəɽ	pã.ˈpəɽ	pa.ˈpəɽ
0465	lip	ɦoʈʰ	ɦoʈʰ	ɦoʈʰ
0466	molar tooth	ɖaɖ	ˈɖa.ɖũ	ˈɖa.ʈʰũ
0467	jaw	ˈza.ɭũ	ˈza.ɭũ	ˈɟa.ɭũ
0468	throat	ˈgə.ɭo	go.ˈte.ɽo	ˈgə.ɭo
0469	voice box, larynx, Adam's apple	nəɾ.ˈgo.ʈa	nəɾ.ˈgo.ʈo	nəɾ.ˈgo.ʈo
0470	chest	ˈsa.ti	ˈsa.ti	ˈsa.ti
0471	breast	ˈdəi.la	ˈdə.jũ	ˈdə.jũ
0472	waist	ˈkeɽ.jũ	ˈkeɽ.jũ	keɽ

No.	Gloss	LRP1	LRP2	LRP3
0473	umbilical cord	ˈɖoɪ.ɽi	ˈna.ɽo	ˈna.ɽo
0474	womb	ˈɓə.tʃe ˈdã.ɳi	peʈ	ˈɓə.tʃe ˈdã.ɳi
0475	buttock	ˈɖe.ka	ˈɖe.ka	ˈɖe.ka
0476	wrist	ˈmʊɽ.jo	-	ˈmʊʈʰ.jũ
0477	fist	ˈmo.ʈʰi	ˈmoʈʰ.jo	ˈmo.ʈʰi
0478	thumb	ə.ˈgu.ʈʰo	ə.ˈgu.ʈʰo	ə̃.ˈgu.ʈʰo
0479	eardrum	kan nu ˈpəɽ.do	kan nu ˈpəɽ.do	kan nu ˈpəɽ.do
0480	hip	ˈɖe.ka nu ˈɦaɖ.kũ	ˈɖõ.go	ˈɖũ.go
0481	ankle	ˈpə.ɠa nu ˈmuɽ.jo	-	ˈkõ.ɳi
0482	sole (of foot)	ˈtʰa.pa	ˈtʰa.pa	ˈtʰa.pa
0483	toe	ã.ˈgəl̩.jũ	ã.ˈgəl̩.jũ	ã.ˈgəl̩.jũ
0484	earlobe	ɓuʈ	ɓuʈ	ɓuʈ
0485	skeleton	ˈpẽf.rũ	pẽf.rũ	ˈpĩf.ro
0486	skull	ˈkʰop.ɽi	ˈkʰop.ɽi	ˈkʰop.ɽi
0487	pupil	ˈɖo.l̩o	ˈɖo.l̩o	ˈɖo.l̩o
0488	spine, backbone	ˈkeɽ.ja nu ˈɦaɖ.kũ	ˈɓəi.ɽo	ˈɓəi.ɽo
0489	kidney	ˈgʊɽ.do	ˈgʊɽ.dũ	ˈgʊɽ.dũ
0490	lung	ˈpʰep.ɽũ	ˈpʰep.rũ	ˈpʰep.ɽa
0491	bladder	ˈna.l̩o	pe.ˈʃa.ni	pe.ˈʃa.ni
0492	muscle	maɦi	maɦi	maɦi
0493	uvula	ˈkak.ɽo	ˈkak.ɽo	ˈkak.ɽo
0494	vein	ˈnəw.zũ	nəs	nəs
0495	breath	ɦia	ɦia	ɦia
0496	phlegm	kʰə̃ŋ.ˈga.ro	kʰə̃ŋ.ˈga.ro	kʰə̃ŋ.rẽ.go
0497	nasal mucus, snot	ˈʃẽ.ɖa	ˈʃe.ɖa	ˈʃẽ.ɖo
0498	earwax	ˈʈʰe.ʈʰi	ˈʈʰe.ʈʰi	ˈʈʰe.ʈʰi
0499	tears (n)	ˈa.ɦiũ	ˈa.ɦiũ	ˈa.ɦiũ

No.	Gloss	LRP1	LRP2	LRP3
0500	bile, gall	ˈʊl.ʈi	ˈʊl.ʈi	ˈʊl.ʈi
0501	blink	pəʈ.pə.ˈʈa.we	pəʈ.pə.ˈʈa.wũ	pəʈ.pə.ˈʈa.wũ
0502	wink (eye)	ãʃ ˈbʱa.ge	ãʃ ˈbʱag.wi	ãʃ ˈbʱag.wi
0503	blow nose	ˈʃe.ɖa ˈkaɖ.wũ	ˈʃẽ.ɖa ˈgaɖ.wa	ˈʃe.ɖa ˈgaɖ.wa
0504	pant	ɦia ˈsə.ʈi ˈza.wũ	ɦia ˈsə.ʈi ˈza.wo	ɦia ˈsə.ʈi ˈza.wũ
0505	belch (n)	ˈɦog.ɾu	ˈɦog.ɾu	ˈɦog.ɾu
0506	hiccough (n)	ˈɦeɖ.tʃi	ˈɦeɖ.tʃi	ˈɦɪɖ.ki
0507	groan (with pain)	ɾaɦɪʈ	ɾaɦɪʈ	ɾaɦɪʈ
0508	grunt (from effort)	ɓəʝ	ɓəʝ	ɓəʝ
0509	perspire, sweat (v)	ˈpəɾ.ʃjo ˈneɾ.wũ	ˈpəɾ.ʃjo ˈneɾ.wũ	ˈpəɾ.ʃjo ˈneɾ.wũ
0510	bleed	loi ˈneɾ.wũ	loi ˈneɾ.wũ	loi ˈneɾ.wũ
0511	(be) dizzy	bə.ˈmeʈ ˈa.we	bə.ˈmeʈ ˈa.wũ	bə.ˈmeʈ ˈa.wũ
0512	faint	be.ˈɦoʃ	be.ˈɦoʃ	be.ˈɦoʃ
0513	wake up (intr)	ˈʊʈʰ.wũ	ˈuʈʰ.wũ	ˈʊʈʰ.wũ
0514	notice (v)	ˈzo.wũ	ˈzo.wũ	ˈzo.wũ
0515	feel (passive)	-	meɦi.ˈsus ˈkəɾ.wũ	meɦi.ˈsus
0516	taste (v)	ˈsakʰ.wũ	ˈsakʰ.wũ	ˈsakʰ.wũ
0517	chew	ˈsaɦi.wũ	ˈsaɦi.wũ	sə.ˈgəʈ.wũ
0518	choke	ɖu.ˈsəi ˈza.wũ	ɖu.ˈsəi ˈza.wũ	ɖu.ˈsi ˈza.wũ
0519	lie down	ˈɦõŋ.wũ	ˈɦõŋ.wũ	ˈɦõŋ.wũ
0520	turn round (intr)	ˈpʰə.ɾi ˈza.wũ	ˈpʰə.ɾi ˈza.wũ	ˈfə.ɾi ˈza.wũ
0521	step (v)	ɖəg ʊ.ˈpaʈ.wũ	ɖəg ʊ.ˈpaʈ.wũ	ɖəg ʊ.ˈpaʈ.wũ
0522	stumble	ˈtʰɪʈ.wũ	ˈtʰɪʈ.wũ	ˈtʰɪʈ.wũ
0523	limp	mə̃ɖ.ˈka.wũ	ˈʈõ.ʈo ˈɦeɖ.wũ	məʈ.ˈka.wũ
0524	run	ˈdoʈ.wũ	ˈdoʈ.wũ	ˈdoʈ.wũ
0525	jump (v)	tʰek.ˈʈa.wũ	tʰek.ˈʈa.wũ	tʰek.ˈʈa.wũ
0526	stamp (with foot)	ˈpa.ʈu	pəɠ ˈɦə̃ŋ.wu	pəɠ ɦə̃ŋ.wũ

No.	Gloss	LRP1	LRP2	LRP3
0527	trample	ˈpil.wũ	kə.ˈsər.wũ	ˈpil.wũ
0528	wave (hand as a greeting) (v)	ɦaˑtʰ ˈõ.so ˈkər.wo	ɦaˑtʰ ˈõ.so ˈkər.wo	ɦaˑtʰ ˈõ.so ˈkər.wo
0529	indicate, point (as with the finger)	ˈãg.l̩i ti ɪ.ˈʃa.ro ˈkər.wo	ˈãŋ.l̩i ti ɪ.ˈʃa.ro ˈkər.wo	ˈãg.l̩i ti ɪˈʃa.ro ˈkər.wo
0530	clap (hands)	ˈtal̩.jũ ˈpa.ɽe	ˈta.l̩i ˈpaɽ.wũ	ˈta.l̩i ˈpaɽ.wũ
0531	slap (v)	tʰə.ˈpəɽ ˈɦə̃ŋ.wi	tʰə.ˈpəɽ ˈɦə̃ŋ.wi	tʰə.ˈpəɽ ˈɦə̃ŋ.wi
0532	to touch feet to pay homage	ˈpə.dʒe ˈla.ge	ˈpə.dʒe ˈlag.wũ	ˈpə.ɠe ˈlag.wũ
0533	lean against (intr)	ap ˈal.wũ	ap ˈal.wũ	ap ˈal.wũ
0534	bow (as in greeting)	ˈdʒʊk.wũ	ˈdʒʊk.wũ	ˈdʒʊk.wũ
0535	(be) seated	ˈkʊr.si ˈma.tʰe ˈɓeɦ.wũ	ˈkʊr.si ˈma.tʰe ˈɓeɦ.wũ	ˈkʊr.si ˈma.tʰe ˈɓeɦ.wũ
0536	squat	ˈpə.ɠa ˈma.tʰe ˈɓeɦ.wũ	ˈpə.ɠa ˈma.tʰe ˈɓeɦ.wũ	ˈpə.ɠa ˈma.tʰe ˈɓeɦ.wũ
0537	(be) sleepy	ɦõ̃ŋ a.ˈwe.ɾi	ɦõ̃ŋ a.ˈwe.ɾi se	ɦoŋ a.ˈwe.se
0538	rest	a.ˈɾam	a.ˈɾam	a.ˈɾam
0539	(be) awake, alert	tjaɾ	tjaɾ	tjaɾ
0540	wrinkle (on skin)	kər.ˈməl	gər.ˈsəl.jũ	gər.ˈʃəl̩.jũ
0541	pimple	ʃil	ʃil	ʃil
0542	hump (of hunchback) (of animal)	ɖub	ɖub	ɖub
0543	barren woman	wã.ˈzə̃.n̩i	wã.ˈzə̃.n̩i	wã.ˈzə̃.n̩i
0544	blind person	ˈãd.ɻo	ˈãd.ɻo	ˈãd.ɻo
0545	deaf (mute) person	ˈɓo.ɻo	ˈɓo.ɻo	ˈɓo.ɻo
0546	cripple (n)	ˈʈũ.ʈo	ˈʈõ.ʈo	ˈʈũ.ʈo
0547	dwarf	ˈko.ɖu	ˈbɪ̆d.ro	ˈko.ɖu
0548	senile person	be.ˈsʊɾt	be.ˈsʊd	be.ˈsʊd
0549	mad person	ˈgã.ɖo	ˈgã.ɖo	ˈgã.ɖo
0550	(be) healthy, (be) well	ˈɦa.zo	ˈɦa.zo	ˈɦa.zo ˈnər.wo

No.	Gloss	LRP1	LRP2	LRP3
0551	(be) sick, (be) ill	ˈmã.ɗo	ˈma.ɗo	ˈma.ɗo
0552	hurt oneself	pãɳ ˈɦə̃ɳ.wũ	ˈpo.ta ne ˈpʰəʈ.wũ	ˈpo.ta ne ˈfəʈ.wũ
0553	heal (tr), cure (v)	ˈmə.ʈi ˈza.wũ	ˈmə.ʈi ˈza.wũ	ˈmə.ʈi ˈza.wũ
0554	get well, recover	ʈʰik ˈtʰa.wũ	ʈʰik ˈtʰa.wũ	ʈʰik ˈtʰa.wũ
0555	revive	ˈzi.wi ˈʊ.ʈʰũ	ˈzi.wi ˈʊʈʰ.wũ	ˈzi.wi ˈʊ.ʈʰũ
0556	abscess	ˈpʰo.ɽa	ˈpo.ɽo	ˈfo.ɽa
0557	swelling	ɦu.ˈzəl	ɦu.ˈzəl	ɦu.ˈzəl
0558	sprain	səʈʰ	səʈʰ	səʈʰ
0559	bruise (n)	ɾaɦɽ	bʊ.ge.ˈɽəl	ɾeɦɽ
0560	burn (n)	ˈɓə.ɭe	ˈɓə.ɭe	ˈɓə.ɭi
0561	mole	təl	təl	təl
0562	wound, sore	ˈgõb.ɽo	ˈgõb.ɽu	ˈgõb.ɽa
0563	scar	ˈgõb.ɽa nu nɪ.ˈʃan	ˈgõb.ɽa nu nɪ.ˈʃan	ˈgõb.ɽa nu nɪ.ˈʃan
0564	intestinal worm	ˈmo.ka	ˈmo.ka	peʈ ma ˈziw.ɽa
0565	illness, disease	bi.ˈma.ɾi	bi.ˈma.ɾi	bi.ˈma.ɾi
0566	yellow fever	ˈpiɭ.jo	ˈpiɭ.jo	ˈpil.jo
0567	ringworm	da.ˈdəɾ	da.ˈdəɾ	da.ˈdəɾ
0568	leprosy	goɖ	-	koɖ
0569	malaria (fever)	mə.ˈleɾ.ja	mə.ˈleɾ.ja	mə.ˈleɾ.ja
0570	fever (not malaria)	taw	taw	taw
0571	stomachache, upset stomach	peʈ nu ɖʊkʰ	peʈ nu ɖʊkʰ	peʈ nu ɖʊkʰ
0572	headache	ˈma.tʰa nu ɖʊkʰ	ˈma.tʰa nu ɖʊkʰ	ˈma.tʰa nu ɖʊkʰ
0573	diarrhea	də.ˈsət	dəst	dəst
0574	scabies (the itch)	kʰa.ˈɽɪʃ	ˈkʰa.dʒi	kʰa.ˈɽɪʃ
0575	life	zi.ˈwə̃ɳ	zi.ˈwə̃n	zi.ˈwə̃n
0576	(be) alive	ˈɦa.zo	ˈziw.to	ˈziw.to
0577	menstrual period	ˈlʊg.ɽa	ˈlʊg.ɽa	ˈlʊg.ɽa

No.	Gloss	LRP1	LRP2	LRP3
0578	(be) pregnant	ʊ.mid.ˈwa.ɾi	ˈba.ɾe ˈpə.ge	ˈba.ɾe ˈpə.ge
0579	miscarriage	-	ˈka.so məz.ˈwaɾ	kaso məd.ˈwaɾ
0580	labour (n), birth pains	ˈsok.ɾũ nu ɖʊkʰ	ˈsok.ɾo nu ɖʊkʰ	ˈsok.ɾa nu ɖʊkʰ
0581	bear (child), give birth	zə.ˈləm ˈal.wũ	zə.ˈləm ˈal.wũ	zə.ˈləm ˈal.jo
0582	(be) born	ˈdaw.ɳo	ˈdaw.ɳo	zə.ˈləm
0583	(be) young	zə.ˈwan	zə.ˈwan	zə.ˈwan
0584	grow up	ˈgəĩ.ɖo	ˈɖok.ɾo	ˈɖok.ɾo
0585	death	mot	mot	mot
0586	(be) dead	mə.ˈɾəl	mə.ˈɾəl	mə.ˈɾəl
0587	believe	bʱə.ˈɾũ.so	bʱə.ˈɾo.so	bʱə.ˈɾũ.so
0588	hope (v)	ˈas.ɾo ˈkəɾ.wo	ˈas.ɾo ˈkəɾ.wo	ˈas.ɾo ˈkəɾ.wo
0589	knowledge	-	ɦəm.ˈzə̃ŋ	ɦəm.ˈzə̃ŋ
0590	wisdom	ə.ˈkəl	ə.ˈkel	ə.ˈkəl
0591	(be) wise	ə.ˈkəl nu ˈda.no	ə.ˈkəl dan	ə.ˈkəl nu ˈda.na
0592	(be) intelligent	ɦʊʃ.ˈjaɾ	ɦʊʃ.ˈjaɾ	ɦʊʃ.ˈjaɾ
0593	(be) stupid	be dɪ.ˈmak	be dɪ.ˈmag	be dɪ.ˈma.go
0594	(be) confused	mo.ˈzəl	mo.ˈzəl	mʊ.ˈʤəl
0595	learn	ˈʃi.kʰũ	ˈʃi.kʰũ	ˈʃi.kʰũ
0596	teach	ʃikʰ.ˈɾa.wũ	ʃikʰ.ˈɾa.wũ	ʃikʰ.ˈɾa.wũ
0597	show	wa.ˈwəɾ.wi	wə.ˈtaɾ.wũ	wə.ˈtaɾ.wũ
0598	remembrance	jad	jad	jad
0599	(be) happy, (be) joyful	kʰʊʃ	kʰʊʃ	ˈɾa.zi
0600	rejoice	ˈkʰʊ.ʃi mə.ˈla.wũ	ˈkʰʊ.ʃi mə.ˈla.wi	ˈɾa.zi ˈtʰa.wũ
0601	(be) sad	ˈɖʊkʰ.jo	ˈɖʊ.kʰi	ˈɖʊ.kʰi
0602	sorrow (n)	ɖʊkʰ	ɖʊkʰ	ɖʊkʰ
0603	shame (n)	ʃə.ˈɾəm	ʃə.ˈɾəm	ʃə.ˈɾəm
0604	pity (n)	ˈɖɪ.ja	ˈɖɪ.ja	ˈɖɪ.ja

No.	Gloss	LRP1	LRP2	LRP3
0605	fear (n)	ɓik	ɓik	ɓik
0606	frighten	ɓi.ˈa.wũ	ɓi ˈa.wũ	ɓi.ˈa.wũ
0607	startle, surprise	ɦie.ˈran	ɦie.ˈran	ɦie.ˈran
0608	(be) proud	-	naz	naz
0609	respect (v)	ɪz.ˈzət ˈkər.wũ	ɪz.ˈzət ˈkər.wũ	ɪz.ˈzət ˈkər.wũ
0610	honour (v)	man ˈal.wũ	man ˈal.wũ	nem.ˈɾai ˈkər.wũ
0611	despise, disdain	zə.ˈlil ˈkər.wũ	ˈbez.ti ˈkər.wũ	ˈbez.ti ˈkər.wũ
0612	disgusting	ˈkɪ.nu	ˈkɪ.nu	ˈkɪ.nu
0613	want, desire (v)	ˈzoɦi.wũ	ˈzaɦi.wũ	ˈtʃa.ɦũ sũ
0614	decide	ˈpʰəĩs.lo ˈkər.wo	ˈfəis.lo ˈkər.wo	ˈfẽs.lo ˈkər.wũ
0615	hesitate	ɦiək.ˈla.wũ	gəb.ˈra.wũ	gəb.ˈra.wũ
0616	abstain	ˈʃe.ʈo ˈre.wũ	ˈʃe.ʈo ˈre.wũ	ˈʃe.ʈo ˈre.wũ
0617	allow, permit	ɪ.ˈdʒat ˈal.wi	mo.ˈkəl ˈal.wi	mo.ˈkəl ˈal.wi
0618	forbid	na ˈpaɾ.wi	na ˈpaɾ.wi	na ˈpaɾ.wi
0619	prevent	ˈʊ.bo ˈrakʰ.wo	ˈʊ.bũ ˈra.kʰũ	ˈʊ.bu ˈrakʰ.wũ
0620	plan (n)	ˈrɪ.tʰa	ˈrɪ.tʰa	ˈrɪ.tʰa
0621	try	ko.ˈʃɪʃ	ko.ˈʃɪʃ	ko.ˈʃɪʃ
0622	succeed	zit	zit	zit
0623	fail	ˈpə.ɾi ˈza.wũ	ˈpə.ɾi ˈza.wũ	ˈpə.ɾi ˈza.wũ
0624	pretend	-	wə.ˈtaɾ.wũ	ɖe.ˈka.ɾo
0625	(be) kind	ɖɪ.ja.ˈwən	ɖɪ.ja.ˈwən	ɖɪ.ja.ˈwan
0626	(be) generous	ˈʃək.kʰi	ɖɪ.ˈja.ɭu	ˈɖɪ.ˈja.lu
0627	(be) selfish	mət.ˈlə.bi	mət.ˈlə.bi	mət.ˈlə.bi
0628	(be) honest	ɪ.man.ˈdar	ˈɦia.so	ɪ.man.ˈdar
0629	(be) corrupt	bəi.ˈman	ɓəi.ˈman	ɓəi.ˈman
0630	(be) wicked	ɦə.ˈram.ɾi	ɦə.ˈram.ɾi	ɦə.ˈram.ɾi
0631	(be) fierce	ɓi ˈa.wũ	ɓi ˈa.wũ	ɓi ˈa.wũ
0632	(be) jealous	ˈri.ʃi ˈɓaɭ.wũ	ˈbəɭ.wũ	ˈri.ʃi ˈɓəɭ.wũ

No.	Gloss	LRP1	LRP2	LRP3
0633	(be) shy	ʃəɾ.ˈmi.lo	ʃəɾ.ˈmi.lo	ʃəɾ.ˈmi.lo
0634	(be) courageous, (be) brave	dɪ.ˈleɾ	dɪ.ˈleɾ	dɪ.ˈleɾ
0635	coward	ɓi.ˈkõɳ	ɓi.ˈkõɳ	ɓi.ˈkõɳ
0636	(be) curious	-	-	-
0637	(be) eager, (be) zealous	ʃõ.ˈkin	ʃõ.ˈkin	ʃo.ˈki.lo
0638	(be) lazy	ˈɖʱɪ.ɾo	ˈɖʱɪ.ɾo	ˈɖʱɪ.ɾo
0639	(be) patient	sə.ˈbəɾ ˈkəɾ.ja ˈwa.ɭo	sə.ˈbəɾ ˈkəɾ.ja ˈwa.ɭo	sə.ˈbəɾ ˈkəɾ.ja ˈwa.ɭo
0640	(be) impatient	ˈtək.ɻo	be ˈsəb.ro	ˈtək.ɻo
0641	(be) restless, (be) unsettled	be sə.ˈkun	be sə.ˈkun	be sə.ˈkun
0642	(be) stubborn	zɪd.ˈdɪ.lo	zɪd.ˈdi.lo	zɪd.ˈdi.lo
0643	reputation	man	man	man
0644	hardship, distress	ɖʊkʰ	ɖʊkʰ	ɖʊkʰ
0645	suffer	tək.ˈlip ˈsaɦi.wi	tək.ˈlif ˈsaɦi.wũ	tək.ˈlif ˈsaɦi.wi
0646	obstruct	ɦia.ˈkəl.wũ	ɦia.ˈkəl.wũ	ˈʊ.bu ˈrak.wũ
0647	stumbling block, obstruction	ɾʊ.ka.ˈwəʈ	ɾʊ.ka.ˈwəʈ	ɾʊ.ka.ˈwəʈ
0648	danger	ɓik	ɓik	ɓik
0649	problem, trouble	ˈməs.lo	ˈməs.lo	ˈməs.lo
0650	self	ˈap.ɳi	ˈpã.dʒi	ˈpã.ʥi
0651	white man	ˈdo.ɭo	ˈdo.ɭo	ˈdo.ɭo
0652	fetus	mã na peʈ ma ˈsok.ɾũ	mã na peʈ ma ˈsok.ɾũ	mã na peʈ ma ˈsok.ɾũ
0653	baby	ˈsok.ɾũ	ˈɖuʃ.lo	gõ.gũ, ˈsok.ɾũ
0654	twin	ˈbel.ɻa	ˈbel.ɻa	ˈʃa.ɻa
0655	boy	ˈsok.ro	ˈsok.ro	ˈsok.ro
0656	girl	ˈsok.ɾi	ˈsok.ɾi	ˈsok.ɾi
0657	adult	zə.ˈwan	zə.ˈwan	zə.ˈwan

No.	Gloss	LRP1	LRP2	LRP3
0658	young man	zə.ˈwan ˈsok.ɾo	zə.ˈwan ˈsok.ɾo	zə.ˈwan ˈsok.ɾo
0659	young woman	zə.ˈwan ˈsok.ɾi	zə.ˈwan ˈsok.ɾi	zə.ˈwan ˈsok.ɾi
0660	virgin	kŭ.ˈwa.ɾi	kŭ.ˈwa.ɾi	kŭ.ˈwa.ɾi
0661	divorced man	ˈɾãɖ.wo	ˈɾãɖ.wo	ˈɾə̃ɖ.wo
0662	divorced woman	ˈɾãɖ.wi	ˈɾãɖ.wi	ˈɾə̃ɖ.wi
0663	old person	ˈgəĩ.ɖo	ˈɖok.ɾo	ˈɖok.ɾo
0664	relative (by blood)	maɪʈ	maɪʈ	maɪʈ
0665	ancestor	pəɾ.ˈɖa.ɖa	pəɾ.ˈɖa.ɖa	pəɾ.ˈɖa.ɖa
666 a	grandparent (paternal)	ˈɖa.ɖo	ˈɖa.ɖo	ˈɖa.ɖo
666 b	grandparent (maternal)	ˈna.no	ˈna.no	ˈna.no
0667	father's younger brother (uncle)	ˈka.ko	ˈka.ko	ˈka.ko
0668	father's older brother (uncle	ˈmoʈ.ɓa	ˈmo.ʈo ɓa	ˈmoʈ.ɓa
0669	mother's younger brother (uncle)	ˈma.ma	ˈma.mo	ˈma.mo
0670	mother's older brother (uncle)	ˈma.ma	ˈma.mo	ˈma.mo
0671	mother's younger sister (aunt)	ˈma.si	ˈma.ʃi	ˈma.ʃi
0672	mother's older sister (aunt)	ˈma.si	ˈma.ʃi	ˈma.ʃi
0673	father's younger sister (aunt)	ˈpʰʊp.pʰi	pʰi	fi
0674	father's older sister (aunt)	ˈpʰʊp.pʰi	pʰi	fi
0675	cousin	bəi	bəi	bəi ɓon
0676	firstborn	ˈpe.la ˈkʰo.ʎa no	ˈpe.la ˈko.ʎa no	ˈpe.la ˈkʰo.ʎa no ˈsok.ɾo
0677	descendant	kə.ˈʈəb	kʊ.ˈʈəb	kʊ.ˈʈəb
0678	son	ˈsok.ɾo	ˈsok.ɾo	ˈsok.ɾo
0679	daughter	ˈsok.ɾi	ˈsok.ɾi	ˈsok.ɾi

No.	Gloss	LRP1	LRP2	LRP3
0680a	grandson	ˈpo.ʈo	ˈpot.ɾa	ˈpot.ɾo
0680b	granddaughter	ˈpo.ʈi	ˈpot.ɾi	ˈpot.ɾi
0681a	nephew (brothers' son)	bət.ˈɾi.zo	bət.ˈɾi.zo	bət.ˈɾi.zo
0681b	nephew (sisters' son)	ba.ˈɾe.za	ba.ˈɾẽz	ba.ɾẽz
0682a	niece (brothers' daughter)	bət.ˈɾi.zi	bət.ˈɾi.zi	bət.ˈɾi.zi
0682b	niece (sisters' daughter)	ba.ˈɾe.zi	ba.ˈɾẽz	bã.ˈɾẽz.ɾi
0683	in-law, relative by marriage	ˈɦaɦi.ɾjã	ɦaɦi.ˈɾja	ˈɦaɦi.ɾjã
0684	father-in-law	ˈɦaɦi.ɾo	ˈɦaɦi.ɾo	ˈɦaɦi.ɾo
0685	mother-in-law	ˈɦa.ɦu	ˈɦa.ɦu	ˈɦa.ɦu
0686	brother-in-law	ˈɦa.ʮo	ˈɦa.ʮo	ˈɦa.ʮo
0687	sister-in-law	ˈɦa.ʮi	ˈɦa.ʮi	ˈɦa.ʮi
0688	daughter-in-law	wəw	wəw	wəw
0689	widower	ˈwã.ɖo	ˈɾə̃ɖ.wo	ˈɾə̃ɖ.wo
0690	orphan	dʒə.ˈtim	jə.ˈtim	jə.ˈtim
0691	fiancé (betrothed boyfriend)	ˈad.mi	gəɾ.ˈwa.ʮo	ˈad.mi
0692	fiancée (betrothed girlfriend)	ˈɓaɪ.ɾi	gəɾ.ˈwa.ʮi	ˈɓaɪ.ɾi
0693	boyfriend	ˈsə̃ŋ.ti	ˈsə̃ŋ.ti	ˈsə̃ŋ.ti
0694	girlfriend	sə̃ŋ.ˈtã.ɳi	sə̃ŋ.ˈtã.ɳi	sə̃ŋ.ˈtã.ɳi
0695	tribe, ethnic group	nat	nat	nat
0696	clan	zat	zat	zat
0697	family	gəɾ ni ˈa.ka	pə.ɾi.ˈwaɾ	pə.ɾi.ˈwaɾ
0698	neighbour	pa.ˈɾes.ɾi	pa.ˈɾes.ɾi	pa.ˈɾes.ɾi
0699	acquaintance	ʊɾ.ˈkʰə̃ɳ ˈwa.ʮo	ʊɾ.ˈkə̃ɳ ˈwa.ʮo	ʊɾ.ˈkʰə̃ɳ ˈwa.ʮo
0700	host	ʃe.wa.ˈda.ɾi	ʃe.wa.ˈda.ɾi	ʃe.wa.ˈda.ɾi
0701	guest, visitor	pə.ˈɾũ.ɾo	pə.ˈɾo.ɾũ	pə.ˈɾuɾ.jã
0702	stranger (unknown person)	ɦə̃ɳ wa.ˈkub	ɦə̃ɳ wa.ˈkuf	ɦə̃ɳ wa.ˈkub

No.	Gloss	LRP1	LRP2	LRP3
0703	enemy	dʊʃ.ˈmən	dʊʃ.ˈmən	dʊʃ.ˈmən
0704	traitor	gər.ˈdaɾ	gər.ˈdaɾ	gə.ˈdaɾ
0705	thief	soɾ	soɾ	soɾ
0706	guide (n)	əg.ˈwãɳ	əg.ˈwãɳ	əg.ˈwãɳ
0707	messenger	koʈ.ˈwaɭ	nɪ.ˈja.po	koʈ.ˈwaɭ
0708	crowd	ˈbe.ɭa	ˈbe.ɭa	ˈbe.ɭa
0709	chief, headman	pə.ˈʈel	pə.ˈʈel	pə.ˈʈel
0710	elder	ˈgəĩ.ɖo	ˈɖok.ro	ˈɖok.ro
0711	master	ˈdɟ̃.ɳi	ɦa.ˈkəm	ˈdɟ̃.ɳi
0712	slave	no.ˈkər	gʊ.ˈlam	gʊ.ˈlam
0713	farmer	ˈɦa.ɻi	ˈɦa.ɻi	ˈɦa.ɻi
0714	fisherman	mo.ˈɦa.ɻa	mo.ˈɦə.ɻa	mo.ˈɦa.ɻo
0715	hunter	ʃɪ.ˈka.ɾi	ʃɪ.ˈka.ri	ʃɪ.ˈka.ɾi
0716	blacksmith	lə.ˈwaɾ	lo.ˈwaɾ	lə.ˈwaɾ
0717	potter	kõ.ˈbaɾ	kõ.ˈbaɾ	kũ.ˈbaɾ
0718	weaver	bʱərt ˈbʱəɾ.ja ˈwa.ɭo	bʱərt ˈbʱəɾ.ja ˈwa.ɭo	bʱəɾət ˈbʱəɾ.ja ˈwa.ɭo
0719	butcher(n)	ka.ˈsai	ka.ˈsəi	ka.ˈsai
0720	carpenter	ˈwa.ɖo	ˈwa.ɖo	ˈwa.ɖo
0721	trader	wa.ˈpa.ɾi	wa.ˈpa.ɾi	wa.ˈpa.ɾi
0722	seller	ˈwe.ʃa ˈwa.ɭo	go.ˈɾoʈ.jo	ˈwe.ʃa ˈwa.ɭo
0723	teacher	mas.ˈtər	mas.ˈtər	mas.ˈtər
0724	priest	bə.ˈgət	bə.ˈgət	bə.ˈgət
0725	nun	bəg.ˈtã.ɳi	bəg.ˈtã.ɳi	bəg.ˈtã.ɳi
0726	novice	ˈse.lo	ˈtʃe.lo	ˈtʃe.lo
0727	(domestic) servant	no.ˈkər	no.ˈkər	no.ˈkər
0728	beggar	pʰə.ˈkiɾ	ma.ˈgəɾ	pə.ˈkiɾ
0729	soldier	ˈpʰo.dʒi	ˈfo.zi	ˈfo.dʒi
0730	prostitute	ɦə.ˈɾam.ɻi	ɦə.ˈɾam.ɻi	ɦə.ˈɾam.ɻi
0731	midwife, sage	dai	dai	dai

No.	Gloss	LRP1	LRP2	LRP3
0732	medicine man, traditional healer	ˈʃã.ŋũ	ɦə.ˈkim	ɦə.ˈkim
0733	fetish priest	ʈʰəg bə.ˈgət	ʈʰəg bə.ˈgət	ʈʰəg bə.ˈgət
0734	sorcerer(male)	ˈbo.po	ˈbo.pa	ˈbo.po
0735	witch (female)	ˈbo.pi	ˈbo.pi	ˈbo.pi
0736	fortune teller	ˈdʒo.gi	nə.ˈdʒu.mi	ˈdʒo.gi
0737	meet, encounter	ˈməɭ.wũ	ˈmaɭ.wũ	ˈməɭ.wũ
0738	accompany	-	ˈbe.ɭo ˈza.wũ	ˈbe.ɭũ ˈza.wũ
0739	(be) together	ˈbe.ɭa ˈtʰa.wũ	ˈbe.ɭo ˈtʰa.wũ	ˈbe.ɭa ˈtʰa.wũ
0740	assemble, meet together	ɓə.ˈdai ˈbe.ɭa	ɓə.ˈdai ˈbe.ɭa	ɓə.ˈdai ˈbe.ɭa
0741	invite	ˈnot.ɾũ ˈal.wũ	ˈnot.ɾo ˈal.wũ	ˈnot.ɾũ ˈal.wũ
0742	(be) alone	ˈek.lo	ˈek.lo	ˈek.lũ
0743	abandon	ˈme.li ˈal.wo	ˈme.li ˈal.wũ	ˈme.li ˈlak.wũ
0744	flee, run away from	ˈdoɭ.wũ	ˈdoɭ.wũ	ˈdoɭ.wũ
0745	drive away	ɦa.ˈtʃɪn ˈza.wũ	ɦa.ˈtʃɪn ˈza.wũ	ɦa.ˈtʃɪn ˈza.wũ
0746	avoid	ˈpa.ɦo ˈkəɾ.wo	ˈpa.ɦo ˈkəɾ.wo	ˈpa.ɦo ˈkəɾ.wũ
0747	imitate	wə.ˈsa.ɾa	sã.ˈwəɭ.ja ˈgaɖ.wa	nə.ˈkəl ˈkəɾ.wi
0748	admire	gũŋ ˈga.wũ	gũŋ ˈga.wũ	gũŋ ˈga.wũ
0749	language	ˈɓo.li	ˈɓo.li	ˈɓo.li
0750	word	ləwz	ləwz	lə.ˈɸəz
0751	meaning (n)	ˈma.na	ˈma.na	ˈma.na
0752	say	ˈɓol.wũ	ˈɓol.wũ	ˈɓol.wũ
0753	scold	ɦʊl ˈkəɾ.wũ	ɦʊl ˈkəɾ.wũ	ɦʊl ˈkəɾ.wũ
0754	voice	ə.ˈwaz	a.ˈwaz	a.ˈwaz
0755	whisper (v)	kan ma ˈkeɦ.wũ	ɦan ˈkəɾ.wũ	kan ma ˈkeɦ.wũ
0756	mumble	ˈɓob.ɾo	ɓo.ˈbəɭ.wũ	bəɾ.bə.ˈɾa.wũ
0757	stutter	ˈɓa.to	ˈɓa.to	ˈɓa.to
0758	(be) eloquent	ˈmɪ.ʈʰũ ˈɓol.wũ	ˈme.ʈʰũ ˈɓol.wũ	ˈmɪ.ʈʰũ ˈɓol.wũ

No.	Gloss	LRP1	LRP2	LRP3
0759	(be) silent	ˈsa.nu ˈma.nu	ˈsa.nu ˈma.nu	ˈsa.nu ˈma.nu
0760	write (v)	ˈləkʰ.wũ	ˈləkʰ.wũ	ˈlekʰ.wũ
0761	greet (v.)	ɾam ɾam ˈkəɾ.wũ	ɾam ɾam ˈkəɾ.wã	ɾam ɾam ˈkəɾ.wa
0762	call (someone)	ɦad ˈpaɽ.wũ	ɦia ˈkəɾ.wũ	ɦad ˈpaɽ.wũ
0763	say goodbye, take leave of	mok.ˈlã.ɳi ˈkəɾ.wi	mok.ˈlã.ni ˈkəɾ.wũ	mok.ˈlã.ɳi ˈkəɾ.wi
0764	announce	ɦãɳ ˈkəɾ.wũ	ɦãɳ ˈkəɾ.wũ	e.ˈlan ˈkəɾ.wũ
0765	announcement	ɦãɳ	ɦãɳ	e.ˈlan
0766	news	ˈkʰəb.ɾũ	ˈkʰəb.ɾjũ	ˈkʰəb.ɾũ
0767	explain	ɦəm.ˈza.wũ	ɦəm.ˈza.wũ	ɦəm.ˈza.wũ
0768	advise	məʃ.ˈwə.ɾo ˈal.wo	məʃ.ˈwə.ɾo ˈal.wo	ˈɾa.ɦie ɦə̃b.ˈɽa.wi
0769	gossip (v)	ˈgɪ.la ˈkəɾ.wi	ˈgɪ.la ˈkəɾ.wũ	ˈgɪ.la ˈkəɾ.wi
0770	ask, request	ˈpus.wũ	ˈpus.wũ	ˈpus.wũ
0771	thank	dɦə.ne.ˈwaɾ ˈkeɦ.wũ	dɦə.ne.ˈwad ˈkəɾ.wũ	dɦə.ne.ˈwad ˈkeɦ.wũ
0772	promise (n)	ˈwaɪ.do	ˈwaɪ.do	ˈwaɪ.do
0773	oath	ɦəm	ɦəm	ɦəm
0774	swear	ɦəm	ɦəm	ɦəm
0775	insult (v)	ˈbez.ti ˈkə.ɾi	ˈbʊtʃ.ɽo ˈkəɾ.wũ	ˈbez.ti ˈkə.ɾi
0776	insult (n)	ˈbez.ti	ˈbʊtʃ.ɽo	ˈbez.ti
0777	slander (v)	ɗo lə.ˈga.wũ	ɗo lə.ˈga.wũ	ɗo lə.ˈga.wo
0778	threaten	ˈda.ɓo ˈal.wũ	ˈda.ɓo ˈal.wũ	ˈda.ɓo ˈal.wo
0779	argue	beʃ ˈkəɾ.wũ	beɦis ˈkəɾ.wũ	beɦis ˈkəɾ.wũ
0780	argument	beʃ	beɦis	beɦis
0781	grumble, complain	kʊɾ.ˈkʊ.ɾo	kʊɾ.ˈkəɾ.wũ	kʊɾ.ˈkʊ.ɾo
0782	harass	ɓiw.ˈɾa.wũ	ɓiw.ˈɾa.wũ	ɓiw.ˈɾa.wũ
0783	accuse	ɗo ˈɦə̃ɳ.wũ	ɗo ˈɦə̃ɳ.wo	ɗo ˈɦə̃ɳ.wo
0784	deny	na ˈpaɽ.wũ	na ˈpaɽ.wũ	na ˈpaɽ.wi

No.	Gloss	LRP1	LRP2	LRP3
0785	admit (to a wrong)	ˈman.wi	ˈman.wũ	ˈman.wi
0786	agree	ˈma.ni ˈza.wũ	ˈmə.ni ˈza.wũ	ˈma.ni ˈza.wũ
0787	agreement	zɪ.ˈban	zɪ.ˈban	zɪ.ˈban
0788	persuade	mə.ˈna.wo	mə.ˈna.wũ	mə.ˈna.wũ
0789	praise (n)	gũɳ	gũɳ	gũɳ
0790	bless, praise (someone)	gũɳ ˈga.wũ	gũɳ ˈga.wũ	gũɳ ˈga.wũ
0791	congratulate	mũm.ˈba.rək ˈal.wi	mũ.ba.ˈrək ˈal.wũ	mũ.ˈba.rək ˈal.wũ
0792	boast, brag	wə.ˈɖa.wo ˈkər.wo	wə.ˈɖai ˈkər.wũ	ˈfu.kũ ˈfiə̃ɳ.wũ
0793	story (tale)	wat	wat	wat
0794	proverb	-	-	ka.ˈwət
0795	speech,discourse	tək.ˈrir	tək.ˈrir	tək.ˈrir
0796	account (report) (n)	rə.ˈpoʈ	kʰə.ˈber	kʰə.ˈbər
0797	embrace, hug (v)	ɓat ˈlakʰ.wũ	ɓat ˈlakʰ.wũ	ɓat ˈlakʰ.wũ
0798	caress (v)	ɦiatʰ ˈpʰer.wũ	ɦiatʰ pʰe.ˈrə.wũ	ɦiatʰ ˈpʰer.wũ
0799	kiss (v)	ˈtʃʊ.mi ˈal.wi	ˈɓə.tʃi ˈal.wũ	ˈtʃʊ.mi ˈal.wũ
0800	nurse, suckle (baby)	dəw.ˈra.wũ	dəw.ˈra.wũ	dəw.ˈra.wũ
0801	tickle (v)	ˈgət.ti kã	ˈgət.ti kã	ˈgət.ti kã
0802	spank (child)	tʰəp.ˈpər ˈfiə̃ɳ.wi	tʰəp.ˈpər ˈfiə̃ɳ.wi	tʰəp.ˈpər ˈfiə̃ɳ.wi
0803	whip(n)	ˈsab.ko	ˈsab.ko	səʈ.ˈpʊt.ro
0804	help	mə.ˈdət	mə.ˈdəd	mə.ˈdət
0805	protect	sə̃.ˈbal ˈkər.wi	ɦiə.ˈbal.wũ	ɦiə̃.ˈbal ˈkər.wi
0806	look after	sə̃.ˈbal ˈkər.wi	ɦiə.ˈbal.wũ	ɦiə̃.ˈbal ˈkər.wi
0807	bring up(a child)	ˈsak.ri ˈkər.wũ	nɪ.ˈpa.wũ	ˈsak.ri ˈkər.wũ
0808	rule over, dominate	bad.ˈʃai ˈkər.wi	ba.ˈʃai ˈkər.wũ	bad.ˈʃai ˈkər.wi
0809	order(someone to do something)	ɦɪʊ.ˈkəm ˈkər.wo	ɦɪʊ.ˈkəm ˈkər.wo	ɦɪʊ.ˈkəm ˈkər.wo

No.	Gloss	LRP1	LRP2	LRP3
0810	command(n)	ɦʊ.ˈkəm	ɦʊ.ˈkəm	ɦʊ.ˈkəm
0811	duty, obligation	pʰərz	fərz	pʰərəz
0812	send(someone to do something)	ˈmel.wũ	ˈmel.wũ	ˈmel.wũ
0813	serve	ˈsak.ɾi	ˈsak.ɾi ˈkəɾ.wũ	ˈsak.ɾi
0814	lead, guide(v)	əg.ˈwã.ɳi ˈkəɾ.wi	əg.ˈwã.ɳi ˈkəɾ.wi	əg.ˈwã.ɳi ˈkəɾ.wi
0815	follow	ˈtʃe.ɽe ˈza.wũ	ˈtʃe.ɽe ˈɦeɖ.wũ	ˈtʃe.ɽe ˈza.wũ
0816	obey	ˈkɪd.du ˈma.no	ˈkɪd.du ˈman.wu	ˈgɪd.du ˈman.wũ
0817	please	ˈɾa.zi ˈkəɾ.wũ	ˈɾa.zi ˈkəɾ.wũ	ˈɾa.zi ˈkəɾ.wũ
0818	annoy	tə̃ŋ ˈkəɾ.wũ	tə̃ŋ ˈkəɾ.wũ	tə̃g ˈkəɾ.wũ
0819	deceive	ˈdo.kʰo ˈal.wo	ˈdo.kʰo ˈal.wo	ˈdo.kʰo ˈkəɾ.wo
0820	to quarrel	ˈwəɖ.wũ	ˈwəɖ.wũ	ˈwəɖ.wũ
0821	take revenge	weɾ ˈwaɭ.wũ	weɾ ˈwaɭ.wũ	weɾ ˈwaɭ.wo
0822	resolve, settle(dispute)	nɪ.ˈbeɾ.wũ	nɪ.ˈbeɾ.wũ	nɪ.ˈbeɾ.wũ
0823	intercede, mediate	ˈɾa.zi ˈna.ma kə.ˈɾa.ja	mə.ˈnam.na ˈkəɾ.wã	ˈɾa.zi ˈna.ma ˈkəɾ.wa
0824	compromise	ʈʰa ˈkəɾ.wo	ʈʰa ˈkəɾ.wo	ʈʰa ˈkəɾ.wo
0825	appease, pacify	ˈʈa.ɖo ˈkəɾ.wo	ˈʈa.ɖo ˈkəɾ.wo	ˈʈʰa.ɖu ˈkəɾ.wũ
0826	judge(v)	ɪn.ˈsap ˈkəɾ.wo	ɪn.ˈsaf ˈkəɾ.wo	ɪn.ˈsaf ˈkəɾ.wo
0827	law	ka.ˈnun	ka.ˈnun	ka.ˈnun
0828	(be) fair, just	ˈɦia.so	ˈɦia.sũ	ˈɦia.so
0829	(be) guilty	ˈpa.pi, ɖoɦ ˈwa.ɾo	ɖoɦ ˈwa.ɭo	ˈpa.pi
0830	(be) innocent	ɓe.ˈɖoi	ɓe.ˈɖoi	ɓe.ˈɖoi
0831	punish	ˈsə.za ˈal.wi, ʈip ˈal.wi	ˈsə.za ˈal.wi	ˈsə.za ˈal.wi
0832	to fine	ɖə̃ɖ ˈal.wo	ɖə̃ɖ ˈal.wo	ɖə̃ɖ ˈal.wo
0833	penalty, punishment	ˈsə.za	ˈsə.za	ˈsə.za

No.	Gloss	LRP1	LRP2	LRP3
0834	dwell	ˈɾefi.wũ	ˈɾefi.wũ	ˈɾefi.wũ
0835	inhabitant, resident	ˈɾɪ.fia ˈwa.ɭo	ˈɾɪ.fia ˈwa.ɭo	ˈɾɪ.fia ˈwa.ɭa
0836	country dweller	zə̃ŋ ma ˈɾɪ.fia ˈwa.ɭo	zə̃ŋ ma ˈɾɪ.fia ˈwa.ɭo	zə̃.ˈgəl ma ˈɾɪ.fia ˈwa.ɭa
0837	move away	ˈləɖ.wũ	ˈləɖ.wũ	ˈləɖ.wũ
0838	country, ethnic area	des	des	des
0839	frontier(of ethnic area)	ɦəd	ɦəd	ɦəd
0840	town, city	ʃe.ˈɦeɾ	ʃe.ˈɦeɾ	ʃeɾ
0841	market(n)	ˈgə.li, bə.ˈzaɾ	ˈgə.li	ˈgə.li
0842	wear clothes	ˈlʊg.ɽa ˈpeɾ.wã	ˈlʊg.ɽa ˈpeɾ.wã	ˈlʊg.ɽa ˈpeɾ.wũ
0843	dress(v)	ˈlʊg.ɽa ˈpeɾ.wã	ˈlʊg.ɽa ˈpeɾ.wã	ˈlʊg.ɽa ˈpeɾ.wũ
0844	undress	ˈlʊg.ɽa ʊ.ˈtaɾ.wã	ˈlʊg.ɽa ʊ.ˈtaɾ.wã	ˈlʊg.ɽa ʊ.ˈtaɾ.wũ
0845	hat	ˈʈo.pi	ˈʈo.pi	ˈʈo.pi
0846	loincloth	ˈtʃə̃.ɖi	ˈtʃə.ɖi	ˈtʃə.ɖo
0847	baby sling	ˈgoɽ.jũ	ˈgoɽ.jũ	ˈgoɽ.jũ
0848	shoe, sandal	ˈzo.ɭa	ˈzo.ɭa	ˈzo.ɭa
0849	bead	pa.ˈɾuɽ.jã	pa.ˈɾuɽ.jã	pa.ˈɾuɽ.jã
0850	string, thread (beads) (v)	ˈɖoɪ.ɽo	ˈɖoɪ.ɽo	ˈɖoɪ.ɽo
0851	bracelet	ˈsu.ɽa	ˈsuɽ.jũ	ˈsuɽ.jũ
0852	necklace	ɦaɾ	ɦaɾ	ɦaɾ
0853	ankle ring	ˈkəɽ.la	ˈkəɾ.la	ˈkə.ɽa
0854	earring	dʒə.ˈməʈ.jã	ˈdʒə.ba	dʒə.ˈməʈ.jã
0855	pierce (ears)	wẽ.ˈdəl	wẽ.ˈdəl	wẽ.ˈdəl
0856	plait, braid (hair)	ˈsoʈ.lo	ˈsoʈ.lo	ˈsoʈ.lo
0857	tattoo(s)	ˈtaɭ.wũ	ˈtɾaz.wa	ˈtaɭ.zũ
0858	cane, walking stick	ˈdo.ko	ˈlak.ɽi	ˈlak.ɽi
0859	apply (ointment), besmear	so.ˈpəɽ.wũ	so.ˈpəɽ.wũ	so.ˈpəɽ.wũ
0860	razor	ˈpa.ki, ˈpən.nũ	ˈpa.ki	ˈpa.ki

No.	Gloss	LRP1	LRP2	LRP3
0861	tooth stick	ɗa.ˈtə̃ɳ	ɗã.ˈtə̃ɳ	ɗa.ˈtə̃ɳ
0862	food	ˈroʈ.lo	ˈroʈ.lo	ˈroʈ.la
0863	oil	tel	tel	tel
0864	soup, broth	ˈra.ɦio	ˈra.ɦio	ˈra.ɦio
0865	flour	loʈ	loʈ	loʈ
0866	breakfast	ne.ˈrã̃ɳ	ne.ˈrã̃ɳ	ne.ˈrã̃ɳ
0867	lunch	bə.ˈpʰo.ra nu ˈroʈ.lo	bə.ˈfor nu ˈroʈ.lo	bafɪr ˈwa.ʃa nu ˈroʈ.lo
0868	evening meal	ɦĩãz nu ˈroʈ.lo	ɦĩãz nu ˈroʈ.lo	ɦĩãz nu ˈroʈ.lo
0869	almoner	baw	baw	baw
0870	leftovers	ˈbə.tʃi dʒu ˈkʰa.dũ	bə.ˈtʃəl ˈkʰa.do	bə.ˈtʃəl ˈkʰa.dũ
0871	spoil (food) (intr)	ɓə.ˈgaʈ.wũ	ɓə.ˈgaʈ.wũ	ɓə.ˈgaʈ.wũ
0872	rice wine	-	-	-
0873	prepare (food to cook)	tjaɾ ˈkəɾ.wũ	tjaɾ ˈkəɾ.wũ	tjaɾ ˈkəɾ.wũ
0874	cut (tr)	ˈwaɖ.wũ	ˈwaɖ.wũ	ˈwaɖ.wũ
0875	cut open (fruit)	ˈpʰa.ɖa ˈkəɾ.wa	ˈpʰa.ɖ ˈkəɾ.wa	ˈpʰa.ɖa ˈkəɾ.wa
0876	slice	ˈgət.ra ˈkəɾ.wũ	ˈgət.ra ˈkəɾ.wa	ˈgət.ra ˈkəɾ.wũ
0877	peel (v)	ˈso.ɖã ʋ.ˈtaɾ.wã	ˈpʰol.wũ	ˈso.ɖã ʋ.ˈtaɾ.wũ
0878	mix (v)	gə.ˈɖa.wũ	gə.ˈɖa.wũ	gə.ˈɖa.wũ
0879	stir	ɦə.ˈla.wũ	ɦə.ˈla.wũ	ɦə.ˈla.wũ
0880	strain (food) (v)	ˈsaʈ.wũ	ˈsaʈ.wũ	ˈsaʈ.wũ
0881	pluck (feathers)	ˈpəʈ.wũ	ˈpəʈ.wũ	ˈpəʈ.wũ
0882	roast	ˈʃek.wũ	ˈʃek.wũ	ˈʃek.wũ
0883	fry	ˈtəɭ.wũ	ˈtəɭ.wũ	ˈtəɭ.wũ
0884	bake (in ashes)	ˈʃek.wũ	ˈʃek.wũ	ˈʃek.wũ
0885	(be) smoked	tap ma sə.ˈɽa.wũ	tap ma sə.ˈɽa.wũ	baf.lũ
0886	ferment (alcohol) (v)	-	-	-

No.	Gloss	LRP1	LRP2	LRP3
0887	cooking pot (earthenware)	ˈɗeg.ɽo	ˈɗeg.ɽo	ˈɗeg.ɽo
0888	pot (for water)	ˈgə.ɽo	ˈgə.ɽo	ˈgə.ɽo
0889	ladle	ˈkəɽ.si	ˈkəɽ.si	ɗoi
0890	cooking stone	paʈ	kə.ˈla.ɽi	paʈ
0891	bowl	kə.ˈʈo.ɾo	kə.ˈʈo.ɾo	kə.ˈʈo.ɾo
8092	cup	kop	kop	kop
0893	stove	ˈsʊ.lo	ˈsu.lo	ˈsu.lo
0894	bag	ˈkotʰ.ḷi	ˈkotʰ.ḷi	ˈkotʰ.ḷi
0895	box	ˈɖə.ɓo	ˈɖə.ɓo	ˈɖə.ɓo
0896	basket	ˈɖəl.lo	ˈʈok.ri	ˈʈok.ri
0897	bucket, pail	ˈbal.ʈi	ˈbal.ʈi	ˈbal.ʈi
0898	bottle	bo.ˈtəl	bo.ˈtəl	bo.ˈtəl
0899	stopper, plug	tʃʰab	tʃʰab	tʃʰab
0900	handle	ˈmʊʈʰ.jo	ˈmʊʈʰ.jo	ˈmʊʈʰ.jo
0901	pour	ˈɾeɽ.wũ	ˈɾeɽ.wũ	ˈɾeɽ.wũ
0902	spill (liquid) (tr)	ˈɖoɽ.wũ	ˈɖoɽ.wũ	ˈɖoɽ.wũ
0903	take out (from container)	ˈɓa.ɾe ˈkaɖ.wũ	ˈɓa.ɾi ˈgaɖ.wũ	ˈɓa.ɾe ˈkaɖ.wũ
0904	fill	ˈbəɾ.wũ	ˈbɹew.wũ	ˈbəɾ.wũ
0905	(be) empty	ˈkʰa.li	ˈkʰa.li	ˈkʰa.li
0906	(be) open (blossom)	kʰʊ.ˈləl	kʰʊ.ləl	kʰʊ.ˈləl
0907	open (tr)	ʊ.ˈga.ɽo	ʊ.ˈgaɽ.wũ	ʊ.ˈga.ɽo
0908	close, shut (tr)	ˈa.ɖũ	ˈa.ɖu ˈkəɾ.wũ	ˈa.ɖũ
0909	stop up (v)	ˈʊ.bu ˈrakʰ.wũ	ˈʊ.bu ˈra.kʰũ	ˈʊ.bu ˈrakʰ.wũ
0910	cover (v)	ˈɖãk.wũ	ˈɖak.wũ	ˈɖãk.wũ
0911	uncover	ɖã.ˈkəl lɪ.ˈdo.ɾũ	ʊ.ˈtaɾ.wũ	ʊ.ˈtaɾ.wũ
0912	store (up)	ˈdʒə.ma ˈkəɾ.wũ	ˈbe.ḷo ˈkəɾ.wũ	ˈdʒə.ma ˈkəɾ.wũ
0913	bundle (n)	ˈɠə.ɖo	ˈɠə.ɖo	ˈɠə.ɖo

No.	Gloss	LRP1	LRP2	LRP3
0914	heap (n)	ɖɪg	ɖəg	ɖɪg
0915	heap up (v)	ɖɪg ˈkəɾ.wũ	ɖəg ˈkəɾ.wũ	ɖɪg ˈkəɾ.wo
0916	wrap up (v)	ˈweʈ.wũ	ˈweʈ.wũ	ˈweʈ.wũ
0917	unwrap (v)	ʊ.ˈgaɾ.wũ	ʊ.ˈgaɾ.wũ	ʊ.ˈgaɾ.wũ
0918	pack (v)	pek ˈkəɾ.wũ	pek ˈkəɾ.wũ	pek ˈkəɾ.wũ
0919	strap (n)	ˈɖɔɪ.ʈi	ˈɖɔɪ.ʈi	ˈɖɔɪ.ʈi
0920	rope	ˈrãɖ.wũ	ˈrãɖ.wũ	ˈrãɖ.wũ
0921	knot (n)	ɟaʈʰ	ɟaʈʰ	ɟaʈʰ
0922	fasten, bind (load)	ˈɓad.wũ	ˈmad.wũ	ˈɓad.wũ
0923	untie	ˈkʰol.wũ	ˈkʰol.wũ	ˈkʰol.wũ
0924	tighten (tr)	tʃʰɪ.ˈkɪn	ˈtãŋ.wũ	tʃʰɪ.ˈkin
0925	(be) tight	tʃʰɪ.ˈkəl	tã.ˈŋəl	tʃʰɪ.ˈkəl
0926	loosen	ˈɖʱɪ.rũ	ˈɖʱɪ.rũ	ˈɖʱɪ.rũ
0927	hut (in the field)	ˈzõp.ʈi	ˈzõp.ʈi	ˈzõp.ʈi
0928	window	ˈdə.ri, ˈpʰəɾ.tʃjũ	ˈdə.ri	ˈdə.ri
0929	beam, rafter	ˈa.ɖi	ˈa.ɖi	ˈa.ɖi
0930	floor	ˈãŋ.ɳũ	ˈãŋ.ɳũ	ˈãŋ.ɳũ
0931	room	ˈkəm.ro	ˈkəm.ro	ˈkəm.ro
0932	bedroom	ˈɦõŋ.wa no ˈkəm.ro	ˈɦõ.dʒa no ˈkəm.ro	ˈɦõŋ.wa no ˈkəm.ro
0933	kitchen	ˈrəd.ʈũ	ˈrəd.ʈũ	ˈrəd.ʈũ
0934	sitting room	ˈɖa.jũ	ˈɖaɭ.jũ	ɖa.ˈlə̃ŋ
0935	overhang	ˈɖa.jũ	ˈɖaɭ.jũ	ɖa.ˈlə̃ŋ
0936	fence (n)	bit	ˈbet.ʈi	ˈbit.ʈi
0937	fence in (v)	bit ˈʈʰa.wi	ˈbet.ʈi ˈʈʰaɦ.wũ	ˈbit.ʈi ˈʈʰa.wi
0938	animal place	wə.ˈtʰãɳ	wə.ˈtʰãɳ	wə.ˈtʰãɳ
0939	well (n)	ˈkʊ.wo	ˈkʊ.wo	ˈkʊ.wo
0940	bathing place	ˈwa.ʈo	ˈwa.ʈo	ˈwa.ʈo

No.	Gloss	LRP1	LRP2	LRP3
0941	latrine, toilet	ˈwa.ɽo	ˈwa.ɽo	ˈwa.ɽo
0942	garbage dump	u.ˈke.ɽo	u.ˈke.ɽo	u.ˈke.ɽo
0943	garden	pa.ˈɾəkʰ	pa.ˈɾəkʰ	ɖa.ˈlə̃ŋ
0944	shelter (n)	ˈsa.jo	ˈtʃʰəp.ɾũ	ˈtʃʰəp.ɾũ
0945	build (house)	ˈʈʰaɦ.wũ	ˈʈʰaɦ.wũ	ˈʈʰaɦ.wũ
0946	thatch (n)	pan	pən	pən
0947	plaster (n)	ˈle.pũ	ˈlep.wũ	ˈle.pũ
0948	paint (n)	ɾə̃ŋ	ɾə̃ŋ	ɾə̃ŋ
0949	ladder	ˈtʃa.ɽi	ˈtʃa.ɽi	ˈtʃa.ɽi
0950	chair	ˈkʊɽ.si	ˈkʊɽ.si	ˈkʊr.si
0951	table	ʈe.ˈbəl	ʈe.ˈbəl	ʈe.ˈbəl
0952	lamp	ˈbət.ti	ˈbə.ti	ˈbət.ti
0953	fan (n)	ˈpə̃.kʰo	ˈpə.kʰo	ˈpə.kʰo
0954	bell	ʈə.ˈko.ɾi	ʈə.ˈko.ɾi	ʈə.ˈko.ɾi
0955	ring (bell) (v)	ʈə.ˈko.ɾi wə.ˈgaɽ.wi	ʈə.ˈko.ɾi wə.ˈgaɽ.wi	ʈə.ˈko.ɾi wə.ˈgaɽ.wi
0956	act, do	ˈkəɾ.wũ	ˈkəɾ.wũ	ˈkəɾ.wũ
0957	work (n)	kam	kam	kam
0958	to mend, repair	ˈwə̃ŋ.wũ	ˈwã̃ŋ.wũ	ˈwə̃ŋ.wũ
0959	forge (n)	lo.ˈɦaɾ nu dʊ.ˈkan	ˈkaɾ.ja ni ˈdʒə.ga	lo.ˈɦaɾ ni ˈʥə.ga
0960	hammer	ɦə.ˈtʰo.ɽo	ɦə.ˈtʰo.ɽo	ˈtʰo.ɽo
0961	anvil	sã.ˈdaɽ	e.ˈɾəɽ	e.ˈɾaɽ
0962	bellows	-	-	-
0963	lump (clay, mud)	ˈlõ.ɖo	ˈlõ.ɖo	ˈlõ.ɖo
0964	mould (pottery)	zən.ˈzə.ɾi	ˈtʃək.ro	ˈtʃək.ro
0965	potter's kiln	ˈbəʈ.tʰi	ˈbə.ʈʰi	ˈbəʈ.ʈʰi
0966	wood	ˈlak.ɽo	ˈlak.ɽa	ˈlak.ɽũ
0967	cut down (tree)	ˈwaɖ.wũ	ˈwaɖ.wũ	ˈwaɖ.wũ
0968	log	tʰʊɽ	tʰəɽ	tʰəɽ

No.	Gloss	LRP1	LRP2	LRP3
0969	hollow out (log)	ˈpo.lũ	ˈkʰa.ɖo ˈkəɾ.wũ	kʰə.ɖo ˈkəɾ.wũ
0970	axe	kʊ.ˈwa.ɽi	kʊ.ˈwa.ɽi	kə.ˈwa.ɽi
0971	saw (n)	kəɾ.ˈwət	ˈɦa.l̪i	kəɾ.ˈwə.ti
0972	plank (n)	ˈpʰəʈ.ʈo	ˈtək.to	ˈtək.to
0973	knot (in wood)	-	ə̃ŋ	ã∫
0974	splinter, sliver (n)	kʰʊt	kʰʊt	kʰʊt
0975	chisel (n)	ˈsẽ.ŋi	ˈsẽ.ŋi	ˈt∫ẽ.ŋi
0976	nail (n)	ˈko.ko	ˈko.ko	ˈko.ko
0977	thread (n)	ˈɟoɪ.ɽo	ˈɟoɪ.ɽo	ˈɟoɪ.ɽo
0978	hem (n)	kɪ.ˈna.ɾi	koɾ	kɪ.ˈna.ɾi
0979	pocket	ˈgõ.zũ	ˈgõ.zũ	ˈgõ.zũ
0980	(be) torn	pʰa.ˈʈəl	zəi.ˈɽəl	fa.ˈʈəl
0981	cloth	ˈlʊg.ɽa	ˈlʊg.ɽũ	ˈlʊg.ɽa
0982	rag	pʰə.ˈɾa.si	pʰə.ˈɾa.si	pʰə.ˈɾa.si
0983	broom	ɦã.ˈwe.ɽi	ɦa.ˈwe.ɽi	ɦã.ˈwe.ɽi
0984	sweep	wa.ˈʃe.ɽũ	wa.ˈʃe.ɽu	wa.ˈʃe.ɽũ
0985	polish	pa.ˈlɪʃ	pa.ˈlɪʃ	pa.ˈlɪʃ
0986	draw water	ˈpã.ŋi ˈkaɖ.wũ	ˈpã.ŋi ˈgaɖ.wũ	ˈpã.ŋi ˈgaɖ.wũ
0987	fetch (firewood)	ˈla.wã	ˈla.wã	ˈla.wã
0988	rubbish	ˈɦo.kʰo	ˈkɪt∫.ɾo	ˈkɪt∫.ɾo
0989	cultivate, farm (v)	ɦaɽ ˈɦa.kũ	ɦəɽ ˈɦak.wũ	ɦaɽ ˈɦa.kũ
0990	fertile soil	ˈɦəkʰ.ɾi ˈɓə.ni	ˈɦəkʰ.ɾi ˈɓə.ni	ˈɦəkʰ.ɾi ˈɓə.ni
0991	(be) barren (of land)	kəl.ˈɾa.ʈʰi	kəl.ˈɾa.ʈʰi	kəl.ˈɾa.ʈʰi
0992	clear (land for planting)	ɾe.ˈwəl	ɾe.ˈwəl	ˈʃeɽ.wũ
0993	weed (v)	ˈpəʈ.wũ	ˈpəʈ.wũ	ˈpəʈ.wũ
0994	hoe (v)	ɟʊɟ ˈkaɖ.wũ	ɟʊɟ ˈgaɖ.wũ	ɟʊɟ ˈgaɖ.wũ
0995	hoe (n)	ˈkʰaɪ.ɽo	ˈkʰaɪ.ɽũ	ˈkʰaɪ.ɽo
0996	sickle	ɗa.ˈte.ɽũ	ɗa.ˈte.ɽũ	ɗa.ˈte.ɽũ
0997	machete, cutlass	ˈsə.ɾi	ˈsə.ɾi	ˈsə.ɾi

No.	Gloss	LRP1	LRP2	LRP3
0998	harvest season	lə.ˈɓa.ɾo	lə.ˈɓa.ɾo	lə.ˈɓa.ɾo
0999	harvest (rice) (v)	ˈsaɾ.jũ ˈwaɖ.wi	ˈsaɾ.jũ ˈwaɖ.wũ	ˈsaɾ.jũ ˈwaɖ.wũ
1000	pick, pluck (fruit)	ˈpəʈ.wũ	ˈpəʈ.wũ	ˈpəʈ.wũ
1001	harvest, collect (honey from hive)	lə.ˈɓa.ɾo	lə.ˈɓa.ɾo	lə.ˈɓa.ɾo
1002	threshing-floor	ɗə.ˈɽa.wũ	ɗə.ˈɽa.wũ	ˈɗəʈ.wũ
1003	thresh, beat (grain)	ˈɦal.ɾũ ˈɦa.kũ	ˈɦal.ɾũ ˈɦa.kũ	ˈɦəl.ɾũ ˈɦa.kũ
1004	winnow (v)	ˈɦup.ɽũ	ɦu.ˈpəɽ.wũ	ʊ.ˈpəɽ.wũ
1005	husk (corn) (v)	ˈpʰot.ɾã ʊ.ˈtaɾ.wã	ˈpʰot.ɾa ʊ.ˈtaɾ.wã	ˈt͡ʃʰɪl.wũ
1006	domesticate, tame	ˈpaɭ.wo	ˈpaɭ.wũ	ˈpaɭ.wũ
1007	herd (cattle, sheep) (n)	də̃ŋ	də̃ŋ	də̃ŋ
1008	herd, tend (cattle, sheep) (v)	ˈwa.ɽo	ˈsaɾ.wũ	ˈsaɾ.wũ
1009	cattle pen	ˈsaɾ.wũ	wə.ˈtʰãŋ	ˈwaɾ.wo
1010	tether (sheep, goats) (v)	ˈɓad.wũ	ˈmad.wũ	ˈɓad.wũ
1011	feed (animals)	gaɦ ˈla.kʰo	gaɦ ˈla.kʰo	gaɦ ˈla.kʰo
1012	castrate	ˈkʰə.si ˈkəɾ.wũ	ˈkʰə.si ˈkəɾ.wũ	ˈkʰə.si ˈkəɾ.wũ
1013	stalk (v)	ˈgəɾ.wo	-	ˈgəɾ.wo
1014	chase (v)	ˈt͡ʃe.ɽe ˈdoɽ.wũ	ˈt͡ʃe.ɽe ˈdoɽ.wũ	ˈt͡ʃe.ɽe ˈdoɽ.wũ
1015	footprint (human)	ˈtʰa.pa	ˈtʰa.pa	ˈtʰa.pa
1016	poison (on arrow)	zeɾ	zeɾ	zeɾ
1017	head of arrow	t͡ʃumb	tiɾ ni ɦə̃.ɳi	t͡ʃumb
1018	quiver (n)	mẽŋ	mẽŋ	mẽŋ
1019	birdlime (adhesive to catch birds)	ˈpaɦ.lo	ˈpaɦ.lo	ˈza.ɭi
1020	trap (n)	ˈkʊɽ.ki	ˈkʊɽ.ki	ˈkʊɽ.ki
1021	set (trap)	ˈkʊɽ.ki lə.ˈga.wi	ˈkʊɽ.ki ˈmaɖ.wi	ˈkʊɽ.ki lə.ˈga.wi
1022	trap (animal) (v)	pʰə.ˈsa.wũ	pʰə.ˈsa.wũ	pʰə.ˈsa.wũ

No.	Gloss	LRP1	LRP2	LRP3
1023	evade	ˈpa.ɦo ˈkəɾ.wo	ˈpa.ɦo ˈkəɾ.wo	ˈpa.ɦo ˈkəɾ.wũ
1024	to escape	ˈbətʃ.wũ	ˈbətʃ.wũ	ˈbətʃ.wũ
1025	wound (animal)	dɦək	ˈgõb.ɾu	gõb.ɾũ
1026	skin (animal) (v)	kʰəl ʊ.ˈtaɾ.wũ	ˈsãɓ.ɾi ʊ.ˈtaɾ.wũ	kʰəl ʊ.ˈtaɾ.wi
1027	fish (v)	ˈmə.tʃʰi ˈgəɾ.wi	ˈməs.si ˈgəɾ.wi	ˈmə.tʃʰi ˈgəɾ.wi
1028	fish dam	ˈmə.tʃʰi ni kʰaɖ	ˈməs.ja ni kʰaɖ	ˈmə.tʃʰi ni kʰaɖ
1029	fishing net	zaɭ	zaɭ	ˈza.ɭi
1030	fishing line	ˈmə.tʃʰi ni ˈɖoɪ.ɾi	ˈməs.ja ni ˈɖoɪ.ɾi	ˈmə.tʃʰi ni ˈɖoɪ.ɾi
1031	fishhook	ˈkõ.ɖi	ˈkõ.ɖi	ˈkõ.ɖi
1032	bait	ˈaɭ.sjũ	ˈəɭ.sjũ	ˈəɭ.sjũ
1033	have, possess	ˈkə.ne	ˈkə.ne	ˈkə.ne
1034	need (v)	ˈzo.we	ˈzo.we	ˈzo.we
1035	get, obtain	ˈle.wũ	ˈle.wũ	ˈle.wũ
1036	belongings	mɪl.ˈgət	mɪl.ˈkət	mɪl.ˈkət
1037	owner	ˈdõ.ɳi	ˈdə̃.ɳi	ˈdə̃.ɳi
1038	rich man	ə.ˈmiɾ ˈad.mi	ə.ˈmiɾ ˈad.mi	ə.ˈmiɾ ˈad.mi
1039	poor man	gə.ˈɾib ˈad.mi	gə.ˈɾib ˈad.mi	gə.ˈɾib ˈad.mi
1040	(be) rich	ə.ˈmiɾ	ə.ˈmiɾ	ə.ˈmiɾ
1041	to be poor	gə.ˈɾib ˈtʰa.wũ	gə.ˈɾib ˈtʰa.wũ	gə.ˈɾib ˈtʰa.wũ
1042	money	ˈpəi.ʃa	ˈpəi.ʃa	ˈpəi.ʃa
1043	(be) scarce	kʰoʈ	kʰoʈ	kʰoʈ
1044	(be) expensive	ˈmõ.go	ˈmõ.go	ˈmõ.go
1045	(be) inexpensive	ˈsəs.tũ	ˈsəst.ũ	ˈsəs.to
1046	price	ˈpəi.ʃa	ˈnã.ɳũ	ˈpəi.ʃa
1047	haggle, negotiate a price	ˈpəi.ʃa me.ˈla.wũ	ˈpəi.ʃa me.ˈla.wũ	ˈpəi.ʃa me.ˈla.wũ
1048	salary	ˈməi.no	ˈməi.no	ˈməi.no

No.	Gloss	LRP1	LRP2	LRP3
1049	gift	ˈto.pʰo	ˈto.fo	ˈto.fo
1050	hire (v)	ˈməi.ne ˈɾakʰ.wũ	ˈməi.ne ˈɾakʰ.wũ	pə.ˈgaɾ ˈma.tʰe ˈɾakʰ.wũ
1051	to beg (for money)	ˈpɪn.wũ	ˈpɪn.wũ	ˈpɪn.wũ
1052	to borrow	ʊ.ˈdʱa.ɾe ˈle.wũ	ʊ.ˈdʱaɾ ˈle.wũ	ʊ.ˈdʱa.ɾa ˈle.wa
1053	to lend	ʊ.ˈdʱa.ɾe ˈal.wũ	ʊ.ˈdʱaɾ ˈal.wũ	ʊ.ˈdʱa.ɾa ˈal.wa
1054	debt	kəɾz	kəɾz	kə.ˈɾəz
1055	offer (v)	ˈsə.la ˈɦɔ̃ɳ.wi	ˈsə.la ˈɦɔ̃ɳ.wi	ˈsə.la ˈɦɔ̃ɳ.wi
1056	accept, receive	ˈle.wũ	ˈle.wũ	ˈle.wũ
1057	refuse	na.ˈpaɽ.wi	na.ˈpaɽ.wũ	na.ˈpaɽ.wi
1058	tax (n)	te.ˈkəs	teks	teks
1059	tribute	ɹ.ˈnam	ɹ.ˈnam	ɹ.ˈnam
1060	inheritance	ˈɦɹɪs.sa	ˈɦɹɪs.so	ˈɦɹɪs.sa
1061	inherit	wa.ˈɾɪs ˈtʰa.wũ	wa.ˈɾɪs ˈtʰa.wũ	wa.ˈɾɪs ˈtʰa.wũ
1062	journey, trip (n)	sə.ˈpʰəɾ	sə.ˈfəɾ	sə.ˈfəɾ
1063	bicycle	sẽ.ˈkəl	sẽ.ˈkəl	sẽ.ˈkəl
1064	travel, go on a trip (v)	sə.ˈpʰəɾ ˈkəɾ.wũ	sə.ˈfəɾ ˈkəɾ.wũ	sə.ˈfəɾ ˈkəɾ.wũ
1065	traveler	mu.sa.ˈpəɾ	mʊ.sa.ˈfɪɾ	mu.sa.ˈfɪɾ
1066	driver	ɖɾe.ˈwəɾ	ɖɾe.ˈwəɾ	ɖɾe.ˈwəɾ
1067	passenger	sə.ˈwa.ɾi	sə.ˈwa.ɾi	sə.ˈwa.ɾi
1068	wander	ˈɾʊl.wũ	ˈɾʊl.wũ	ˈɾʊl.wũ
1069	(be) lost	ˈkʰow.ɾi ˈza.wũ	ˈkʰow.ɾi ˈza.wũ	ˈkʰow.ɾi ˈza.wũ
1070	fork (in path)	ɓe ˈɾəs.ta	ɓe ˈɾəs.ta	ɓe ˈɾəs.ta
1071	crossroads, intersection	tʃəwk	tʃo.ˈɾa.jo	tʃo.ˈɾa.jo
1072	cross (river)	paɾ ˈkəɾ.wo	ɦu.ˈkəɾ.wũ	paɾ ˈkəɾ.wũ
1073	paddle (n)	pẽ.ˈɖəl	pẽ.ˈɖəl	pẽ.ˈɖəl

No.	Gloss	LRP1	LRP2	LRP3
1074	paddle (v)	pẽ.ˈɖəl ˈɦak.wũ	pẽ.ˈɖəl ˈɦə̃ŋ.wũ	pẽ.ˈɖəl ˈɦə̃ŋ.wũ
1075	bale out (canoe, boat)	ˈɓe.ɻi bə.ˈtʃa.wi	ˈɓe.ɻi bə.ˈtʃa.wũ	ˈɓe.ɻi bə.ˈtʃa.wũ
1076	capsize	ˈʊtʰ.li ˈza.wũ	ˈɦõ.du ˈtʰa.wũ	ˈɦõ.du ˈtʰa.wũ
1077	bring	ˈla.wi	ˈla.wũ	ˈla.wũ
1078	send (something to someone)	ˈwes.wi	ˈmel.wũ	ˈwes.wi
1079	carry (in arms)	ɦatʰ ma lɪn ˈza.wũ	ɦatʰ ma lɪn ˈza.wũ	ɦatʰ ma lɪn ˈza.wũ
1080	carry (child) on back	ˈpʊ.ʈʰa ˈma.tʰe lɪn ˈza.wũ	ˈmo.ɾa ˈma.tʰe lɪn ˈza.wũ	ˈpʊ.ʈʰa ˈma.tʰe lɪn ˈza.wũ
1081	carry on head	ˈbo.ɖa ˈma.tʰe lɪn ˈza.wũ	ˈbo.ɖa ˈma.tʰe lɪn ˈza.wũ	ˈbo.ɖa ˈma.tʰe lɪn ˈza.wũ
1082	load, burden (n)	baɾ	baɾ	baɾ
1083	load (v)	loɖ ˈkəɾ.wo	ˈbəɾ.wũ	loɖ ˈkəɾ.wo
1084	unload	loɖ ʊ.ˈtaɾ.wo	ˈkʰa.li ˈkəɾ.wũ	loɖ ʊ.ˈtaɾ.wo
1085	war	wəɖ.ˈweɻ	wəɖ.ˈweɻ	wəɖ.ˈweɻ
1086	peace	ˈʃan.ti	ˈʃã.ti	ˈʃã.ti
1087	army	pʰodʒ	foz	fodʒ
1088	spy (n)	dʒã.ˈtʃu.si	dʒa.ˈsu.si	dʒa.ˈtʃu.si
1089	spy (v), spy on	dʒã.ˈtʃu.si ˈkəɾ.wi	dʒa.ˈsusi ˈkəɾ.wũ	dʒa.ˈtʃu.si ˈkəɾ.wi
1090	sword	təl.ˈwaɾ	təl.ˈwaɾ	təl.ˈwaɾ
1091	gun	bə̃.ˈduk	bə.ˈduk	bə̃.ˈduk
1092	shield (n)	-	-	-
1093	conquer, defeat	ɦə.ˈɻa.wũ	ɦə.ˈɾa.wũ	ɦa.ˈɾa.wũ
1094	(be) defeated	ɦa.ˈɾəl	ɦa.ˈɾəl	ˈɦa.ɾi ˈza.wũ
1095	prisoner, captive	ˈke.di	ˈke.di	ˈke.di
1096	plunder (a town)	pʰʊɾ.ˈmaɾ	pʰʊɾ.ˈmaɾ	fʊɾ.ˈmaɾ
1097	slave (v)	gʊ.ˈlam ˈtʰa.wũ	gʊ.ˈlam ˈtʰa.wũ	gʊ.ˈlam ˈtʰa.wũ

No.	Gloss	LRP1	LRP2	LRP3
1098	music	ˈgã.ŋũ	ˈgã.ŋũ	ˈgã.ŋũ
1099	song	ˈgã.ŋũ	ˈgã.ŋũ	ˈgã.ŋũ
1100	hum (v)	-	gʊɽ.ˈmõŋ ˈtʰa.wũ	gʊɽ.ˈmʊɽ ˈtʰa.wũ
1101	dance (n)	natʃ	ɾə.ˈmət	ɾə.ˈmət
1102	big(gest) drum	nə.ˈga.ɾã	ɖol	nə.ˈga.ɾũ
1103	flute	ˈwãʃ.l̥i	ˈwãʃ.l̥i	ˈwas.l̥i
1104	harmonium	ˈwa.zũ	ˈba.dʒũ	ˈba.ʥo
1105	horn (musical instrument)	ˈtut.li	ˈtut.li	ˈtut.li
1106	play instrument	saz wə.ˈgaɽ.wũ	saz wə.ˈgaɽ.wũ	saz wə.ˈgaɽ.wũ
1107	blow (horn)	wə.ˈgaɽ.wũ	wə.ˈgaɽ.wũ	wə.ˈgaɽ.wũ
1108	draw (picture)	ˈpʰo.ʈu ˈʈʰaɦ.wũ	ˈpʰo.ʈu ˈʈʰa.wo	ˈpʰo.ʈu ˈʈʰaɦ.wũ
1109	decorate	ʃə̃ŋ.ˈgaɽ ˈkəɽ.wũ	sĩ.ˈgaɽ ˈkəɽ.wũ	ʃĩ.ˈgaɽ ˈkəɽ.wo
1110	carve	ˈʈʰaɦ.wũ	ko.ˈɾə.wũ	ˈʈʰaɦ.wũ
1111	toys	ɾə.ˈmek.ɽã	ɾə.ˈmek.ɽa	ɾə.ˈmek.ɽã
1112	tobacco pipe	ˈbõŋ.l̥i	ˈbõŋ.l̥i	ˈbõŋ.l̥i
1113	tobacco	bãʃ	baʃ	bãʃ
1114	awe, reverence (for God)	-	ˈkɾɪʃ.mo	ˈmeɦ.ma
1115	God (supreme being)	bəg.ˈwan	bəg.ˈwan	bəg.ˈwan
1116	demon, evil spirit	bɦut	bɦut	bɦut
1117	ghost (visible apparition)	ə.ˈʃũ.bo	ə.ˈʃũ.bo	ə.ˈʃũ.bo
1118	soul, spirit (of living person)	ziw	ziw	ziw
1119	spirit (of dead person) (invisible)	ziw	ziw	ziw
1120	pray	ˈdʊ.wa	ˈpɾat.na	ˈpɾat.na

No.	Gloss	LRP1	LRP2	LRP3
1121	blessing	-	wə.ˈda.ɾo	ˈɖɪ.ja
1122	divine, prophesy (v)	əg.ˈkə.tʰi ˈkəɾ.wi	əg.ˈkə.tʰi ˈkəɾ.wi	əg.ˈkə.tʰi ˈkəɾ.wi
1123	prophecy (n)	əg.ˈkə.tʰi	əg.ˈkə.tʰi	əg.ˈkə.tʰi
1124	vision, dream	ˈɦõ.ŋũ	ˈɦõ.ŋũ	ˈɦõ.ŋũ
1125	omen	ʃək.ˈkən	ʃə.ˈgun	ʃə.ˈgun
1126	witchcraft	bo.ˈpai	bo.ˈpəi	bo.ˈpai
1127	bewitch, cast spell	bo.ˈpai ˈkəɾ.wi	bo.ˈpəi ˈkəɾ.wi	bo.ˈpai ˈkəɾ.wũ
1128	curse (v)	ˈpɪʈ.wũ	ˈpɪʈ.wũ	ˈpɪʈ.wũ
1129	curse (n)	pɪʈ	pɪʈ	pɪʈ
1130	poison (a person) (v)	zeɾ pɪw.ˈɾa.wũ	zeɾ pɪw.ˈɾa.wũ	zeɾ pɪw.ˈɾa.wũ
1131	amulet, charm, fetish	ta.ˈwit	ta.ˈwiz	ta.ˈwit
1132	protect by charm	ta.ˈwit te ɦɪ.ˈpai	ta.ˈwiz ti ˈɾək.ʃa ˈkəɾ.wũ	ta.ˈwit te ɦõ.ˈbaʈ.wũ
1133	mask (n)	ˈkʰo.pa	ˈkʰo.po	ˈkʰo.po
1134	(be) taboo	na pa.ˈʈəl	na pa.ˈʈəl	na pa.ˈʈəl
1135	exorcise	dʒɪn ˈkaɖ.wũ	dʒɪn ˈgaɖ.wũ	dʒɪn ˈgaɖ.wũ
1136	sacrifice	sɪɾ ˈal.wũ	sɪɾ ˈal.wũ	səɾ ˈal.wũ
1137	tradition, custom	ɾit	ɾit	ɾit
1138	feast (n)	ˈnot.ɾũ	ˈnot.ɾũ	ˈnot.ɾũ
1139	naming ceremony (baby)	ɾa.ˈnol	ɾa.ˈnol	ɾa.ˈnol
1140	marry	ˈwi.wa ˈkəɾ.wo	ˈwi.wa ˈkəɾ.wũ	ˈwi.wa ˈkəɾ.wo
1141	(be) engaged, (be) betrothed	ɦə.gai.ˈtʰəl	ɦə.gai.ˈtʰəl	ɦə.gai.ˈtʰəl
1142	brideprice(for bride's family)	ɖez	ɖez	ɖez
1143	wedding(ceremony)	ˈwi.wa	ˈwi.wa	ˈwi.wa
1144	bride	ˈla.ɖi	ˈla.ɖi	ˈla.ɖi
1145	groom	ˈla.ɖo	ˈla.ɖo	ˈla.ɖo

No.	Gloss	LRP1	LRP2	LRP3
1146	adultery	ˈka.ɭo ˈmo.ɖʱũ	ˈka.ɭo ˈmo.ɖʱũ	ˈka.ɭo ˈmo.ɖʱũ
1147	divorce(v)	tə.ˈlak ˈal.wũ	ˈlək.tu ˈal.wo	tə.ˈlak ˈal.wo
1148	funeral(at occasion of death)	mə.ˈjət	mə.ˈjət	mə.ˈjət
1149	mourning	ɦog	ɦog	sog
1150	condole, comfort(v)	əp.ˈsos ˈkəɾ.wũ	meɾ pə.ˈtʰa.ɾi	meɾ pa.ˈtʰa.ɾi
1151	corpse	laʃ	laʃ	laʃ
1152	grave	mə.ˈkam	mə.ˈkam	mə.ˈkam
1153	cemetery	mə.ˈkam	mə.ˈkam	mə.ˈkam
1154	bull (male cow)	ˈa.kʰo	ˈa.kʰo	ˈa.kʰo
1155	cow (female)	ɠai	ɠai	ɠai
1156	heifer (young cow not had a calf)	ˈɾẽɖ.li	ˈɾeɖ.li	ˈɾẽɖ.li
1157	steer (castrated male cow)	ˈɖa.go	ˈɖa.go	ˈɖa.go
1158	calf	ˈɾẽɖ.lo	ˈɾeɖ.lo	ˈɾẽɖ.lũ
1159	herd(of cattle)	dɐ̃ŋ	dɐ̃ŋ	dɐ̃ŋ
1160	goat	ˈɓək.ɾã	ˈɓək.ɾo	ˈɓək.ɾã
1161	he-goat, billy	ˈtʃe.lo	ˈtʃe.lo	ˈtʃe.lo
1162	she-goat, nanny goat	ˈɓək.ɾi	ˈɓək.ɾi	ˈɓək.ɾi
1163	kid (child goat)	pʰəɭ	ˈtʃe.li	fəɭ
1164	sheep	ˈdʒe.ʈũ	ˈdʒe.ʈũ	ˈdʒe.ʈũ
1165	ram	ˈdʒe.ʈũ	ˈdʒe.ʈũ	ˈdʒe.ʈũ
1166	ewe	ˈdʒe.ʈi	ˈdʒe.ʈi	ˈdʒe.ʈi
1167	lamb	ˈdʒe.ʈa nu ˈbə.tʃũ	ˈdʒe.ʈa nu ˈbə.tʃu	ˈdʒe.ʈa nu ˈbə.tʃũ
1168	flock(of sheep, goats)	dɐ̃ŋ	dɐ̃ŋ	dɐ̃ŋ
1169	rooster(cock)	ˈkuk.ɽo	ˈkuk.ɽo	ˈkuk.ɽũ
1170	hen	ˈkuk.ɽi	ˈkuk.ɽi	ˈkuk.ɽi

No.	Gloss	LRP1	LRP2	LRP3
1171	chick	ˈkuk.ɽi nu ˈbə.tʃũ	ˈkuk.ɽi nu ˈbə.tʃũ	ˈkuk.ɽi nu ˈbə.tʃũ
1172	peacock	ˈmoɾ.jo	ˈmoɾ.jo	ˈmoɾ.jo
1173	guinea fowl	ɖʱel	ˈtəɾ.ki	ɖʱel
1174	horse	ˈgo.ɽo	ˈgo.ɽo	ˈgo.ɽo
1175	stallion (male horse)	ˈgo.ɽo	ˈgo.ɽo	ˈgo.ɽo
1176	mare (female horse)	ˈgo.ɽi	ˈgo.ɽi	ˈgo.ɽi
1177	colt	wə.ˈtʃʰe.ɾũ	wə.ˈtʃʰe.ɾũ	wə.ˈtʃʰe.ɾũ
1178	boar (male pig)	ɦʊ.ˈwəɾ	ɦʊ.ˈwəɾ	ɦʊ.ˈwəɾ
1179	sow (female pig)	ɦʊ.ˈwe.ɽi	ɦʊ.ˈwəɾ	ɦʊ.ˈweɾ
1180	donkey	gəd.ˈda.ɽo	gə.ˈda.ɽũ	gəd.ˈda.ɽũ
1181	puppy	gəl.ˈlu.ɽã	gə.ˈlʊ.ɽũ	gəl.ˈlu.ɽũ
1182	kitten	mən.ˈna.ɽi nu ˈbəs.sũ	mən.ˈna.ɽi nu ˈbəs.sũ	mə.ˈla.ɽi
1183	hippopotamus	-	-	-
1184	rhinoceros	ˈgəĩ.ɖo	ˈgẽ.ɖũ	ˈgẽ.ɖo
1185	warthog	-	-	-
1186	jackal	ʃaɭ	ʃaɭ	ʃaɭ
1187	mouse	ʃə.ˈʃũd.ɾũ	ʃə,ˈʃõd.ɾũ	ʃək.ˈʃũd.ɾi
1188	mole (animal)	-	-	-
1189	mongoose	ˈnoɭ.jo	ˈnoɭ.jo	ˈnoɭ.jo
1190	squirrel	kʰɪl.ˈku.ɽi	kʰɪl.ˈko.ɽi	kʰɪl.ˈku.ɽi
1191	bat	kan.ˈkʊɽ.jo	kan.ˈkʊɽ.jũ	kan.ˈkʊɽ.jũ
1192	wild cat	ˈdʒə̃ŋ.li mən.ˈna.ɽo	dʒə̃ŋ.li mən.ˈna.ɽo	ˈzə̃ŋ.li mɪ.ˈla.ɽo
1193	leopard	ʃifi	wag	ʃifi
1194	lion	ʃifi	ʃĩfi	ʃifi
1195	hoof	pəɠ	ˈkʰʊ.ri	pəɠ
1196	mane (of horse)	ɓal	ɓal	ɓal
1197	elephant's trunk	pʰə̃ɳ	pʰõɳ	fõɳ

No.	Gloss	LRP1	LRP2	LRP3
1198	den, lair, hole	ˈɗəi.ɭo	ˈɗəi.ɭo	ˈɗəi.ɭo
1199	to bare, show (teeth)	-	ɗãt ˈgaɖ.wũ	ˈsib.ra ˈgaɖ.wũ
1200	to growl	ˈgõŋ.ra ˈkaɖ.wã	ˈgõŋ.ra ˈgaɖ.wã	ˈgõŋ.ra ˈgaɖ.wũ
1201	to ruminate, chew cud	sə.ˈgəɽ.wũ	sə.ˈgəɽ.wũ	sə.ˈgəɽ.wũ
1202	to crow	ˈsək.la nu ə.ˈwaz	ˈsək.la nu ə.ˈwaz	ˈsək.la nu a.ˈwaz
1203	crow	ˈɦia.ɖo	ˈɦia.ɖo	ˈɦia.ɖo
1204	parrot	po.ˈpəʈ	po.ˈpəʈ	po.ˈpəʈ
1205	duck	ɓə.ˈdək	ɓə.ˈdək	ɓə.ˈdək
1206	kingfisher	ˈsip.jo	ˈsip.jo	ˈsip.jo
1207	hornbill	ʈək.ˈʈək.ɽjũ	ʈək.ˈʈək.ɽjũ	ʈək.ˈʈək.ɽjũ
1208	stork (marabou)	ˈbəg.lũ	ˈbəg.lũ	ˈbə̃g.lũ
1209	owl	ˈsib.ɾi	ˈsib.ɾi	ˈsib.ɾi
1210	hawk	bãz	bãz	bãz
1211	eagle	-	sɪ.ˈɾə̃ɳ	-
1212	vulture	gɪdʒ	gɪdʒ	gɪdʒ
1213	beak, bill	sãs	sãs	sõs
1214	comb (of rooster)	ɖˤel	moɽ	ɖˤel
1215	crop (of bird)	poʈ	poʈ	poʈ
1216	gizzard	ˈkaɭ.zũ	ˈkaɭ.zũ	ˈkaɭ.zũ
1217	claw	pəɠ	pəɠ	pəɠ
1218	eggshell	ˈpʰot.ɾũ	ˈpʰot.ɾũ	ˈpʰot.ɾũ
1219	yolk (of egg)	-	ˈtɪ.ki	ˈʈi.ki
1220	flock (of birds)	wə.ˈləɾ	wə.ˈləɾ	wə.ˈləɾ
1221	dive	ˈʈʊ.ɓi ˈɦə̃ɳ.wi	ˈʈʊ.ɓi ˈɦə̃ɳ.wi	ˈʈʊ.ɓi ˈɦə̃ɳ.wũ
1222	soar	ʊ.ˈseɽ.wũ	ˈtʰek.ɾũ	ʊ.ˈtʃʰəl.wũ
1223	land (v), alight	ˈne.sũ ʊ.ˈtəɾ.wũ	ˈne.sũ ʊ.ˈtəɾ.wũ	ˈne.sũ ʊ.ˈtəɾ.wũ
1224	perch	ˈɓeɦi.wũ	ˈɓeɦi.wũ	ˈɓeɦi.wũ

No.	Gloss	LRP1	LRP2	LRP3
1225	flap the wings	pʰər.pʰə.ˈɽa.wũ	pʰər.pʰə.ˈɽa.wũ	pʰər.pʰə.ˈɽa.wũ
1226	cackle (as of chicken)	raɽ ˈkər.wũ	raɽ ˈkər.wũ	raɽ ˈkər.wũ
1227	crow (as a rooster) (v)	ɓã̃ŋ ˈal.wũ	ɓã̃ŋ ˈal.wi	ɓã̃ŋ ˈal.wũ
1228	peck (tr)	ˈsə̃ŋ.wũ	ˈsə̃ŋ.wũ	ˈsə̃ŋ.wũ
1229	lay (eggs)	ˈmel.wũ	ˈmel.wa	ˈmel.wã
1230	incubate, set (on eggs)	ˈa.ra ˈma.tʰe ɓe.ˈɦar.wũ	ˈa.ra ɓe.ˈɦar.wũ	ˈa.re ɓe.ˈɦar.wũ
1231	hatch	ˈẽ.ɖa ˈpʰoɽ.wũ	ˈẽ.ɖa ˈma.tʃi ˈneɦir.wũ	ˈẽ.ɖa ti ˈner.wũ
1232	catfish	ˈkã̃ʈ.jo	ˈkã̃ʈ.jo	ˈkã̃ʈ.jo
1233	mudfish (lives in the mud during dry season)	mʊ.ˈkər	mʊ.ˈkər	mʊ.ˈkər
1234	eel	ɦər.ˈpẽŋ ˈməs.si	ɦər.ˈpẽŋ ˈməs.si	ɦər.ˈpẽŋ ˈmə.tʃʰi
1235	fish bone	ˈməs.si nu ˈkã.ʈo	ˈməs.si nu ˈɦaɖ.kũ	ˈmə.tʃʰi nu ˈɦaɖ.kũ
1236	fish-scale	ˈməs.si ni ˈsãb.ɽi	-	ˈmə.tʃʰi ni kʰal
1237	gill	-	ˈkəl.jũ	kəl.jũ
1238	fin	ˈpẽkʰ.ɽã	ˈməs.si na ˈpẽkʰ.ɽã	ˈpẽkʰ.ɽã
1239	crab	ˈkʰek.ɽo	ˈkʰek.ɽo	ˈkʰek.ɽo
1240	shrimp	-	-	-
1241	clam	-	-	-
1242	cobra	ˈka.ʅo ɦə.ˈrəp	ˈka.ʅo ɦə.ˈrəp	ˈka.ʅo ɦə.ˈrəp
1243	puff adder	ˈe.ru pʰõ.ˈka.re	ˈe.ru	-
1244	python	ˈgə.ɖo ɦə.ˈrəp	ˈgə.ɖo	ˈgə.ɖo ɦə.ˈrəp
1245	viper	ˈko.ɖi ˈja.ʅo ɦə.ˈrəp	ˈko.ɖi ˈja.ʅo ɦə.ˈrəp	ˈko.ɖi ˈja.ʅo ɦə.ˈrəp
1246	chameleon	ka.ˈtʃe.ɽo	ka.ˈtʃe.ɽo	ka.ˈtʃe.ɽo
1247	gecko	gə.ˈro.ʅi	gə.ˈro.ʅi	gə.ˈro.ʅi

No.	Gloss	LRP1	LRP2	LRP3
1248	monitor lizard	goɦi	goɦi	goɦi
1249	frog	ˈɖeɖ.kũ	ˈɖeɖ.kũ	ˈɖeɖ.kũ
1250	shell (of turtle)	ˈkas.ba nu ˈkʰop.rũ	ˈkas.ba nu ˈkʰo.po	ˈkas.ba nu ˈkʰo.po
1251	slither (snake)	ˈrəɽ.wũ	ˈrəɽ.wũ	ˈrəɽ.wũ
1252	hiss	ˈpʰõk.wũ	pʰõ.ˈkar.wũ	fõg.ˈra.wũ
1253	flea	i.ˈte.ɽa	ˈit.ɽo	i.ˈte.ɽo
1254	bedbug	ɦər.ˈwə.ɭa	ɦər.ˈwə.ɭa	ɦə.ˈro.ɭa
1255	maggot (in rotten meat)	ˈziw.ɽa	ˈziw.ɽo	ˈziw.ɽo
1256	ant	ˈtʃi.ɽi	ˈtʃiɽ.jũ	ˈtʃiɽ.jũ
1257	army ant, soldier ant	mə.ˈko.ɽa	mə.ˈko.ɽo	mə.ˈko.ɽo
1258	flying ant	pʰãk ˈwa.ɭa mə.ˈko.ɽa	pʰãk ˈwa.ɭa mə.ˈko.ɽo	pʰãk ˈwa.ɭa mə.ˈko.ɽo
1259	dung beetle	ˈgu.go	ˈgu.go	ˈgu.go
1260	grasshopper	ʈiɖ	ʈiɖ	ʈiɖ
1261	cricket	ˈkaɦi.rũ	ˈkaɦi.rũ	ˈkaɦi.rũ
1262	locust	ʈiɖ	mə.ˈkəɽ ʈiɖ	ʈiɖ
1263	praying mantis	bəg.ˈwan ni ˈgo.ɽi	bəg.ˈwan ni ɠai	bəg.ˈwan ni ˈgo.ɽi
1264	caterpillar	ˈziw.ɽo	ˈziw.ɽo	ˈziw.ɽo
1265	centipede	kʰan.kə.ˈzu.ro	kʰan.kə.ˈzu.ro	kʰan.kə.ˈzu.ro
1266	millipede	səw.ˈpe.ri	səw.ˈpe.ri	səw.ˈpe.ri
1267	dragonfly	ɦə.ˈluɽ.ja	ɦə.ˈluɽ.jo	ɦə.ˈluɽ.jo
1268	moth	ˈpʰu.ɖĩ	ˈpʰu.ɖĩ	ˈpʰu.ɖĩ
1269	antenna	ˈmõ.sũ	ˈmõ.sũ	ˈmõ.sũ
1270	sting(v)	ɖə̃ŋ ˈɦə̃ɳ.wũ	ɖə̃ŋ ˈɦə̃ɳ.wũ	ɖə̃ŋ ˈɦə̃ɳ.wũ
1271	stinger	ɖə̃ŋ	ɖə̃ŋ	ɖə̃ŋ
1272	cocoon	-	-	-
1273	termite hill	ɦie.ˈdoi nu gər	ɦie.ˈdoi nu gər	ɦie.ˈdoi na gər
1274	beehive	me.ˈna.ɭo	me.ˈɖa.ro	me.ˈna.ro

No.	Gloss	LRP1	LRP2	LRP3
1275	beeswax	mẽɳ	mẽɳ	mẽɽ
1276	honey	məd no ɾafi	məd no ɾafi	məd no ɾafi
1277	swarm(n)	ˈziw.ɽa nu də̃ɳ	ˈziw.ɽa nu də̃ɳ	ˈziw.ɽa nu də̃ɳ
1278	teak tree	ɦag nu ˈzaɽ.kũ	ɦag nu ˈzaɽ.kũ	ɦag nu ˈzaɽ.kũ
1279	fig tree	ə̃.ˈdʒiɕ nu ˈzaɽ.kũ	ə̃.ˈdʒiɾ nu ˈzaɽ.kũ	ə̃.ˈdʒiɾ nu ˈzaɽ.kũ
1280	tamarind tree	gɪ.ˈdam.ɽi nu ˈzaɽ.kũ	gɪ.ˈdam.ɽi nu ˈzaɽ.kũ	gɪ.ˈdam.ɽi nu ˈzaɽ.kũ
1281	date palm	ˈkʰə.dʒi nu ˈzaɽ.kũ	ˈkʰə.dʒi nu ˈzaɽ.kũ	ˈkʰə.dʒi nu ˈzaɽ.kũ
1282	coconut palm	naɾ.ˈjol̪ nu ˈzaɽ.kũ	naɾ.ˈjol̪ nu ˈzaɽ.kũ	naɾ.ˈjol̪ nu ˈzaɽ.kũ
1283	bush	ˈɗew.ri	ˈɗew.rjũ	ˈɗew.ʤũ
1284	weeds	gafi	gafi	gafi
1285	trunk (of tree)	tʰʊɽ	tʰəɽ	tʰʊɽ
1286	sap	ɠõd	ɠõd	ɠõd
1287	stump	tʰʊɽ	tʰəɽ	tʰʊɽ
1288	bulb, tuber	ˈkeɽ.jũ	ˈkeɽ.jũ	paɽ
1289	stem, stalk (of corn, millet, etc.)	ka.ˈtə.l̪i	ˈɗa.ʈa	ka.ˈtə.l̪i
1290	silk, hair (of corn)	ˈɗo.ɖa na ɓal	ˈɗo.ɖa na ɓal	ˈɗo.ɖa na ɓal
1291	blade (of grass)	ˈpãd.ɽã	ˈpãd.ɽũ	ˈpãd.ɽũ
1292	bud	gəwtʃ	ˈmʊk.ɽi	ˈmʊk.ɽi
1293	shoot (new plant)	ˈkõ.ʈa	ˈkõ.ʈo	ˈkõ.ʈa
1294	vine	ˈwəl.ɽi	ˈwəl.ɽi	ˈwəl.ɽi
1295	tendril	ˈtãt.ɽo	ˈtãt.ɽo	tãt
1296	juice	ɾafi	ɾafi	ɾafi
1297	regime/hand (of bananas)	ˈtʃʰʊg.go	ˈtʃʰʊg.go	ˈtʃʰʊg.go
1298	corn cob	ˈɗo.ɖo	ˈɗo.ɖo	ˈɗo.ɖo
1299	kernel (of corn, maize)	ˈɗã.ɳo	ˈɗã.ɳo	ˈɗã.ɳo

No.	Gloss	LRP1	LRP2	LRP3
1300	skin (of fruit)	kʰəl	ˈpʰot.ɾũ	kʰəl
1301	shell (of groundnut)	ˈpʰot.ɾã	ˈpʰot.ɾã	ˈpʰot.ɾã
1302	corn husk (n)	ˈpʰot.ɾã	ˈpʰot.ɾã	ˈpʰot.ɾã
1303	chaff	ˈkʊʈ.ʈi	ˈkʊʈ.ʈi	ˈkʊʈ.ʈi
1304	lemon	ˈle.ɓu	ˈle.ɓu	ˈle.ɓu
1305	orange	na.ˈɾẽ.gi	na.ˈɾe.ʤi	na.ˈɾe.ʤi
1306	papaya	pə.ˈpi.to	pə.ˈpi.to	pə.ˈpi.to
1307	pineapple	-	-	-
1308	guava	ze.ˈtʊn	ze.ˈtun	ze.ˈtun
1309	pear	nas.ˈpə.ti	nas.ˈpə.ti	nas.ˈpə.ti
1310	fig	ə̃.ˈdʒis	ə̃.ˈdʒiɾ	ə̃.ˈdʒiɾ
1311	apple	supʰ	suf	sõf
1312	tomato	tʃə.ˈma.ʈã	tʃə.ˈma.ʈũ	tʃə.ˈma.ʈũ
1313	onion	ˈɖõŋ.l̩i	ˈɖõŋ.l̩i	ˈɖõŋ.l̩i
1314	okra	ˈbʱẽ.ɖi	ˈbʱẽ.ɖi	ˈbʱẽ.ɖ.jũ
1315	green onion	ˈpãd.ɽa ˈwa.l̩i ˈɖõŋ.l̩i	pə.ˈne.ri	pə.ˈne.ri
1316	yam	ˈgaz.ɾã	ˈgaz.ɾũ	ˈgaz.ɾã
1317	sweet potato	ˈgaz.ɾã	ˈgaz.ɾũ	ˈgaz.ɾã
1318	potato	pə.ˈʈa.ʈã	pə.ˈʈa.ʈũ	pə.ˈʈa.ʈũ
1319	groundnut, peanut	pʰo.ˈpʰəɽ.ja	pʰo.ˈpʰəɽ.ja	pʰo.ˈpʰəɽ.ja
1320	sesame seed	təl	təl	təl
1321	anise seed	wəɾ.ˈja.l̩i	wə.ˈɖəf	wə.ˈɖəf
1322	tealeaf	ˈpət.ti	tʃaɦi	ˈpət.ti
1323	rubber	ɾə.ˈbəɽ	ɾə.ˈbəɽ	ɾə.ˈbəɽ
1324	cotton	ɾuɦi	ɾuɦi	ɾuɦi
1325	grow (of plants)	ˈug.wũ	ˈug.wũ	ˈug.wũ
1326	sprout (v)	ˈkõ.ʈa ˈneɾ.wã	ˈkõ.ʈa ˈneɾ.wã	ˈkõ.ʈa ˈneɾ.wã
1327	(be) unripe	ˈka.so	ˈka.so	ˈka.so

No.	Gloss	LRP1	LRP2	LRP3
1328	(be) shrivelled, (be) wrinkled (fruit)	kəɾ.ˈməl	kəɾ.ˈməl	kəɾ.ˈməl
1329	wither (plant)	kəɾ.ˈməl	kəɾ.ˈməl	kəɾ.ˈməl
1330	blight (n)	ɓə.ˈl̺əl	ɓə.ˈl̺əl	ɓə.ˈl̺əl
1331	world	-	pəɾ.ˈtʰə.ni	pəɾ.tmi
1332	place	dʒə.ˈgaɦi	dʒai	dʒə.ˈgaɦi
1333	desert	tʰəl	ˈpʰo.ʈʰo	ˈpo.ʈʰo
1334	ground, land	zə.ˈmɪn	zə.ˈmin	zə.ˈmin
1335	summit, highest point	ˈtʃo.ʈi	ˈso.ʈi	ˈtʃo.ʈi
1336	cliff	ˈsɪ.dɦo pə.ˈɦiaɾ	ˈsɪ.dɦo pə.ˈɦiaɾ	ˈsɪ.dɦo pə.ˈɦiaɾ
1337	valley	-	-	-
1338	ditch	kʰaɖ	kʰaɖ	kʰaɖ
1339	hole	ˈʃe.ɾũ	ˈʃe.ɾũ	ˈʃəɾ.kũ
1340	crevice	teɾ	tiɾ	teɾ
1341	gravel	ˈpətʰ.ɾi	ˈpətʰ.ɾi	ˈpətʰ.ɾjũ
1342	clay	ˈsik.ɻi ˈma.ʈi	ˈsik.ɻi ˈma.ʈi	ˈsik.ɻi ˈma.ʈi
1343	copper	tə.ˈɾã.ɓa	tə.ˈɾã.ɓu	ˈta.ɓũ
1344	rust (n)	kəʈ	kəʈ	kəʈ
1345	lake	ɖə̃ɖ	ɖə̃ɖ	ɖə̃ɖ
1346	marsh	ɗʊ.ˈɓəŋ	ɗʊ.ˈɓə̃ŋ	ɗʊ.ˈɓə̃ŋ
1347	spring	pə.ˈtal̺	pə.ˈtal̺	pə.ˈtal̺
1348	waterfall	-	-	-
1349	current (river, stream)	ˈpã.ɳi nu ɾʊkʰ	ˈpã.ɳi nu ɾʊkʰ	ˈpã.ɳi nu ɾʊkʰ
1350	riverbed (dry)	ɦiu.ˈkəl kəp	ɦiu.ˈkəl kəp	ɦiu.ˈkəl kəp
1351	river bank	kəp	kəp	kəp
1352	bridge	pʰʊl̺	pʰʊl̺	pʰʊl̺
1353	island	-	beʈ	-
1354	beach	ˈdəɾ.ja nu kɪ.ˈna.ɾo	sə.ˈmũd nu kɪ.ˈna.ɾo	ˈsə.mũd nu kɪ.ˈna.ɾo
1355	wave	ˈtʃʰo.li	ˈtʃʰo.li	ˈtʃʰol.jũ

No.	Gloss	LRP1	LRP2	LRP3
1356	bubble	bə.ˈbo.ʈa	bə.ˈbo.ʈo	bə.ˈbo.ʈa
1357	foam	gogꭷ	gogꭷ	gogꭷ
1358	slime (organic)	ˈʃa.ɾo	ˈʃa.ɾo	ˈʃa.ɾo
1359	flame	ˈʃo.lo	ꭷə.ˈɭaʃ	ˈʃo.lo
1360	candle	meʈ.ˈbət.ti	meʈ.ˈbət.ti	meʈ.ˈbət.ti
1361	spark	təb.ˈkol.jã	tə.ˈpol.jũ	tə.ˈpol.jũ
1362	fireplace	də.ˈma.ʈo	də.ˈma.ʈi	də.ˈma.ʈi
1363	charcoal	ˈkoɪ.la	ˈkoɪ.lo	ˈkoɪ.la
1364	air (breathed)	ˈwaɪ.ɾo	ˈwaɪ.ɾo	ˈwaɪ.ɾo
1365	full moon	sə.ˈdəɾ.mo	sə.ˈdəɾ.mo	sə.ˈdəɾ.mo
1366	new moon	ɓiz	ɓiz	ɓiz
1367	eclipse (moon)	gəĩɳ	gəĩɳ	gəĩɳ
1368	shooting star, meteor	ˈta.ɾo ˈtʃʰəʈ.jo	ˈta.ɾo ˈtʃʰəʈ.jo	ˈta.ɾo ˈtʃʰəʈ.jo
1369	noise, sound (n)	goɭ	bə.ˈko.ʈo	ꭷuɭ
1370	drizzle	ˈpʰap.li	ˈpʰãp.ri	ˈfaf.ri
1371	hail	ˈɟə̃.ɖꭷa	ˈɟə.ʈa	ˈɟə̃.ɖꭷa
1372	flood (n)	se.ˈlap	se.ˈlap	se.ˈlap
1373	drought, famine	ɖə.ˈkaɭ	ɖə.ˈkaɭ	ɖə.ˈkaɾ
1374	season	mo.ˈsəm	mo.ˈsəm	mo.ˈsəm
1375	rainy season	ˈwad.ɭa ni mo.ˈsəm	ˈwad.ɭa ni mo.ˈsəm	ˈwad.ɭa ni mo.ˈsəm
1376	hot weather (hot season)	ˈgəɾ.mi ni mo.ˈsəm	ꭷo.ˈna.ɭo	ˈgəɾ.mja ni mo.ˈsəm
1377	cold weather (cold season)	ʃi.ˈja.ɭa ni mo.ˈsəm	ʃi.ˈja.ɭo	ʃi.ˈja.ɭa ni mo.ˈsəm
1378	light	əz.ˈwa.ɭũ	əz.ˈwa.ɭũ	əz.ˈwaɭ.jũ
1379	sunshine	ˈtəʈ.ko	ˈtəʈ.ko	ˈtəʈ.ko
1380	moonlight	sə.ˈdəɾ.ma nu əz.ˈwa.ɭũ	sə.ˈdəɾ.ma nu əz.ˈwa.ɭũ	sə.ˈdəɾ.ma ni ˈɾoʃ.ni
1381	darkness	ə.ˈdꭷa.ɾũ	ə.ˈdꭷa.ɾũ	ə.ˈdꭷa.ɾũ
1382	time	ʈem	ʈem	ʈem

No.	Gloss	LRP1	LRP2	LRP3
1383	now	ə.ˈta.ɾe	ə.ˈta.ɾe	ə.ˈta.ɾe
1384	before	ˈmoɾ.tʰi	ˈmoɾ.tʰi	ˈmoɾ.tʰi
1385	after	ˈpə.se	ˈpə.se	ˈpə.se
1386	early	ˈwe.lũ	ˈwe.lũ	ˈwe.lũ
1387	late	ˈmo.ɻũ	ˈmo.ɻũ	ˈmo.ɻũ
1388	once	ek.ˈwaɾ	ek.ˈwaɾ	ek.ˈwaɾ
1389	again	ˈwə.l̪i	ˈwə.l̪i	ˈwə.l̪i
1390	sometimes	t͡ʃa.ˈɾek t͡ʃa.ˈɾek	t͡ʃa.ˈɾek t͡ʃa.ˈɾek	t͡ʃa.ˈɾek t͡ʃa.ˈɾek
1391	often	-	t͡ʃa.ˈɾek t͡ʃa.ˈɾek	t͡ʃa.ˈɾek t͡ʃa.ˈɾek
1392	usually	-	-	-
1393	always	ˈɦia.ɾo ˈɗa.l̪o	ˈɦia.ko ˈɗa.l̪o	ˈɦia.ɾo ˈɗa.l̪o
1394	never	koi ˈɗa.l̪o ne	t͡ʃa.ˈɾek ne	koi ˈɗa.l̪o ne
1395	spend time, pass time	ʈem ˈkaɖ.wũ	ʈem gʊ.ˈzaɾ.wũ	ʈem gʊ.ˈzaɾ.wũ
1396	month	ˈməi.no	ˈməi.no	ˈməi.no
1397	today	az	az	az
1398	day before yesterday	pə.ɾəm.ˈɗa.l̪e	pə.ɾəm.ˈɗa.l̪e	pə.ɾəm.ˈɗa.l̪e
1399	day after tomorrow	pə.ɾəm.ˈɗa.l̪e	pə.ɾəm.ˈɗa.l̪e	pə.ɾəm.ˈɗa.l̪e
1400	olden times	pʊ.ˈɾ̃ã.ŋo wə.ˈkət	ˈzo.no wəkt	ˈzo.nu wəkt
1401	dawn (before sunrise)	pə.ˈɾoɻ.jũ	pə.ˈɾʊɻ.jũ	pə.ˈɾoɻ.je
1402	sunrise	ˈɗa.l̪o ˈneɾ.wo	ˈɗa.l̪o ˈʊg.wũ	ˈɗa.l̪o ˈneɾ.wo
1403	afternoon	bə.ˈpʰoɾ	bə.ˈpʰoɾ	bə.ˈpʰoɾ
1404	sunset	ˈɗa.l̪o atʰ.ˈmeɾ.wo	ˈɗa.l̪o a.ˈtʰəm.wũ	ˈɗa.l̪o atʰ.ˈmu.wo
1405	dusk, twilight (after sunset)	mũ ɦ̃iə̃.ˈda.ɾũ	ˈmo.ɖa ɦiə.ˈda.ɾũ	mũ ɦ̃iə̃.ˈda.ɾũ
1406	daytime	ˈɗa.l̪a nu wə.ˈkət	ˈɗa.l̪a nu wəkt	ˈɗa.l̪a nu ʈem
1407	thing	ʃiz	ʃəi	ʃəi

No.	Gloss	LRP1	LRP2	LRP3
1408	piece	ˈɗã.ŋa	ˈɗã.ŋa	ˈɗã.ŋo
1409	top	ˈmatʰ.ljũ	ˈmatʰ.ljũ	ˈmatʰ.lũ
1410	bottom	ˈne.se	ˈnes.ljũ	ˈnes.lũ
1411	front (of something)	ˈɦia.mo	ˈɦia.mo	ˈɦia.mo
1412	back (of something)	ˈtʃe.ɻe	ˈtʃe.ɻe	ˈtʃe.ɻe
1413	side (of something)	ˈpa.ɦie	ˈpa.ɦie	ˈpa.ɦie
1414	middle	wəss	wəss	wəss
1415	edge(n)	ˈko.ɾe	ˈko.ɾe	ˈko.ɾe
1416	point (n)	tʃʊmb	ˈɦiə̃.ŋi̥	tʃʊmb
1417	bump (n)	ˈdɪ.ko	ˈdɪ.ko	ˈdɪ.ko
1418	spot (n)	ɗag	ɗag	ɗag
1419	move(intr)	ˈɦəl.wũ	ɦə.ˈla.wũ	ˈɦəl.wũ
1420	movement	-	-	-
1421	go	ˈza.wũ	ˈza.wũ	ˈza.wũ
1422	approach(v)	-	ˈkə.ne ˈza.wũ	ˈkə.ne ˈza.wũ
1423	arrive	ˈpʊg.wũ	ˈpog.wũ	ˈpog.wũ
1424	remain, stay	ˈɾeɦi.wũ	ˈɾeɦi.wũ	ˈɾeɦi.wũ
1425	leave(place)	ˈmel.wũ	ˈmel.wũ	ˈmel.wũ
1426	go round, detour	pʰə.ˈɾin ˈza.wũ	-	fə.ˈɾin ˈza.wũ
1427	come(or go) out, exit(v)	ˈneɦiɻ.wũ	ˈneɦiɻ.wũ	ˈneɦiɻ.wũ
1428	ascend, go up	ˈõ.so ˈza.wũ	ˈõ.so ˈza.wũ	ˈma.tʰe ˈza.wũ
1429	descend, go down	ˈne.sũ ˈza.wũ	ˈne.su ˈza.wũ	ˈne.se ˈza.wũ
1430	swing(v), go back and forth	ˈɦies.wũ	ˈɦies.wũ	ˈɦies.wũ
1431	slide	ˈtɾɪk.wũ	ˈtɾɪk.wũ	ˈtɾɪk.wũ
1432	roll	sə.ˈke.ɻi ˈkʰa.wũ	ˈtʃək.ɾi ˈkʰa.wũ	ˈtʃək.ɾi ˈkʰa.wũ
1433	spread(disease, fire)	ˈpək.ɻi ˈza.wũ	ˈpək.ɻi ˈza.wũ	ˈpək.ɻi ˈza.wũ
1434	burst	pɪtʃ.ˈka.ɾi ˈneɾ.wũ	pɪtʃ.ˈka.ɾi ˈneɾ.wũ	pɪtʃ.ˈka.ɾi ˈneɾ.wũ

No.	Gloss	LRP1	LRP2	LRP3
1435	speed (n)	ˈtʰɪ.kʰũ	-	ˈtʰɪ.kʰũ
1436	hasten, hurry	ɦʊt.ˈwaɾ.wũ	ɦʊt.ˈwaɾ.wũ	ɦʊt.ˈwaɾ.wũ
1437	snatch, seize	pə.ˈʈa.wũ	pə.ˈʈa.wũ	pə.ˈʈa.wũ
1438	catch (object in air)	ˈdʒəʈ.wũ	ˈdʒəʈ.wũ	ˈdʒəʈ.wũ
1439	pick up	ʊ.ˈpaɾ.wũ	u.ˈpaɾ.wũ	ʊ.ˈpaɾ.wũ
1440	hold	ˈgəɾ.wũ	ˈgəɾ.wũ	ˈgəɾ.wũ
1441	lower (tr)	ˈne.so ˈkəɾ.wũ	ˈne.so ˈkəɾ.wũ	ˈne.se ˈkəɾ.wũ
1442	drop (tr)	ˈpaɾ.wũ	ˈpaɾ.wũ	ˈpaɾ.wũ
1443	knock down, knock over (an object)	ˈne.so ˈpaɾ.wũ	ˈne.so ˈpaɾ.wũ	ˈne.se ˈpaɾ.wũ
1444	turn over (tr)	ʊtʰ.ˈla.wũ	ʊtʰ.ˈla.wũ	ʊtʰ.ˈla.wũ
1445	drag	ˈgəiɾ.wũ	ˈgəiɾ.wũ	ˈgəiɾ.wũ
1446	steer (v)	-	-	-
1447	overtake, pass (tr)	kɪ.ˈlas ˈkəɾ.wũ	kɪ.ˈlas ˈkəɾ.wũ	kɪ.ˈlas ˈkəɾ.wũ
1448	surround	ˈgɦe.ɾo ˈkəɾ.wo	ˈgɦe.ɾo ˈkəɾ.wũ	ˈgɦe.ɾo ˈkəɾ.wũ
1449	twist	ˈmeɾ.wũ	ˈməiɾ.wũ	ˈməiɾ.wũ
1450	fold (v)	ˈwaɭ.wũ	ˈwaɭ.wũ	ˈwaɭ.wũ
1451	coil (rope) (v)	ˈweʈ.wũ	ˈweʈ.wũ	ˈweʈ.wũ
1452	hang up	ʈẽ.ˈŋa.wũ	ʈə.ˈgaɾ.wũ	ʈẽ.ˈŋa.wũ
1453	spread out (maize) (tr)	ˈpʰoɭ.wũ	ˈpʰoɭ.wũ	ˈpʰoɭ.wũ
1454	stretch	ˈtãɳ.wũ	ˈtãɳ.wũ	ˈtãɳ.wũ
1455	bump (v), knock against	bɪʈ.ˈka.wũ	bɪʈ.ˈka.wũ	bɪʈ.ˈka.wũ
1456	scrape (v)	ˈgəʃ.wũ	ˈgəʃ.wũ	ˈgəʃ.wũ
1457	scratch (v)	ɾə.ˈgəɾ.wũ	ˈgəiɾ.wũ	ɾə.ˈgəɾ.wũ
1458	pierce	ˈʃe.ɾu ˈkəɾ.wũ	ˈwed.wũ	ˈʃəɾ.kũ ˈkəɾ.wũ
1459	tear (tr)	ˈpʰaɾ.wũ	ˈpʰaɾ.wũ	ˈfaɾ.wũ
1460	strip off (bark)	ˈpəʈ.wũ	ˈpəʈ.wũ	ˈpəʈ.wũ
1461	shake (tr)	ɦə.ˈla.wũ	ɦə.ˈla.wũ	ɦə.ˈla.wũ
1462	crush (tr)	pi.ˈsəl.wũ	pi.ˈsəɭ.wũ	pi.ˈsəl.wũ

No.	Gloss	LRP1	LRP2	LRP3
1463	create, make	ˈʈʰaɦi.wũ	ˈʈʰaɦi.wũ	ˈʈʰaɦi.wũ
1464	alter, change (tr)	bəd.ˈla.wũ	bəd.ˈla.wũ	bəd.ˈla.wũ
1465	break (tr)	ˈtoɽ.wũ	ˈbag.wũ	ˈtoɽ.wũ
1466	destroy, spoil	kʰə.ˈɾab ˈkəɾ.wũ	bə.ˈgaɽ.wũ	kʰə.ˈɾab ˈkəɾ.wũ
1467	join, put together	gə.ˈɖa.wũ	gə.ˈɖa.wũ	gə̃.ˈɖa.wũ
1468	accumulate	ˈbe.ɭo ˈkəɾ.wũ	ˈbe.ɭo ˈkəɾ.wũ	ˈbe.ɭo ˈkəɾ.wũ
1469	gather	ˈbe.ɭo ˈkəɾ.wũ	ˈbe.ɭo ˈkəɾ.wũ	ˈbe.ɭo ˈkəɾ.wũ
1470	divide, separate (tr)	daɾ ˈkəɾ.wũ	daɾ ˈkəɾ.wũ	daɾ ˈkəɾ.wũ
1471	scatter (tr)	pə.ˈkʰe.ɽi ˈlakʰ.wũ	ˈwe.ʃi ˈlakʰ.wũ	pə.ˈga.ɦi ˈlakʰ.wũ
1472	throw away, get rid of	ʊ.ˈseɽ.wũ	u.ˈʃəɽ.wũ	ʊ.ˈʃeɽ.wũ
1473	put, place, set	ˈmel.wũ	ˈmel.wũ	ˈmel.wũ
1474	leave (something somewhere)	ˈme.li ˈza.wũ	ˈme.li ˈza.wũ	ˈme.li ˈza.wũ
1475	keep, save	ɦiə.ba.ˈɭɪn ˈɾakʰ.wũ	ɦiə.ba.ˈɭɪn ˈɾakʰ.wũ	ɦiə.ba.ˈɭɪn ˈɾakʰ.wũ
1476	hide (tr)	ɦiə.ˈtaɭ.wũ	ɦiə.ˈtaɭ.wũ	ɦiə.ˈtaɭ.wũ
1477	lose (tr)	ˈkʰo.wũ	ˈkʰo.wũ	ˈkʰo.wũ
1478	look for	ˈzo.wũ	ˈzo.wũ	ˈzo.wũ
1479	find	ˈgot.wũ	ˈgot.wũ	ˈgot.wũ
1480	blow (of wind) (v)	ˈpʰõk.wũ	ˈpʰõk.wũ	ˈpʰõk.wũ
1481	blow down	-	-	-
1482	blow away (intr)	ʊ.ˈɖaɽ.wũ	u.ˈɖaɭ.wũ	ʊ.ˈɖa.wũ
1483	fan (v)	ˈwaɪ.ɾo ˈlakʰ.wo	ˈwaɪ.ɾo ˈlakʰ.wo	ˈwaɪ.ɾo ˈlakʰ.wo
1484	drip	ˈʈe.pũ	ˈpʰo.ɾũ	ˈʈe.pũ
1485	leak (v)	ˈneɦiɾ.wũ	ˈneɦiɾ.wũ	ˈneɦiɾ.wũ
1486	sprinkle	ˈtʃʰə̃.ɖa	ˈtʃə̃.ɖa	ˈtʃʰə̃.ɖa
1487	smear (tr)	so.ˈpəɽ.wũ	so.ˈpəɽ.wũ	so.ˈpəɽ.wũ
1488	dip	pə.ˈlaɽ.wũ	pə.ˈlaɽ.wũ	pə.ˈlaɽ.wũ

No.	Gloss	LRP1	LRP2	LRP3
1489	soak	ɦu.ˈkə.wu	ˈsʊɦ.wũ	ˈsu.wũ
1490	wring out	lẽ.ˈso.wũ	ne.ˈsə.wũ	ne.ˈso.wũ
1491	shine	tʃɪl.ˈka.wũ	tʃɪl.ˈka.wũ	tʃɪm.ˈka.wũ
1492	fade	ˈdok.ɽũ	ˈdok.ɽũ	ˈdok.ɽũ
1493	light (fire) (v)	ɦəɭ.ˈga.wũ	ɦəɭ.ˈga.wũ	ɦəɭ.ˈga.wũ
1494	burn (intr), blaze	ɦəɭ.ˈgʊ.wũ	ɦəɭ.ˈgʊ.wũ	ɦəɭ.ˈgʊ.wũ
1495	melt (intr)	ˈgəɭ.wũ	ˈgəɭ.wũ	ˈgəɭ.wũ
1496	singe	ˈɓəɭ.wũ	ˈɓəɭ.wũ	ˈɓəɭ.wũ
1497	begin	ˈʃʊ.ɾu ˈkər.wũ	ˈʃʊ.ɾu ˈkər.wũ	ˈʃʊ.ɾu ˈkər.wũ
1498	beginning	ʃʊɾ.ˈwat	ʃʊɾ.ˈwat	ˈʃʊɾ.ˈwat
1499	continue, resume	ˈɦag.tũ ˈɾe.wũ	ˈɦeɖ.tũ ˈɾe.wũ	ˈɦag.tũ ˈɾe.wũ
1500	end (n)	pə.ˈtʃʰa.ɽi	pə.ˈtʃʰa.ɽi	pə.ˈtʃʰa.ɽi
1501	cease, stop	ˈʊ.bũ ˈɾakʰ.wũ	ˈʊ.bũ ˈɾakʰ.wũ	ˈʊ.bũ ˈɾakʰ.wũ
1502	finish, complete (v)	ˈpu.ɾũ ˈkər.wũ	ˈpu.ɾũ ˈkər.wũ	ˈpu.ɾũ ˈkər.wũ
1503	(be) high	ˈũ.su ˈtʰa.wũ	ˈõ.su	ˈõ.sũ
1504	(be) low	ˈne.sũ	ˈne.sũ	ˈne.se
1505	lengthen	ˈlã.bu ˈkər.wũ	ˈlã.bu ˈkər.wũ	ˈlã.bu ˈkər.wũ
1506	shorten	ˈna.nu ˈkər.wũ	ˈna.nu ˈkər.wũ	ˈnã.tʃo ˈkər.wũ
1507	widen	ˈmok.ɭo ˈkər.wũ	ˈmok.ɭo ˈkər.wũ	ˈmok.ɭo ˈkər.wũ
1508	deepen	ˈɦõ.ɖo ˈkər.wũ	ˈɦõ.ɖu ˈkər.wũ	ˈɦõ.ɖu ˈkər.wũ
1509	(be) flat	ˈɦəɾ.ko	ˈɦəɾ.kũ	ˈɦəɾ.ko
1510	flatten	ˈɦəɾ.ko ˈkər.wũ	ˈɦəɾ.ko ˈkər.wũ	ˈɦəɾ.ko ˈkər.wũ
1511	(be) hollow	ˈpo.lũ	ˈpo.lũ	ˈpo.lũ
1512	swell (intr)	ˈpʰʊl.wũ	ˈpʰʊl.wũ	ˈpʰol.wũ
1513	straighten	ˈsɪ.dɦũ ˈkər.wũ	ˈsɪ.dɦũ ˈkər.wũ	ˈsɪ.dɦũ ˈkər.wũ
1514	(be) crooked	wə.ˈɭəl	ˈwã.ki	wə.ˈɭəl
1515	weight	baɾ	baɾ	baɾ

No.	Gloss	LRP1	LRP2	LRP3
1516	sharpen (knife)	ˈtʰɪ.kʰũ ˈkəɾ.wũ	ˈtʰɪ.kʰũ ˈkəɾ.wũ	ˈtʰɪ.kʰũ ˈkəɾ.wũ
1517	sharpen, bring to point (arrow)	ˈtʰɪ.kʰũ ˈkəɾ.wũ	ˈtʰɪ.kʰũ ˈkəɾ.wũ	ˈtʰɪ.kʰũ ˈkəɾ.wũ
1518	make smooth	sap ˈkəɾ.wũ	ˈfiəkʰ.ɾa ˈkəɾ.wũ	fiəkʰ.ɾa ˈkəɾ.wũ
1519	harden	ˈak.ɾũ ˈkəɾ.wũ	ˈak.ɾũ ˈkəɾ.wũ	ˈak.ɾũ ˈkəɾ.wũ
1520	soften	ˈpo.sũ ˈkəɾ.wũ	ˈpo.sũ ˈkəɾ.wũ	ˈpo.sũ ˈkəɾ.wũ
1521	(be) slippery	tɪɾ.ˈkə̃.ɳi	tɪɾ.ˈkə̃.ɳi	tɪɾ.ˈkã.ɳi
1522	(be) sticky	so.ˈʈəl	so.ˈʈəl	so.ˈʈəl
1523	colour	ɾə̃ŋ	ɾə̃ŋ	ɾə̃ŋ
1524	(be) blue	as.ˈma.ni ɾə̃ŋ	as.ˈma.ni ɾə̃ŋ	as.ˈma.ni ɾə̃ŋ
1525	(be) brown	ˈna.si ɾə̃ŋ	ˈna.si ɾə̃ŋ	ˈna.si ɾə̃ŋ
1526	(be) dark (colour)	ˈʊ.tʃo	tez	ˈũ.tʃo
1527	(be) light (colour)	ˈfiəl.ko	ˈfiəl.ko	ˈfiəl.ko
1528	taste (n)	ˈzaɪ.ko	ˈzaɪ.ko	ˈzaɪ.ko
1529	(be) salty	ˈkʰa.ɾũ	ˈkʰa.ɾũ	ˈkʰa.ɾũ
1530	odour, smell (n)	ɓaʃ	ɓaʃ	ɓaʃ
1531	stink, smell (bad)	ɓaʃ	ɓaʃ	ɓaʃ
1532	(be) able (to)	kã	kõ	ˈfiə.kã
1533	strength	ɓəɭ	ɓəɭ	ɓəɭ
1534	(be) great, (be) powerful	ɓəɭ ˈwa.ɭo	ɓə.ˈɭu.ko	ɓəɭ ˈwa.ɭo
1535	splendour, glory	gũŋ	ʃã̃n	gũŋ
1536	truth	ˈfia.so	ˈfia.so	fia.ˈsai
1537	(be) beautiful	ɾu.ˈpa.ɭi	ɾu.ˈpa.ɭi	ɾu.ˈpa.ɭi
1538	handsome	ɾu.ˈpa.ɭo	ɾu.ˈpa.ɭo	ɾu.ˈpa.ɭo
1539	(be) ugly	ˈka.ɭi	ˈka.ɭi	ˈka.ɭi
1540	(be) clean	ˈfiəkʰ.ɾo	ˈfiəkʰ.ɾo	ˈfiəkʰ.ɾo
1541	(be) important	kʰas	kʰas	kʰas
1542	(be) amusing, funny	ˈməʃ.kɾo	ˈməʃ.kɾo	ˈməʃ.kɾo

No.	Gloss	LRP1	LRP2	LRP3
1543	eleven (11)	ə.ˈʃaɾ	ə.ˈʃaɾ	ə.ˈʃaɾ
1544	twelve (12)	ɓaɾ	ɓaɾ	ɓaɾ
1545	thirteen (13)	teɾ	teɾ	teɾ
1546	fourteen (14)	səwd	səwd	səwd
1547	fifteen (15)	pə.ˈnəɾ	pə.ˈnəɾ	pə.ˈnəɾ
1548	sixteen (16)	ˈso.ɾã	ɦoɭ	ɦoɭ
1549	seventeen (17)	ɦət.ˈtəɾ	ɦət.ˈtəɾ	ɦət.ˈtəɾ
1550	eighteen (18)	ə.ˈɖaɾ	ə.ˈɖaɾ	ə.ˈɖaɾ
1551	nineteen (19)	ˈũ.ɳi̯	ˈug.ɳi̯	ˈũ.ɳi̯
1552	twenty-one (21)	ˈek.wi	ˈek.wi	ˈek.wi
1553	twenty-two (22)	ˈɓa.wi	ˈɓa.wi	ˈɓa.wi
1554	twenty-three (23)	ˈʈe.wi	ˈʈe.wi	ˈʈe.wi
1555	twenty-four (24)	ˈtʃo.wi	ˈtʃo.wi	ˈtʃo.wi
1556	twenty-five (25)	ˈpə̃dʒ.wi	ˈpə̃dʒ.wi	ˈpə̃dʒ.wi
1557	twenty-six (26)	ˈtʃʰə.wi	ˈtʃʰə.wi	ˈtʃʰə.wi
1558	twenty-seven (27)	sət.ˈta.wi	sət.ˈta.wi	sət.ˈta.wi
1559	twenty-eight (28)	ə.ˈʈʰa.wi	ə.ˈʈʰa.wi	ə.ˈʈʰa.wi
1560	twenty-nine (29)	ˈõn.ʈi	ˈõn.ʈi	ˈõn.ʈi
1561	thirty (30)	ʈi	tɾi	ʈi
1562	forty (40)	ˈtʃa.ɭi	ˈtʃa.ɭi	ˈsa.ɾi
1563	fifty (50)	ˈpəs.sa	ˈpəs.sa	ˈpəs.sa
1564	sixty (60)	ɦaʈʰ	ɦaʈʰ	ɦaʈʰ
1565	seventy (70)	ɦət.ˈtəɾ	ɦət.ˈtəɾ	ɦət.ˈtəɾ
1566	eighty (80)	ˈe.ʃi	ˈe.ʃi	ˈe.ʃi
1567	ninety (90)	ˈnə.we	ˈnə.we	ˈnə.we
1568	two hundred (200)	ˈɓe.ɦo	ˈɓə.ɦo	ˈɓe.ɦo
1569	five hundred (500)	ˈpã.so	ˈpãn.se	ˈpã.so
1570	two thousand (2000)	ɓe ɦə.ˈzaɾ	ɓe ɦə.ˈzaɾ	ɓe ɦə.ˈzaɾ
1571	(be) first	ˈpeɾ.jũ	ˈpeɾ.jũ	ˈpeɾ.jũ

No.	Gloss	LRP1	LRP2	LRP3
1572	(be) second	ˈɓi.zũ	ˈɓi.zũ	ˈɓi.zo
1573	(be) third	ˈtẽɳ.mũ	ˈtẽɳ.mũ	ˈtə̃ɪ̃ɳ.mũ
1574	(be) last	pə.ˈtʃʰa.ɻi nu	pə.ˈtʃʰa.ɻi	pə.ˈtʃʰa.ɻi
1575	add	ˈɓe.ɻã	ˈɓe.ɻa	ˈɓe.ɻã
1576	subtract, take away	ˈkaɖ.wũ	ˈkaɖ.wũ	ˈgaɖ.wũ
1577	increase (intr)	wə.ˈdaɾ.wũ	wə.ˈdaɾ.wũ	wə.ˈdaɾ.wũ
1578	decrease (intr)	ˈgaʈ.wũ	ga.ˈʈa.wũ	ˈgaʈ.wũ
1579	arrange	-	-	-
1580	(be) equal	ˈɦəɾ.kʰũ	ˈɦəɾ.kʰũ	ek ˈzeʈ.lũ
1581	(be) alone	ˈek.lo	ˈek.lo	ˈek.lo
1582	enough	dʒam	dʒam	dʒam
1583	lack (v)	kʰoʈ ˈtʰa.wi	kʰoʈ ˈtʰa.wi	kʰoʈ ˈtʰa.wi
1584	(be) used up	ˈkʰə.pi ˈza.wũ	ˈkʰə.pi ˈza.wũ	ˈkʰə.pi ˈza.wũ
1585	everybody	ɓəd.ˈdai ˈad.mi	ɓəd.ˈdai mə.ˈnik	ɓəd.ˈdai ˈad.mi
1586	everything	ɓəd.ˈjəi ʃəi	ɓəd.ˈjəi ʃəi	ˈɓəd.jũ ˈʃəi.jũ
1587	somebody	kok ˈad.mi	kãk mə.ˈnik	kak ˈad.mi
1588	something	kok ʃəi	kãk ʃəi	kak ˈʃəi.ju
1589	everywhere	ɓəd.ˈjəi ˈdʒə.ga	ɓəd.ˈjəi dʒai	ɓəd.ˈjəi ˈdʒə.ga
1590	nobody	koi ˈnə.tʰi	koi nəi	koi ne
1591	nothing	koi ʃəi ˈnə.tʰi	kai ne	koi ʃəi ne
1592	here	aĩ	aĩ	aĩ
1593	there	oĩ	oĩ	oĩ
1594	up	ˈõ.sũ	ˈõ.sũ	ˈõ.sũ
1595	down	ˈne.sũ	ˈne.sũ	ˈne.se
1596	forward (direction)	ˈmo.ɾe	ˈmo.ɾe	ˈmo.ɾi
1597	backward (direction)	ˈtʃe.ɻe	ˈtʃe.ɻe	ˈtʃe.ɻe
1598	over, above	ˈma.tʰe	ˈma.tʰe	ˈma.tʰe
1599	under, below	ˈma.ɦĩ	ˈma.ɦĩ	ˈma.ɦĩ

No.	Gloss	LRP1	LRP2	LRP3
1600	in front of, before	ˈɦa.mo	ˈɦa.mo	ˈɦa.mo
1601	behind	ˈtʃe.ɻe	ˈtʃe.ɻe	ˈtʃe.ɻe
1602	beside	ˈpa.ɦo	ˈpa.ɦe	ˈpa.ɦe
1603	inside	ˈma.ɦĩ	ˈma.ɦĩ	ˈma.ɦĩ
1604	outside	ˈɓa.ɾe	ˈɓa.ɾi	ˈɓa.ɾe
1605	between	wəss	wəss	wəss
1606	towards	ˈpa.ɦe	ˈpa.ɦe	ˈpa.ɦe
1607	away from	ˈʃe.ʈũ	ˈʃe.ʈũ	ˈʃe.ʈũ
1608	with	ˈbe.ɭa	ˈbe.ɭũ	ˈbe.ɭũ
1609	other (men)	ˈɓi.zã	ˈɓi.zã	ˈɓi.zũ
1610	which (one)?	ˈtʃɪ.ɦĩ	ˈtʃɪ.ɦĩ	ˈtʃɪ.jũ
1611	why?	tʃəm	tʃəm	tʃəm
1612	how?	tʃəm tʃəm	tʃəm tʃəm	tʃəm tʃəm
1613	and	ˈə.ne	ˈə.ne	ˈə.ne
1614	if	ə.ˈgəɾ	ə.ˈgəɾ	ə.ˈgəɾ
1615	but	pəɭ	pəɭ	pəɭ
1616	so	-	-	to
1617	because	ˈe.na	ˈe.na ˈɦa.ɾu	ˈe.na ˈɦa.ɾu
1618	perhaps	ʃa.ˈɦɪd	ʃa.ˈɦɪd	ʃa.ˈɦɪd
1619	really, truly	ˈɦas.no	ˈɦas.no	ˈɦas.no
1620	well (adv)	ˈɦəkʰ.ɾũ	ˈɦəkʰ.ɾũ	ˈɦəkʰ.ɾũ
1621	poorly	ˈkɪ.nu	ˈkɪ.nu	ˈkɪ.nu
1622	only	sɪ.ˈɾɪpʰ	ˈkʰa.li	sɪ.ˈɾɪf
1623	yes	ˈɦʊ.we	ˈɦʊ.we	ˈɦo.wi
1624	no	na	na	na
1625	nature	kʊz.ˈɾət	kʊd.ˈɾət	kʊd.ˈɾət
1626	volcano	ɦə.ˈɭaʃ	ɦə.ˈɭaʃ	ɦə.ˈɭaʃ
1627	donation	ɗan	ɗan	ɗan
1628	greedy	ˈlal.tʃi	ˈlal.tʃi	ˈlal.tʃi

No.	Gloss	LRP1	LRP2	LRP3
1629	simple	ˈsa.do	ˈsa.do	ˈsa.do
1630	concentrate	de.ˈɦian ˈal.wũ	de.ˈɦian ˈal.wũ	de.ˈɦian ˈal.wũ
1631	villager	ɠam ˈwa.ɭa	ɠam ˈwa.ɭa	ɠam ˈwa.ɭa
1632	head-villager	pə.ˈʈel	pə.ˈʈel	pə.ˈʈel
1633	clear, pure (water)	ˈɦək ̟ʰ.ɾo	ˈɦək ̟ʰ.ɾo	ˈɦək ̟ʰ.ɾũ
1634	car	kaɾ	kaɾ	kaɾ
1635	motor bike	pʰəʈ.ˈpʰəʈ.jũ	pʰəʈ.ˈpʰəʈ.jũ	fəʈ.ˈfəʈ.jũ
1636	pushcart	ˈʈʰe.lo	ˈɾe.ɻo	ˈʈʰe.lo
1637	air plane	zaz	zaz	zaz
1638	ship	ˈɓe.ɻo	ˈɓe.ɻo	ˈɓe.ɻo
1639	valuable	ˈkim.ti	ˈkim.ti	ˈkim.ti
1640	cheap	ˈsəs.ti	ˈõ.gu	ˈsəs.tũ
1641	sympathy	ɦəm.ˈdəɾ.di	ɦəm.ˈdəɾ.di	ɦəm.ˈdəɾ.di
1642	tolerance	-	-	bəɾ.ˈdaʃ
1643	vertical	ˈsɪ.dʱ ̃ũ	ˈu.bi	ˈsɪ.dʱi
1644	horizontal	ˈa.ɖ ̩i	ˈa.ɖ ̩i	ˈa.ɖ ̩i
1645	sugar	kʰãɖ	kʰãɖ	kʰãɖ
1646	holiday	ˈmok.ljũ	mo.ˈkəl	ˈtʃʰʊʈ.jũ
1647	to fart	ˈpad.wũ	ˈpad.wũ	ˈpad.wũ
1648	crash	ˈpəʈ.wũ	ˈpəʈ.wũ	ˈpəʈ.wũ
1649	accident	ek.si.ˈɖə̃ɖ	ek.si.ˈɖə̃ɖ	ek.si.ˈɖə̃ɖ
1650	pillar	piɾ.ˈpa.jo	piɾ.ˈpa.jo	piɾ.ˈpa.jo

RESUME

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