nam?ú masará gawarata

Contributions to the description of the phonology of the
Bonke variety of Gamo

Aïda Leistad Thomassen

MA Thesis in Linguistics
Department of Linguistics and Scandinavian Studies
University of Oslo
June 2015
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Foreword

The title of this thesis is taken from the data material, and means ‘two colorful cats’. /namʔú masará gawarata/ illustrates a tonal phenomenon that is discussed in the body of this thesis.

The present thesis was written as a Master’s thesis in linguistics at the University of Oslo. The aim for this project was to describe some aspects of the phonology of the Bonke variety of Gamo, an Omotic language spoken in Ethiopia. The data was collected during two periods of fieldwork in Ethiopia where I interviewed speakers of Gamo that grew up in the Bonke area. The descriptions provided here are not intended to be exhaustive.

The thesis treats four parts of the phonology of the Bonke variety of Gamo: the vowels, the consonants, the phonotactics, and the tonology. The consonants and the tonology are discussed in length. I argue that the consonant system of the Bonke variety of Gamo differs to some extent from other descriptions of Gamo, when it comes to the classification of the consonants, especially the voiced affricates. Gamo has been described as a tonal accent language, but I argue that a tonal analysis is to be preferred for the Bonke variety. A word list is found in the appendix.
Acknowledgements

I wish to thank my supervisor Professor Rolf Theil for patient guidance and interesting discussions throughout the last year. His knowledge on so many fields within linguistics has been invaluable. That he is an expert on phonology and Omotic languages was an additional bonus. I also wish to thank Dr. Binyam Sisay Mendisu for all his help and hospitality when I was in Ethiopia, and his help with putting me in contact with Samuel Gonderie. I am very grateful to Samuel Gonderie for spending so much of his valuable time with me during my first trip to Ethiopia. This is true for all my informants. This thesis would not exist without you. Xoossimo!

I would also like to thank the Department of Film and Television Studies (TVF-avdelinga) at Lillehammer University College for lending me two microphones, and Professor Janne Bondi Johannesen for lending me her H4n recorder and for sharing her experience from her travels to Ethiopia. Thanks to Dr. Anders Vaa for answering questions regarding fieldwork, recording equipment, and phonetic analysis. Thanks to Kristin Hagen and Joel Priestley for Addis related tips. Thank you, Sara Marie Niday, for proofreading the text.

This process would have been much harder had it not been for the excellent people at the Master student’s reading hall. You know who you are. Thank you for all the interesting discussions, the meals we shared, and all the support you gave me. We had a great time!

Last, but not least I wish to thank my friends and my family for their support. A special thanks goes to John, who not only facilitated my work with his computer skills and helped me extensively with \LaTeX, but also tolerated my behavior this past year. What would I have done without you? Thank you for making tea, and for coming to Ethiopia with me. That goes for you too, Kjetil (not the tea part)!

This thesis is not the work of just one person. Those who are not mentioned here are not forgotten.
## List of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>1</td>
<td>first person</td>
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<td>2</td>
<td>second person</td>
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<td>3</td>
<td>third person</td>
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<td>A</td>
<td>adjective</td>
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<tr>
<td>ACC</td>
<td>accusative</td>
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<td>BLT</td>
<td>Basic linguistic theory</td>
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<td>COP</td>
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<td>feminine</td>
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<td>FOC</td>
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<td>high tone</td>
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<td>NP</td>
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<td>PST</td>
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<td>p.c.</td>
<td>personal communication</td>
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<td>plural</td>
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<td>SG</td>
<td>singular</td>
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<td>TBU</td>
<td>tone bearing unit</td>
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<td>TV</td>
<td>terminal vowel</td>
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Chapter 1

Introduction

1.1 Outline of the thesis

This thesis presents certain aspects of the phonology of the Bonke variety of Gamo. The aim was to investigate the sound system of the chosen variety, and the result is a description of the vowels, the consonants, the phonotactics and the tonology of the Bonke variety. The data on which this work is based was collected during two periods of fieldwork in Ethiopia.

This first chapter seeks to help the reader get an impression of Gamo before we embark on the description of the Bonke variety of Gamo. In this chapter I will explain where and by whom Gamo is spoken, how it is classified, as well as giving a short account of the written language. We will also briefly discuss the question of variation. At the end of this chapter, I will offer a short overview of some relevant aspects of the grammar of Gamo.

Chapter 2 deals with the methodology and theory applied in this thesis. I will explain why I have chosen to adopt Basic Linguistic Theory for this thesis, and why I analyze the phonology in the spirit of Trubetzkoy. The fieldwork is described and discussed, and the informants are introduced in this chapter. The remaining chapters are devoted to the description and analysis of the Bonke variety of Gamo. Chapter 3 treats the vowels. The vowel inventory is determined, and the status of the diphthongs is discussed. The consonants follow in chapter 4. Here I give an account of which consonants I consider to have phoneme status in the Bonke variety. The phonotactics of the Bonke variety is summarized in chapter 5. Chapter 6 deals with the tonology, and an analysis of the Bonke variety as a tonal language, rather than a tonal accent language, is presented. Chapter 7 offers a summary and some concluding remarks. A word list is added as an appendix. I encourage the reader to compare this list with the lists in Alemayeh Abebe (2002) and Jordan (2009). Because of limitations of time and space, I cannot discuss the differences between the word lists here.

Note that there might be errors in the transcription of the data, and these are entirely the author’s fault. If there are inconsistencies between the transcription in the thesis and in the appendix, the transcription in the thesis is regarded as the most accurate one.
1.2 Motivation and aim

The main motivation for choosing a project that involved doing field linguistics was to try to describe a language that I knew nothing about before I started working on this thesis. During my studies at the University of Oslo, I have had the pleasure of taking several courses where typology was the topic, and this made me aware of the importance of language description.

The aim for this thesis has been to provide a description of the phonology of the Bonke variety of Gamo, or some aspects of it at least. The questions I wanted to answer were the following:

- What vowels are found in the Bonke variety of Gamo?
- What are the distinctive properties of the vowels?
- What consonants are found in the Bonke variety of Gamo?
- What are the distinctive properties of the consonants?
- Is the Bonke variety of Gamo a tone language?
- Does the Bonke variety of Gamo differ from how Gamo is described in the literature, and if so, how?

When I started to work on the data material, more questions came about, relating to how and why my findings were like they were. Many of these still remain unanswered. The answers I provide for the questions listed above are found in the chapters to come.

1.3 Gamo - the people and the language

Gamo\textsuperscript{1} is spoken in the south-western part of Ethiopia, in the Gamo-Gofa Zone of the Southern Nations, Nationalities, and People’s Region (SNNPR). The language is called gamottso\textsuperscript{2} by the speakers, who refer to themselves as Gamo. Over one million people in the whole SNNPR consider themselves to be Gamo (Office of the Population Census Commission, 2007). Gamo is used as a language of instruction in the lowest grades in primary school. Later, the language of instruction is English. Above I have used the term language in a wide sense. Whether Gamo is considered a distinct language or a dialect varies in the literature. In any case, this is a difficult question. I will not try to answer this question, but I hope that this thesis might be of interest to anyone who would like to try to clarify the language/dialect status of Gamo.

\textsuperscript{1}Gemu is an alternative spelling of the name. This spelling is used in M. Bender (2000, 2003b).

\textsuperscript{2}According to M. Bender (2000) the self-name is \textit{gamo-dona}, literally Gamo-mouth. I did not record this name, but I did record \textit{gamottso k’aala} ‘gamo word’ or ‘gamo language’
I have restricted this research to look only at the variety of Gamo spoken in Bonke. Bonke is a wereda\(^3\) in the Gamo-Gofa Zone, west of Arba Minch. According to the 2007 Census, just over 159,000 people live in the Bonke wereda. The vast majority of these live in rural areas. To focus on the Bonke variety is a somewhat arbitrary restriction, since languages are not famous for limiting themselves within administrative borders, but I would argue that any restriction is better than none. All my informants are from the Bonke wereda, though from four different villages. The main reason for confining the research to the Bonke variety of Gamo was because there is probably more variation within what is called Gamo than the literature might suggest (Binyam, p.c.; Hirut Woldemariam, 2004, 2013). This will be commented on below. I will refer to the Bonke variety in the singular form, but further research may reveal that it is in fact more precise to talk about the Bonke varieties - in plural.\(^4\)

1.3.1 Classification

Gamo is an Ometo language of the Omotic family. The classification of Omotic is somewhat problematic, and there has been, and still is discussion regarding the external and internal classification. Omotic is often classified as a branch of Afroasiatic/Afrasian, alongside Berber, Chadic, Cushitic, Egyptian and Semitic (M. Bender, 2003a).\(^5\) The connection to Afroasiatic is questioned by Theil (2006, 2012). Theil argues that the arguments for placing Omotic under Afroasiatic are not convincing, and that Omotic should be regarded as an independent language family. The classification is based on mass comparison and lexico-statistics, both of which are methodologically problematic. The scope of this thesis does not allow us to enter into the details of the discussion, and readers are referred to the articles for more information.

The internal classification of Omotic varies between writers. Hayward (2003) places Gamo in the North Ometo group, together with Wolaytta,\(^6\) Dawro, Dorze, Gofa, Melo and Oyda, see Figure 1.1. Ethnologue lists the same languages in a group called Central Ometo. M. Bender (2000, 2003b) places Gamo in the (Extended) Welaitta Cluster, under Northwest Ometo, see Figure 1.2. The addition of ‘extended’ came in 2003 when M. Bender included Malo in the group he called the Welaitta Cluster in 2000.

Theil (2012) gives a different classification for the Omotic languages. He divides the languages that are traditionally classified as Omotic into three groups: Core Omotic, Dizoid, and Aroid. Core Omotic is further divided into Mao, Gonga, Yemsa, and Gimojan. Under

---

3 Or wereda or wäräda
4 According to my informants, a speaker from one part of the Bonke wereda might not understand everything a speaker from another area says. During the interviews my informants primarily focussed on the more widely known expressions, often the ones seen in books. Still, they offered other less common expressions as well, like /Pòkka/ for ‘calf’. The most common name for calf is /mára/.
5 Before Omotic was distinguished as a separate branch of Afroasiatic it was considered to be a part of Cushitic, namely West Cushitic (see Fleming and M. L. Bender, 1976; Hayward, 2003)
6 The spelling of this name varies between writers.
Chapter 1. Introduction

Figure 1.1: Classification of Omotic from Hayward (2003, p. 242)

South Omotic Hamar, Aari, Dime

North Omotic

Dizoid Dizi, Sheko, Nayi

Ta-Ne languages

Gonga Kafa, Shakicho (Mocha), Shanisha, Anfillo

Gimojan

Gimira Bench, She

Ometo-C’ara C’ara

North Ometo Wolaitta, Gamo, Gofa, Dawro, Malo, Basketo, Oyda

East Ometo Zayse, Zargulla, Harro and other lacustrine varieties, Koorete

South Ometo Maale

Yem (earlier known as Janjero) Yem

Mao Mao of Begi, Mao of Bambeshi and Diddesa

Figure 1.2: Classification of Omotic based on M. Bender (2003b, p. 2)
the latter we find the Ometo languages, Chara, and Bench. Theil argues that the Dizoid languages and the Aroid languages (South Omotic in Hayward’s classification) should not be considered branches of Omotic. Again, the basis for the comparison is criticized, and Theil argues that classification should be based on the comparative method. In Theil’s classification, Gamo is, along with the other Ometo languages, grouped under Core Omotic and Gimojan, but under the hyphenated name Gamo-Gofa-Dawro.

1.3.2 Variation within Gamo

There may be more variation within Gamo than we know (Binyam, p.c.). Hirut (2004) discusses the status of Gamo as a dialect, and criticizes the classification under North Ometo in Fleming (1976) where Gamo is placed in the Welamo (=Wolaitta) Cluster. She argues that Gamo is not a homogeneous dialect, and that there is significant geographic variation - phonologically, morphologically, and lexically. According to Hirut, Gamo should not be classified as a dialect of Wolaitta, but should be placed at the same level as Wolaitta under North Ometo. The regional varieties should be placed under Gamo, as in the tree below (based on Hirut Woldemariam (2004, p. 76)).

Hirut Woldemariam tries to illustrate the alleged significant variation between different regional varieties of Gamo, but the differences do not surface as very big, at least not outside the sound systems. The main argument for separating Gamo from Wolaitta, and Gamo into different varieties, seems to be that the Gamos identify themselves as Gamo as well as from their local village. This argument is continued in Hirut Woldemariam (2013) where she argues that classification of languages should take ethnolinguistic identities and language attitudes into consideration. Hirut seems to favor self identification over linguist’s classification when she argues to place regional varieties under Gamo. Her proposal may not be wrong, but more arguments are needed, preferably based on comparison between regional varieties.

---

7Hirut is unfortunately not consistent in the way she uses terms like ‘dialect’, ‘language’ and ‘variety’.
8The classification she opts for could in fact already exist in Hayward (2003), with the exception of additional varieties under Gamo.
1.3.3 Written language

Gamo is mainly written using the Latin script, but the Ethiopian script is also used. The school books in Gamo use the Latin script. The alphabet contains all the letters used in the English alphabet, including ten new letters, as illustrated in Table 1.1. Nine of these are composed of two letters. The tenth is the numeral 7 which symbolizes the glottal stop, but never in word initial position. In some cases the value for the different letters are not the same as for English. The letter c stands for the ejective affricate /Ç/, q for the ejective stop /k'/, x symbolizes the ejective affricate /ş'/, and j is sometimes used to symbolize the semivowel /j/ and sometimes used to symbolize the sibilant /s/. One of my informants wrote the word /haţé/ ‘big wasp’ as hajje and another wrote it as hazhzhe.

The second consonant of a consonant cluster is always geminated in written Gamo, but there seems to be variation as to whether a consonant following y is geminated or not. y symbolizes the consonant /j/, and the vowel /i/ when this occurs after another vowel.

A few of the letters in the alphabet do not correspond to a phoneme in the language. These are v, nh and ng. There is no labiodental voiced consonant, like /v/ in Gamo. nh represents a nasalized vowel, a feature which is not phonemic in Gamo (cf. Hirut Woldemariam, 2007). ng represents one of the allophones if a nasal in a consonant cluster. The letter ny represents [n], a phoneme that is, at best, very rare in Gamo (Hayward and Chabo, 2014). The letter f is used alongside p.

<table>
<thead>
<tr>
<th>letter</th>
<th>ch</th>
<th>dh</th>
<th>dz</th>
<th>nh</th>
<th>ny</th>
<th>ph</th>
<th>sh</th>
<th>th</th>
<th>zh</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>sound value</td>
<td>[ç]</td>
<td>[d]</td>
<td>[dz]</td>
<td>nasalization [n] [6] [ʃ] [ts] [3] [ʔ]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Hirut (2007; 2014) the written language lacks standardization. She calls for a revision of the alphabet to ease the mother tongue education. These revisions include the recognition of the phoneme /dz/ in Gamo, which should be written as dz. In my encounter with written Gamo, the letter dz was in fact present. Hirut (2014) strongly criticizes the use of the numeral 7 as a letter, and claims that this letter often (!) confuses the learners. Apparently, the likeness of the numeral 1 to the letter l, as well as that of the numeral 0 and the letter o contribute to the confusion, to such an extent that the word lo77o /lów/ ‘good, beautiful’ is read as “ten thousand seven hundred and seventy”. Instead of using a numeral to symbolize the glottal stop she advocates the use of ? or ‘.

---

10I acquired one school book during my stay in Arba Minch: Gamoththo craanaas injje oge written by Mekonnen Taye. This book unfortunately contains many inconsistencies in the way Gamo words are written, and quite a few mistakes or slips of the pen in the English translations.
Hirut writes that the different values of the letters in English and Gamo pose problems for the learners, and she suggests that the alphabet should be changed so that the values of the letters in written Gamo are closer to the values in written English.

The ejective consonants are represented as <c>, <x> and <q>, and the implosives as <dh> and <ph>. Hirut suggests that these should be represented with a following apostrophe to indicate the glottalization: <’>. These suggestions are summarized in Table 1.2.

<table>
<thead>
<tr>
<th>Sound</th>
<th>Current writing</th>
<th>Hirut’s suggestion(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ts]</td>
<td>th</td>
<td>ts</td>
</tr>
<tr>
<td>[ts]’</td>
<td>x</td>
<td>s’</td>
</tr>
<tr>
<td>[f]</td>
<td>ch</td>
<td>c</td>
</tr>
<tr>
<td>[f]’</td>
<td>c</td>
<td>c’</td>
</tr>
<tr>
<td>[6]</td>
<td>bh</td>
<td>p’</td>
</tr>
<tr>
<td>[d]</td>
<td>dh</td>
<td>d’</td>
</tr>
<tr>
<td>[k’]</td>
<td>q</td>
<td>k’</td>
</tr>
</tbody>
</table>

If the glottal stop is symbolized as <’>, this could be unfortunate. In this case, ejective and implosive consonants could seem like sequences of consonant + glottal stop. Hirut also suggests that tonal accent and vowel length should be marked - but only in those cases where it is not clear from the context in which the word is written.

### 1.3.4 Grammatical overview

In this section I will offer a brief overview of those aspects of the grammar of Gamo that will be relevant for the discussions ahead. Some aspects are only mentioned once and are not summarized here. Their description is given where they are mentioned. The statements below are mainly based on Hayward and Chabo (2014), and the reader who is interested in more details is referred to this book.\(^\text{11}\)

Gamo is a head final language, and is characterized as an inflectional language. Nouns can be marked for number (singular or plural), gender (masculine or feminine), definiteness, and case. These are all expressed by suffixes. Gamo is an accusative language, where subjects for intransitive and transitive predicates are marked in the same way. The accusative is often referred to as absolute in the literature on Gamo, but this is practice is not continued in this thesis.\(^\text{12}\) In addition to the suffixes listed in Table 1.3, there are the elements in Table

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\(^{11}\)I have not studied the grammatical structure of the Bonke variety of Gamo, so I cannot guarantee that the overview presented here is the correct analysis of this variety.

\(^{12}\)The origin of the term absolute is that it is the nominative which is marked.
1.4. These are not regarded as case markers but postpositions in Hayward and Chabo (2014). Azeb Amha (2009) analyze them as case markers in the closely related language Wolaitta. For the phonological description here, it is not important whether they are described as case markers or postpositions.

Table 1.3: Nominative and accusative

<table>
<thead>
<tr>
<th></th>
<th>nominative</th>
<th>accusative</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG</td>
<td>-i</td>
<td></td>
</tr>
<tr>
<td>PL</td>
<td>-ti</td>
<td>-ta</td>
</tr>
<tr>
<td>SG.DEF short form</td>
<td>-i</td>
<td>-a</td>
</tr>
<tr>
<td>SG.DEF long form</td>
<td>-zi</td>
<td>-za</td>
</tr>
<tr>
<td>PL.DEF</td>
<td></td>
<td>-zati</td>
</tr>
</tbody>
</table>

Table 1.4: Other cases or postpositions

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-s</td>
<td>dative or postposition</td>
</tr>
<tr>
<td>-n</td>
<td>locative, instrumental or postposition</td>
</tr>
<tr>
<td>-ra</td>
<td>instrumental or postposition</td>
</tr>
<tr>
<td>-ppe</td>
<td>marker of comparison, ablative or postposition</td>
</tr>
</tbody>
</table>

The last vowel of a noun in citation form is not considered as a part of the stem, and is often referred to as the *terminal vowel* (TV). This name is also used in this work.

The declination of the verb is complex when all the different possibilities are included. In this thesis the focus is on two tenses or aspects. Hayward and Chabo operate with the aspects *imperfective* and *perfective*, but in this thesis we will simply call them *present* and *past*. The suffixes for the present and past are listed in Table 1.5. In addition to these, we can mention that the singular imperative suffix is -a in the positive and -oppa in the negative.

In the next chapter we will take a closer look at the theoretical foundation for this thesis, as well as the data collection.

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13This does not entail that the aspect analysis is rejected here, it is simply because the informants themselves referred to the different verb forms as present and past.
Table 1.5: Present and past

<table>
<thead>
<tr>
<th></th>
<th>present</th>
<th>past</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>-ais</td>
<td>-adis</td>
</tr>
<tr>
<td>2SG</td>
<td>-aasa</td>
<td>-adassa</td>
</tr>
<tr>
<td>3MSG</td>
<td>-ees</td>
<td>-ides</td>
</tr>
<tr>
<td>3FSG</td>
<td>-aus</td>
<td>-adus</td>
</tr>
<tr>
<td>1PL</td>
<td>-oos</td>
<td>-idos</td>
</tr>
<tr>
<td>2PL</td>
<td>-eetta</td>
<td>-ideta</td>
</tr>
<tr>
<td>3P</td>
<td>-eettes</td>
<td>-ida</td>
</tr>
</tbody>
</table>
Chapter 2

Methodology

In this chapter the methodology of this thesis will be described and discussed. Initially, I will present the theory upon which this work is based, along with a discussion of the status of this theory. The data for this thesis were collected during two fieldwork periods, and it makes sense to discuss each period separately. For each period we will look at how the data were collected, and discuss potential problems related to the method chosen. The informants are also introduced in these sections. Finally, the notion of linguistic fieldwork will be commented upon.

2.1 Theory or theoretical framework

In the chapters to follow, descriptions and analyses of various phenomena in the phonology of the Bonke variety of Gamo are presented. There are several different ways of describing a language, and in this thesis the descriptions strive to be in accordance with Basic linguistic theory (BLT), as described in Dixon’s three tome work Basic Linguistic Theory (Dixon, 2010a,b, 2012). According to Dixon (1997, p. 128), the term BLT refers to “[... the fundamental theoretical concepts that underlie all work in language description and change, and the postulation of general properties of human language”. It is thus seen as a theory that can be used to describe and analyze any given linguistic structure. In Dixon (2010a, p. 1) we find a formulation of the task of linguistics, cited below:

The task of linguistics is to explain the nature of human language, through active involvement in the description of languages – each viewed as an integrated system – together with explanations of why each language is the way it is, allied to the further scientific pursuits of prediction and evaluation.

The guiding principle of language description within BLT is that every language has to be described on its own terms. This is because every language is a unique, complex system, where the parts make up a whole. To describe a language in its own terms, the researcher
has to adopt the inductive method. The rules and structures of the grammar are worked out by studying the data, and the hypotheses are checked by consulting the speakers of the language. Basic linguistic theory is an inductive approach to linguistics.

BLT is a cumulative theory with roots in traditional grammar (Dixon, 1997, 2010a; Dryer, 2006a). BLT is cumulative in the sense that it has been influenced by different theories or approaches throughout the history, and that it opens up for new grammatical concepts as they are discovered. Or, as Dixon (2010, p. 2) explains:

There is constant feedback between theory and description. Each description is in terms of the established theory, and the theory itself is made up of interrelated inductive generalizations based on the descriptions provided in terms of it. As each new description is completed, it is likely to lead to the refinement or revision of some aspect or aspects of the theory.

It is clear that Dixon views BLT as a theory, but there has been some discussion as to whether or not BLT is a framework, and if it is atheoretical. What seems to be the main argument against the theoretical status of BLT is the fact that BLT, in the eyes of formal linguists, fails to be an explanatory theory. According to Dryer (2006a,b), this idea stems from the close association between theory and metalanguage in formal grammar. BLT does not employ formalisms like formal approaches to grammar do. The metalanguage (formalisms) in formal grammar is not only seen as tools for description, it is also meant to have explanatory power — it is meant to tell us something about why languages are the way they are. Dryer (2006a) argues that we need to separate explanation from description, and that we need two types of theories. The two theories try to answer different questions:

Descriptive theories (or theoretical frameworks) are theories about what languages are like. They are theories about what tools we need in order to provide adequate descriptions of individual languages. Explanatory theories (or theoretical frameworks), in contrast, are theories about why languages are the way they are. (p. 207)

As we can see, Dryer uses the terms theory and theoretical framework interchangeably. He denotes BLT both as a theory and a theoretical framework (see Dryer, 2001, 2006a). Haspelmath (2010) notes the practice of using the terms theoretical framework or theory for descriptive framework, but hesitates to continue the use, since the term theory can have different meanings. Haspelmath argues for a framework-free theory of grammar. He views BLT as a framework, since BLT requires that grammar writers should have the knowledge of several concepts before they start their description. Haspelmath argues that this goes against the goal of describing languages in their own terms in an open-minded and un-biased way, because every description within a given framework will employ terms with pre-established meanings. This can be linked to his definition of framework as “[...] a sophisticated and
complex metalanguage for linguistic description that is intended to work for any language” (p. 343). Nichols (2007) claims that BLT is not a framework. Instead, she characterizes it as a “framework-neutral theory”. In this article she refers to a framework as “[...] the formal systems that are usually referred to as theories’ in formal grammar” (Nichols, 2007, note 1 p. 231).

When comparing Nichols’ and Hapselmath’s definitions of framework to how Langacker (1987, p. 2) characterizes Cognitive Grammar, we can ask whether the terms theory and framework really mean different things to different linguists.

[...] cognitive grammar is not a finished or formalized theory; it is more realistically viewed as an evolving conceptual framework. As such it is subject to significant modification and will require extension, elaboration, and more explicit formulation.

I will argue, in unison with Dixon, that BLT is a theoretical, cumulative, and informal theory of linguistics. If the term framework were to mean a way of doing linguistics or a defined approach to linguistics, we could be inclined to call BLT a framework. But it is not a framework in the sense of a well defined metalanguage where the terms have a pre-established meaning. Concepts like phoneme, phonological word, tone, vowel, consonant and many more are theoretical notions that are used in language description, and the use of these terms must be based on some likeness between the languages. But their exact value has to be determined for each language, since no languages are exactly the same (Dixon, 2010a).

When describing a language, the goal is to be as precise as possible. In BLT, this goal can be reached by using a natural language, say English or French, when describing a given phenomenon. The terminology of BLT is conservative, and labels like predicate, noun, adjective and so forth are employed. By using informal description along with widely known labels, the language descriptions can reach a broad audience. Of course, every label has to be defined for each language, so that the uniqueness of this category in this language is explicitly stated. Dixon (2010a) justifies the use of common labels like this:

No two languages are the exactly the same, in any respect. Although a certain label may be used in description of different languages, it will have a slightly different role in each language. There will, of course, be a common element of meaning and function — which justifies use of the label — but extensions from this are language-particular. (p. 92)

When comparing grammatical terms with the same label between languages, one must always pay attention to the system to which the term belongs, in terms of a holistic view of the grammar. (p. 10)

Haspelmath’s main argument against BLT is that researchers are meant to have knowledge of grammatical concepts before they start their work. It seems as though Haspelmath
views this knowledge of different grammatical concepts as something that might narrow the expectations of the researcher, to the degree that she will expect her language to behave the way the concepts predict. But we might ask whether the knowledge of many different grammatical concepts might actually widen her horizon and prepare her for the fact that the language will not behave exactly like other languages. The most important aspect of BLT is that every language must be described in its own terms, without pre-established concepts of what a language system looks like, and without the researcher being biased by her own language or an influential description of a language that is related to the language she is describing. In this sense, BLT could be the framework-free theory of language that Haspelmath (2010) votes for, something he is open to (see note 5, pp. 360-361).

2.1.1 Phoneme theory and Basic linguistic theory

As we just saw, a language needs to be described in its own terms. This also applies to the phonology of the language, of course. The sounds of a language make up a system, and it is the researcher’s task to describe this system. In this thesis, we will follow Trubetzkoy (1969) when describing the sound system of the Bonke variety of Gamo. The structuralist approach emphasized the need to treat each language as a system of its own, just like BLT. According to Dryer (2001), the phoneme, an important notion in the work of Trubetzkoy, is very important in BLT:

> The concept of the phoneme is probably the most central phonological concept in basic linguistic theory: identifying the phonemes in a language remains the most fundamental task in describing the phonology of a language.

The phoneme is also of significant importance here. In chapter 3 and 4 I establish the phoneme inventories of the Bonke variety of Gamo by the principles outlined in Trubetzkoy’s *Principles of Phonology*.\(^1\) We can define the phoneme as “...the sum of phonologically distinctive relevant properties of a sound” (Trubetzkoy, 1969, p. 36). According to Trubetzkoy, the phoneme is an abstract, theoretical unit, and is defined by its function in the sound system of a language. This function is to distinguish words in the language. Minimal pairs are pairs of words with different meanings which only differ in one phonological element, for example a phoneme, chroneme, or toneme. A phoneme may be realized by different speech sounds, and we will call these realizations *allophones* of a phoneme. A phoneme stands in distinctive opposition to other phonemes in the language. Distinctive oppositions are very important in the phoneme theory of Trubetzkoy.

The phonemes of a language constitute a system. Two languages can have phonemes that are similar to each other, but the value of this phoneme in a given language depends on the phonological system it is a part of. For example, the bilabial plosive /b/ does not

\(^1\)This book was originally published in 1939 under the title *Grundzüge der Phonologie*. 
have the same value in English as it has in Dyirbal. In English /b/ contrasts with /p/, but in Dyirbal there is no such distinction, and /b/ can be pronounced as voiced or unvoiced without changing the meaning of the word (Dixon, 2010a). The value of a phoneme depends on the rest of the phonemes it stands in opposition to. There might be different subsystems for different positions in the word, so that there are some restrictions on which phonemes can stand in which positions.

We also need to establish the phonological content of every phoneme in the phoneme inventory of the language. The phonetic content is “[...] all phonologically distinctive properties of a phoneme, that is, those properties which are common to all variants [allophones (ALT)] of a phoneme and which distinguish it from all other phonemes of the same language, especially from those that are most closely related” (Trubetzkoy, 1969, p. 66).

Dixon (2010a) argues that linguistics is a branch of natural science, where the inductive method is used to establish grammatical structures and rules. When we read the following quote from Trubetzkoy, it could seem like BLT and Trubetzkoy’s approach to phonology are in fact incompatible.

It is the task of phonology to study which differences in sound are related to differences in meaning in a given language, in which way the discriminative elements (or marks) are related to each other, and the rules according to which they may be combined into words and sentences. It is clear that these objectives cannot be attained by the methods of the natural sciences. Rather, phonology must use the same methods as are used in the study of the grammatical system of languages. (Trubetzkoy, 1969, pp. 10-11)

I will argue that they are not incompatible. Trubetzkoy clearly states that the study of phonology needs to combine logical phonological concepts with phonetic concepts: “The phonetic transcription of the particular language must be taken as a point of departure and serve as data, though further study and the study of combinations, are quite independent of phonetics” (Trubetzkoy, 1969, p. 14). According to Trubetzkoy, the methods used in phonetic study are those of natural sciences with observations of physical events.

### 2.2 The first period of fieldwork

The first trip was a four week long stay in Addis Ababa, Ethiopia in October 2014. All the data were collected during interview sessions with one informant, Samuel Gonderie. For practical reasons, the interviews took place at the hotel where I stayed. The interviews were conducted in English, since this was the only language that the informant and I shared. The elicitation method is discussed in section 2.2.2. I recorded all the data in the Praat program using a MacBook (13”, mid 2010) with a built-in microphone. For every recording, each word, phrase, or sentence was repeated twice. Everything was recorded in mono sound.
CHAPTER 2. METHODOLOGY

Each recording was saved as an individual FLAC file. Some words are recorded more than once, due to uncertainties or background noise.

2.2.1 The informant

My informant, Samuel Gonderie, was born in Laakka Godda in 1951 (Ethiopian calendar). Samuel is highly educated and he is currently working on his PhD in linguistics. During the sessions, Samuel proved to be a very patient and cheerful person.

Professor Binyam Sisay Mendisu was the one who put me in contact with Samuel, and for this I am extremely grateful. Samuel was the only Bonke speaking person that I got in touch with during my first trip, but he was kind enough to put me in contact with other Bonke speakers for my second trip.

There are both advantages and disadvantages to having only one informant. The biggest advantage is to exclude different types of variation, for example geographic variation. For this initial part of the research, trying to avoid variation was a priority. I wanted to check if the disagreements regarding consonant inventory, as described in section 4.1, could be due to variation.\(^2\) This does not mean that I was not interested in variation in the Bonke variety. Fortunately, I was able to look into variation on my second trip. The biggest disadvantage of having only one informant is that the data have not been cross-checked with other speakers, and that the results may reflect the speech of a person who is not representative for the speech community. During my second trip to Ethiopia I was able to interview more speakers, so I could test my findings from the first trip.

Having an informant who is a linguist has its advantages and disadvantages as well. A linguist is not a naive speaker, and will most likely have conscious knowledge of his or her own language. With a linguist informant it is possible to have a discussion of the aspects of the language in linguistic terms. This proved valuable when discussing place of articulation, morphology and syntax. If my goal was to describe the grammatical structure of the Bonke variety, having a linguist informant could arguably be a problem. But when the aim is to study the sounds of the language, the problem might not be that great. Another possible disadvantage may be that the linguist informant has his or her own thoughts on what should be the correct analysis of any given problem. There is a risk that the researcher accepts the analysis provided by the informant blindly, but this should not be a big problem if the researcher is aware of this possibility.

During my work with Samuel, I noted his explanations and analyses, but I did not question them directly during the interview. On a number of occasions, he actually spelled the word out for me. Often, this made me realize that there was something I had missed in my first transcription, but some times our analyses did simply disagree.

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\(^2\)This was before Hayward and Chabo (2014) was available to me.
2.2. THE FIRST PERIOD OF FIELDWORK

2.2.2 Elicitation

Given the relative short duration of my stay in Ethiopia, I collected the data by means of elicitation. I presented the informant with a word in English and asked him if he knew of a word with a corresponding meaning in his variety of Gamo. Often, the informant would point to differences in meaning between the English word and the word in the Bonke variety, or he would give me several words with related meanings. For example, when asked for a word for *to dance*, he would ask what kind of dancing I was thinking of, and then he would provide me with three different words and explain the difference between them. When asked for a general name of something, the informant would on several occasions offer additional words for subcategories of the concept in question. In addition to words, I also asked for some simple phrases and sentences that I felt sure would be possible in Bonke. Some of the words I asked for did not have any Bonke counterparts, like a word for ‘hand’.

The elicitation method can be criticized, especially when used to gather data on linguistic structures above the word level. There is a risk that the mediator language may influence the answers that the informants give, which results in unreliable data. But the elicitation method is also valuable in linguistic research, especially when this technique is supplemented with text collection, cf. Chelliah (2001). Yet another problem is the problem of meaning and translation. A word in one language might not have the same meaning as in the other language. I am not sure how big this risk is when eliciting words for the purpose of phonological study, if the translation is accompanied by description and sometimes pictures.

Because this was my first real life encounter with the Bonke variety of Gamo, starting with isolated words seemed like the best point of departure. By starting with words uttered in isolation, I could familiarize my ears with the sound of the language. Another important aspect of getting the words in isolation was to see how gemination and levels of pitch are realized before more morphology was introduced. According to Hayward (1994, 2003) both gemination and high pitch can be subject to change when different suffixes are added to the root or stem of a word. The elicitation method may also facilitate the search for minimal pairs, compared to searching a collection of texts only.

The motivation to use the method of elicitation can be summarized like this: In the initial studies of the sound system of a given language, starting with elicited words uttered in isolation is a good way to get a feel for the language, especially if it is a language that is not familiar to the researcher. By focusing on one word at a time, phonological processes that operate over word boundaries are excluded. This method allows the researcher to gather many different words in a relatively short period of time. A text would likely consist of many repetitions of a number of words, but there is no guarantee that it will include words with, for example, every possible phoneme in word initial position. Some phonemes of the language may be less frequent than others, and sometimes it can be interesting to ask the informant for words including a target phoneme.
2.2.3 Which words to ask for?

There were several factors I had to take into consideration when deciding which words to ask for. First of all, I had to choose words I believed were likely to exist in the given language. I had to imagine the material and cultural context in which the language is situated, or at least I had to remember that the animals and plants that I know, might not be found in the area where the Bonke variety of Gamo is spoken, and that the way of life might be different from the way of life in Norway. This is the reason why I started by asking for the names of body parts. People usually have the same body parts, physically speaking, all over the world, and even though the conceptual borders between different body parts may vary between cultures and languages, it is not unreasonable to expect there to be names for body parts in any given language. A second reason for starting with body parts is that they are easy to point at during an interview.

The practicality of using gestures can also be extended to verbs. Some actions are easier to mimic than others, and mimicking actions can be a great supplement to verbal description when trying to understand the meaning of a word. Yet another technique to help a better understanding of different words was to search the web for images. This was of great help when the informant tried to explain the difference between two types of axes, the red/brown color typical of goats or hairy potatoes. This does not entail that I only asked for words that could be mimicked or that could be represented by pictures.

As mentioned in chapter 1, there is probably more variation within Gamo than the existing literature reflects. For this reason, I wanted to be able to compare my findings with those of Alemayeh Abebe (2002), Jordan (2009) (and Theil (p.c.)), all of which include word lists of some variety of Gamo, to see if I could detect any variation. A lot of words recur in all the cited word lists.

The informant also suggested many words, either because they sounded almost like a word I had asked for, or because they were semantically related to a word we were discussing.

2.3 The second period of fieldwork

My second trip to Ethiopia was in February-March 2015. I stayed for three weeks, two of them in Arba Minch where I collected the data. Arba Minch is located in the Gamo Gofa Zone of the Southern Nations, Nationalities, and Peoples Region of Ethiopia. During my stay in Arba Minch, I had four informants. Three of these were people who Samuel Gonderie had put me in contact with. The last one was someone the booking office of the hotel put me in contact with. When I booked my room, I was asked if I needed a teacher. Of course, I said yes.
2.3. THE SECOND PERIOD OF FIELDWORK

2.3.1 The informants

As already mentioned, I had four informants in Arba Minch. The three persons Samuel Gonderie put me in contact with were Qaydda Qoonna (born in Gazzeso in 1956), Xasewu Kelile (born in Gazzeso in 1955) and Sediqa Sam?e (born in Zalla Dolla in 1948). The Bonke teacher which the hotel put me in contact with was Meles Bue (born in Soddo in 1979). All the years are in the Ethiopian calendar, approximately 7 years behind the Gregorian calendar.

All my informants have been men, and this is of course something to be criticized. My informants do not form a group which is representative for the whole population of the Bonke wereda. The aim of this thesis is to contribute to the description of the phonology of the Bonke variety of Gamo, and I would argue that the description provided here is of value. Further research hopefully includes the women and other age groups.

2.3.2 The interviews

The interview sessions with Qaydda Qoonna, Xasewu Kelile and Sediqa Sam?e were recorded outdoors at the hotel where I stayed, more specifically in the restaurant. Sometimes all three of them were present, sometimes two of them were present, and once I interviewed Qaydda Qoonna alone. To record the sessions, I used the Zoom H4n SP Handy Recorder with an external microphone (AKS C568 EB, with the battery operated phantom power supply AKG B 18). I recorded in WAV 44.1 kHz, 24 bit. The input level was set to 80, and Monomix was on. As a backup recorder, which was on during all the sessions, I used the Zoom H2 Handy Recorder. The quality of the recording was set to WAV 44.1 kHz, 16 bit. On windy days, the mic gain was set to M(edium), but was set to H(igh) when the weather was calm. Luckily the restaurant was calm during our sessions (breakfast was over, and lunch had not started yet).

The first of these sessions was with only Qaydda Qoonna. I asked him to pronounce some words and phrases, so that I could compare this with the data I had collected during my first trip. He was also so kind as to show me how the words were written in the Latin alphabet. The rest of the sessions were devoted to phrases and sentences. I wrote down the phrases and sentences and presented them to the informants during the interviews. These were sometimes written down in English, and sometimes in Gamo. The informants corrected my spelling in Gamo when there were mistakes.

I only had a few sessions where I recorded Meles Bue. Most often when we worked together, he tried to teach me how to speak Gamo. He wrote down the words and sentences that he taught me in my notebook and I noted down a transcription next to them. The Gamo words were written in the Latin alphabet. These sessions often provided me with new material that I later tested in the sessions with my other informants. Meles Bue pushed me to interact with other people in Gamo, and for this I am thankful. Two sessions were recorded with Meles Bue. For the first one I used the same equipment as described for the
other interviews, except that I used a microphone that could be clipped onto the informant’s shirt. The material for this session were some of the words and sentences he had taught me. The second session was recorded with the H4n without any external microphone. The settings were the same as for the other recordings with the H4n. For this session, I asked him for the same things as I had asked the other informants during the last interview session.

My goal for this trip was to test my hypotheses from working with the material I collected during my first trip to Ethiopia, especially with regards to the use of pitch. I had hoped to record a text, but unfortunately I did not get to do this.

The program Praat was used as a supplement to analyze pitch and the duration of segments. Besides this, analysis was carried out in the old-fashioned way by listening, repeating and trying to pronounce correctly.

2.3.3 Problems

The biggest problem with the set of data that I have collected is that it does not contain recordings of naturally occurring language or texts. I had planned to make a recording of one informant telling a story that he had prepared, but plans do not always become reality. This does not mean that there is no non-elicited speech in the Bonke data at hand. During the interviews the informants would sometimes give examples of sentences where a given word was used, or alternative ways of saying something.

Another problem with the data is list intonation. Even though I tried to arrange the sessions to avoid this, I did not always succeed, and some parts of the data are unfortunately marked by this rising intonation at the end of phrases. On the bright side, this provided some data for the remarks on intonation.

2.4 Linguistic fieldwork

What is linguistic fieldwork? And is this thesis the result of linguistic fieldwork? Dixon (2010a, p. 309) gives the following definition of what linguistic fieldwork is:

Going into a community where a language is spoken, collecting data from fluent native speakers, analyzing the data, and providing a comprehensive description, consisting of grammar, texts, and lexicon.

If we adopt Dixon’s definition of linguistic fieldwork, my works doesn’t meet the standards. The interviews were not conducted at the place where the language is spoken, which is approximately one day by car and one day by foot from Addis Ababa. But as pointed out by Hyman (2001a), different linguists may have different definitions of linguistic fieldwork. Dixon’s definition may be representative for what Hyman argues is a prototypic view of

\[3\text{Arba Minch in not in the Bonke wereda either.}\]
linguistic fieldwork. Following Hyman, prototypical features of linguistic fieldwork involve going far away to study an exotic language for a long period of time, or as he puts it: “[...] distance, exoticism, and duration” (Hyman, 2001a, p. 16). All the features of prototypical linguistic fieldwork are gradient. In the eyes of a Norwegian student, the Bonke variety of Gamo is an exotic language, and Ethiopia is far away. This results in a rather high degree of exoticism and distance. But the fact that the sessions took place at a hotel in the city, and not on the countryside, makes the actual field site not that prototypical after all. Hyman also argues that the use of observation is more typical of linguistic fieldwork than elicitation. Also on this point my work deviates from the prototypical way of doing field linguistics.

I will argue that my work should be characterized as linguistic fieldwork, even though it is not a prototypical example of such. To gather the data I had to travel to a different continent, and I stayed for a not insignificant period of time. Even though the interviews were not conducted at the same place as the variety is spoken, being in the same country as the speech community increased the cultural understanding, in my opinion. This heightened sense of cultural and material context sensitivity could not be achieved if the sessions were held outside of Ethiopia.

For Hyman, p. 16, the defining trait of fieldwork is that “the researcher must acquire the linguistic material directly from other speakers”. The data for this thesis were indeed acquired from other speakers.

If we follow Hyman and conclude that a situation of data collection with high degrees of distance, exoticism and duration makes this situation likely to be called linguistic fieldwork, we can conclude that the data for this thesis are a result of linguistic fieldwork. The scope of a Master’s thesis cannot be to produce an adequate description of the whole grammar of a language. It would be virtually impossible to do field linguistics for a Master’s thesis if we embrace Dixon’s definition. This work in particular could perhaps be looked upon as an initial stage of a longer period of linguistic fieldwork, but linguistic fieldwork nevertheless. The results from this fieldwork is presented in the next chapters.
Chapter 3

Vowels

3.1 Earlier descriptions

Hompó (1990), Taylor (1994) and Hayward and Chabo (2014) all state that Gamo has five vowels, and that all of these vowels have phonologically distinct long counterparts, see Table 3.1. Long vowels are represented by double letters in all these descriptions.

Hayward and Chabo operate with three degrees of height: low (/a/), mid (/e/ and /o/) and high (/i/ and /u/). In addition, /i/ and /e/ are classified as palatal, and /u/ and /o/ as round.

<table>
<thead>
<tr>
<th>Table 3.1: Gamo vowels</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
</tr>
<tr>
<td>e</td>
</tr>
<tr>
<td>a</td>
</tr>
</tbody>
</table>

Regarding the pronunciation of the vowels, Hayward and Chabo (2014, p. 23) write: “When short [...] the mid vowels e and o are close to half-open cardinal vowels (IPA [ɛ] and [ɔ])” They claim that the other three vowels have a pronunciation that is close to the corresponding IPA symbol. This is also what we find in Hompó’s transcription of the five short vowels: [i], [ɛ], [a], [ɔ] and [u]. According to Hompó, the long vowels tend to be tenser than the short ones, and for the long non-low vowels the articulation is more closed than for the short non-low vowels. The example given is /ee/ [ɛ]. Both Hómpo and Hayward and Chabo transcribe the low vowel as [a]. According to the International Phonetic Alphabet (IPA), this is the symbol for an open (low) front unrounded vowel. It could be the case that this vowel is front in the variety of Gamo that they have examined, but I will argue that this vowel is central in the Bonke variety of Gamo.
3.1.1 Diphthongs

In the transcribed examples in Hompó (1990) and Taylor (1994), we can see that they both use diphthongs, but neither of these authors discuss the status of diphthongs. Hayward and Chabo (2014) argue for a diphthong analysis and against an analysis with vowel + glide. As we will see in chapter 4, Gamo is analyzed as having two glides or semivowels:\(^1\) /j/ (often written as /y/) and /w/. When the glides occur before vowels, Hayward and Chabo analyze the glides as consonants, since they are non-moraic and function as syllable onset. The problem arises when /i/ and /u/ follow another vowel, a case of postvocalic vocoids in the terms of Hayward and Chabo. The question is whether these should be treated as glides or as vowels. Such postvocalic vocoids are found both in word-medial position before a consonant, and word-finally. Hayward and Chabo argue that they should be analyzed as vowels, and the arguments can be divided into two types depending on the position in the word.

(1) \textit{In word-medial position}

a. Gamo does not permit sequences of more than two consonants.

b. Postvocalic vocoids do not trigger obstruent fortition (see section 4.1.6).

c. Postvocalic vocoids do not occur after long vowels within a single syllable.

The arguments in (1) illustrate that the postvocalic vocoids do not behave like the other consonants. The first point illustrate that the postvocalic vocoids can occur in contexts where no other consonant is found, that is before a consonant cluster. According to Hayward and Chabo’s analysis of consonant clusters in Gamo, consonants in consonant sequences cannot be geminated, because this would result in a sequence of three consonants, e.g., [nsː] = /n/ + /s/ + /s/. Following the postvocalic vocoid, both single and geminated consonants are found. Geminated consonants after a glide would count as three consonants in a row. The second point shows that the postvocalic vocoids do not behave in the same fashion as the sonorants. Following Hayward and Chabo’s analysis, if these vocoids were consonants, they should trigger obstruent fortition, just like other sonorants, but they do not, and we can find both single and geminated obstruents after the vocoid. The third point points to a context where we would expect to find the postvocalic vocoid, had it been a consonant. To explain this, Hayward and Chabo refer to their claim that the nucleus of the syllable cannot contain more than two vocalic morae. In a trimoraic syllable, the final mora must be consonantal.

When the postvocalic vocoid occurs in word-final position, it is often the result of the suffixation of the nominative suffix -i to a noun with a final vowel.\(^2\) This word-final vowel

\(^1\)Hayward and Chabo classify /j/ and /w/ as glides, but I will call them \textit{semivowels} in accordance with Ladefoged and Maddieson (1996) and Dixon (2010a).

\(^2\)Hayward and Chabo (2014) note that in some declinations -i replaces the \textit{terminal vowel} of the ‘absolutive’ form of the noun. I have put quotation marks around \textit{absolutive} because this is an unfortunate term, cf. section 1.3.4.
could be argued to undergo glide formation when it follows another vowel. Again, Hayward and Chabo argue against this glide formation analysis, and the arguments are listed in (2).

(2) In word-final position
   a. Consonant-final words are rare in Gamo.
   b. The word-final vocoids can be tone bearing.

The first argument against the glide formation analysis is that consonant-final words are rare in Gamo. The second argument is that the word-final vocoid can be tone bearing. According to Hayward and Chabo, only vocalic morae can be tone bearing. These arguments lead them to conclude that the postvocalic vocoid is a vowel, and that Gamo has diphthongs:

Preconsonantally there are five possible vocoid sequences, four ending with a high palatal vocoid, and one ending with a high back rounded vocoid, viz. [ei], [oi], [ai], [ui] and [au]. These are interpreted as heavy (bimoraic) sequences - what may be called ‘long diphthongs’. (Hayward and Chabo, 2014, p. 27)

3.2 The vowels of the Bonke variety of Gamo

The vowel inventory of the Bonke variety of Gamo does not diverge from the earlier descriptions mentioned above, with the exception of the central placement of the low vowel. There are five short and five long vowels in Bonke, and they have contrastive function. Diphthongs are discussed later in section 3.3. The vowels are illustrated in Table 3.2. Here they are noted in the phonemic transcription that will be employed throughout this thesis.

<table>
<thead>
<tr>
<th></th>
<th>SHORT</th>
<th>LONG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>front</td>
<td>central</td>
</tr>
<tr>
<td>high</td>
<td>i</td>
<td>u</td>
</tr>
<tr>
<td>mid</td>
<td>e</td>
<td>o</td>
</tr>
<tr>
<td>low</td>
<td>a</td>
<td></td>
</tr>
</tbody>
</table>

The vowel system of the Bonke variety of Gamo can, in Trubetzkoy’s terms, be described as a triangular system. In such a system, all the vowels have distinctive properties based on the degree of aperture, traditionally called height. For the vowels, except the “maximally open” /a/, properties of localization are also distinctive. The properties of localization refer to whether the vowels are front/back or rounded/unrounded. We will not continue to use Trubetzkoy’s terms, and instead adopt the more traditional term height for properties based
on the degree of aperture, and backness and lip rounding for properties of localization. Still, we keep in mind that these traditional terms are not necessarily accurate descriptions of the articulation of vowels (see Ladefoged and Maddieson (1996, ch. 9)). In adopting the notion of height to classify the vowels, we will depart from the IPA tradition of calling the different degrees of height closed, open-mid and open, but we will regard the latter terms and the terms used in Table 3.2 as interchangeable. The reason for departing from the IPA tradition in favor of ‘height’ is due to the fact that this is the term used in Ladefoged (2005) and Ladefoged and Maddieson (1996).

The three different degrees of height (high, mid and low), the dimension of backness (front and back), and length (short and long) are sufficient to explain the phonologically relevant properties of the different vowels, that is, the properties that separate the vowel phonemes from each other. The vowels /a/ and /aa/ differ from all the other vowels by being the only low vowels, and they differ from each other in length. /a/ and /aa/ are not rounded. Length separates all the long vowels from the short ones. Both /e/ and /o/ are mid vowels, but /e/ is front and unrounded, and /o/ is back and rounded. This is also true for the long /ee/ and /oo/. This difference in backness and roundness is also relevant for the distinction between the high vowels /i/ and /u/. /i/ is front and unrounded, and /u/ is back and rounded. Whether it is the front/back dimension or the fact that the vowels are rounded or unrounded that is the phonologically relevant property is not clear, and I have not found any examples that could point me in a specific direction. It could be that the property back is predictable from the property rounded, or it could be the other way around. If there is an answer to this question, I will fail to provide the answer in this thesis. But in any case, it is clear that the /i/ and /u/, and /e/ and /o/ are distinct phonemes in the Bonke variety of Gamo.

3.2.1 Realization

The short and the long vowels have a somewhat different pronunciations. The short vowels are a bit lower or more central then the long ones. The short /a/ is more central than the long /aa/, and the latter is more fronted. In phonetic transcription I will transcribe /a/ as [a] and /aa/ as [aa]. The mid front vowel /ee/ is, in addition to being longer than /e/, also higher than the latter. The long /ee/ will be transcribed phonetically as [e], and /e/ will be transcribed phonetically as [e]. The long /ii/ is also higher than /i/. In addition, the short high front vowel is not as fronted as /ii/. I will therefore transcribe the short vowel using the IPA symbol [i], whereas the long one is transcribed phonetically as [ii]. The long high back vowel /uu/ is higher and more back than the short high back vowel /u/. The IPA symbol I will use for the long /uu/ is [u]. For the short /u/ I will use [u]. The situation for the long mid back vowel /oo/ and the short mid back vowel /o/ is parallel to the situation for /ee/ and /e/. In the case of /oo/ and /o/, we find that /oo/ (IPA [oo]) is higher than /o/
3.2. THE VOWELS OF THE BONKE VARIETY OF GAMO

(IPA [ɔ]). These differences in pronunciation are illustrated in Table 3.3. We can say that the long vowels are pronounced closer to the extremities than the short ones.

Table 3.3: Phonetic transcription of the Bonke vowels

<table>
<thead>
<tr>
<th></th>
<th>SHORT</th>
<th>LONG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>front</td>
<td>central</td>
</tr>
<tr>
<td>high</td>
<td>[i]</td>
<td>[u]</td>
</tr>
<tr>
<td>mid</td>
<td>[ɛ]</td>
<td>[o]</td>
</tr>
<tr>
<td>low</td>
<td>[iː]</td>
<td></td>
</tr>
</tbody>
</table>

Vowels in utterance-final position are sometimes weakened. By this I mean that vowels (with low tone) can be devoiced, or pronounced with creaky or breathy voice (see section 6.7).

3.2.2 Contrastive function

All the short vowels have contrastive function, and substitution of one vowel for another might change the meaning of a word, as illustrated in Table 3.4 and 3.5. This is most apparent in the first syllable of the word, but we will argue that the vowels are distinct phonemes regardless of the position in the word (see also section 3.2.3). The examples in (3) show that all vowels are found in word-medial position. The words in example (4) illustrate that all vowels are also found in word-final position. Examples with the different vowels in the first syllable of the word are found in Table 3.4.

(3) a. /gawarà/ ‘cat’
    b. /؟ililo/ ‘pure honey’
    c. /mats’iné/ ‘salt’
    d. /mo?oró/ ‘crawling insect’
    e. /guts’uné/ ‘worm’

(4) a. /toorá/ ‘spear’
    b. /brádfe/ ‘finger’
    c. /miizi/ ‘cow’
    d. /gaammó/ ‘lion’
    e. /?ússu/ ‘heifer’

In Table 3.5 there are some examples of words where different word-final vowels result in two different meanings.

There are some examples in the Bonke data that could be argued to illustrate that different vowels do not lead to different meaning. In word-final position, the data contain several examples of words that can end in different vowels without this changing the meaning of the word (see example (5)), but we will regard these words as variation.3

---

3 These examples were given to me as alternative ways of saying the same thing. They are, to my knowledge, not examples of words with different case, or different forms of the verb. It is possible that the
### Table 3.4: Vowel quality opposition in the first syllable

<table>
<thead>
<tr>
<th>Vowel</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>/gádde/</td>
<td>‘land’</td>
</tr>
<tr>
<td>/gédde/</td>
<td>‘straight (direction)’</td>
</tr>
<tr>
<td>/sákó/</td>
<td>‘to feel pain’</td>
</tr>
<tr>
<td>/síkó/</td>
<td>‘to sew’</td>
</tr>
<tr>
<td>/ba?á/</td>
<td>‘carrying’</td>
</tr>
<tr>
<td>/bo?á/</td>
<td>‘bald’</td>
</tr>
<tr>
<td>/gál?á/</td>
<td>‘old’</td>
</tr>
<tr>
<td>/gul?á/</td>
<td>‘navel’</td>
</tr>
<tr>
<td>/?érä/</td>
<td>‘knowledge’</td>
</tr>
<tr>
<td>/?írá/</td>
<td>‘to rain’</td>
</tr>
<tr>
<td>/dé?o/</td>
<td>‘to be alive, live’</td>
</tr>
<tr>
<td>/dó?ä/</td>
<td>‘wild animal’</td>
</tr>
<tr>
<td>/není/</td>
<td>‘you.PRON.2SG.NOM’</td>
</tr>
<tr>
<td>/nuni/</td>
<td>‘we.PRON.1PL.NOM’</td>
</tr>
<tr>
<td>/?íjä/</td>
<td>‘brother’</td>
</tr>
<tr>
<td>/?ojä/</td>
<td>‘cow dung’</td>
</tr>
<tr>
<td>/gitä/</td>
<td>‘big’</td>
</tr>
<tr>
<td>/gutä/</td>
<td>‘neighbour’</td>
</tr>
<tr>
<td>/búlla/</td>
<td>‘grey’</td>
</tr>
</tbody>
</table>

### Table 3.5: Vowel quality opposition word-finally

<table>
<thead>
<tr>
<th>Vowel</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>/godaretá/</td>
<td>‘hyena.PL.ACC’</td>
</tr>
<tr>
<td>/godaretí/</td>
<td>‘hyena.PL.NOM’</td>
</tr>
<tr>
<td>/mára/</td>
<td>‘calf’</td>
</tr>
<tr>
<td>/maró/</td>
<td>‘witch, wizard’</td>
</tr>
<tr>
<td>/siik’k’ö/</td>
<td>‘let him love!’</td>
</tr>
<tr>
<td>/siik’k’ú/</td>
<td>‘let her love!’</td>
</tr>
</tbody>
</table>

An alternative pronunciation without the terminal vowel is only observed with words with non-final high tone. A possible counter-evidence to this last claim is that the word /haitssé/ ‘ear, leaf’ can be pronounced without the final vowel: [haitś]. However, this pronunciation is only found when /haitssé/ is the second noun of a composite noun. Compare the two examples in (6). In accordance with the tone analysis in chapter 6, this potential counter-example can be accounted for since the head noun in a composite noun does not have any high tones.

(5) ‘to go’   ‘bee’   ‘tree’
    /buússu/   /mátnsí/   /mítnsi/
    /buússa/   /mátnsä/   /mítnsa/
    /buúss/    /mánts/    /mínts/  

(6) a. /haitssé mînts/ ‘leaf’ + ‘tree’

b. /mînts ñaitté/ ‘tree’ + ‘leaf’

Informants mentioned both the nominative and the accusative form of a noun as citation forms, and that this can explain why both -i and -a are possible.
As we have just seen, vowel quality is distinctive. In the Bonke variety of Gamo vowel quantity is also distinctive, as we can see in Table 3.6.

Table 3.6: Vowel quantity oppositions

<table>
<thead>
<tr>
<th>Sound</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>/pawá/</td>
<td>‘sun’</td>
</tr>
<tr>
<td>/paaa/</td>
<td>‘father’</td>
</tr>
<tr>
<td>/démo/</td>
<td>‘to find’</td>
</tr>
<tr>
<td>/deemo/</td>
<td>‘forehead’</td>
</tr>
<tr>
<td>/píra/</td>
<td>‘rain’</td>
</tr>
<tr>
<td>/pííra/</td>
<td>‘to cut’</td>
</tr>
<tr>
<td>/toko/</td>
<td>‘to plant’</td>
</tr>
<tr>
<td>/tóóko/</td>
<td>‘to carry on head or shoulder’</td>
</tr>
<tr>
<td>/duüge/</td>
<td>‘down (direction)’</td>
</tr>
<tr>
<td>/duüge/</td>
<td>‘heavy (inanimate)’</td>
</tr>
</tbody>
</table>

There is a general pattern in the roots in the Bonke variety. This pattern is that vowels in the root seem to come from one of two groups. The front, unrounded vowels /i/ and /e/ form one group, and the back, rounded vowels /u/ and /o/ form a second group. The central vowel /a/ can be combined with vowels of both groups. All the roots in (3) exhibit this behavior. Table 3.7 provide further examples. Recall that the last vowel in these words is not a part of the root, and is commonly referred to as the terminal vowel. This phenomenon in the Bonke variety of Gamo cannot help us to clarify whether it is the front/back dimension or the rounded/unrounded dimension which is phonologically relevant.

Table 3.7: Illustrations of vowel harmony in roots

<table>
<thead>
<tr>
<th>Front/unrounded + /a/</th>
<th>back/rounded + /a/</th>
</tr>
</thead>
<tbody>
<tr>
<td>/pílakké/ ‘basket with handle’</td>
<td>/wotára/ ‘young stallion’</td>
</tr>
<tr>
<td>/píidémo/ ‘to carry in arms, to hug’</td>
<td>/píhúmo/ ‘dream’</td>
</tr>
<tr>
<td>/ballífo/ ‘testicle’</td>
<td>/butalé/ ‘puppy’</td>
</tr>
</tbody>
</table>

There are a few exceptions to this rule. The words /wodélla/ ‘young (human or domestic animal)’, /?ankopíre/ ‘great-great-great-grandparent’, and /gopína/ ‘lung’ mix vowels from both groups. Words like these are rare in the material. I have no explanation for why these words are divergent. It could be that they are loanwords, or that they have extended stems. Words with extended stems do not exhibit the same restriction on vowels, beyond the root.

### 3.2.3 Distribution

With the exception of /3/, every consonant can occur in the syllable onset position regardless of the vowel quality of the nucleus, that is, there is no restriction regarding which consonants a vowel can follow. Only /e/ and /o/ were found after the single realization of /3/ [3].
Following the affricate realization of /ʒ/ [ʒ], all but /u/ were found. This could be a coincidence, since /ʒ/ is rather rare in the Bonke data.

According to Hayward and Chabo (2014), the front vowels⁴ never occur after /w/, but in the Bonke data, we find /e/ after /w/ in one word: /wéí/ ‘or’, a loan from Amharic wāys, see example (7). This word is transcribed as woí in Hayward and Chabo (2014), and we find the pronunciation [wóí] in the Bonke data as well. Besides the somewhat limited status of /w/, /e/ can occur after all the other consonants.

(7)  *Kaná ekkénáá wéí gawará ekkénáá?

dog take or cat take

‘Do you take (a) dog or (a) cat?’

Hayward and Chabo’s claim about front vowels after /w/ is again weakened by the occurrence of /i/ after /w/ in the feminine definite forms of the word /kawó/ ‘king’, see (8).⁵ The fact that we find examples of /e/ and /i/ following /w/ suggests that Hayward and Chabo’s claim is too strong for the Bonke variety of Gamo, and should perhaps be considered a strong tendency instead.

(8) a. /kawíja/ ‘king.DEF.F.AKK’

b. /kawíjo/ ‘king.DEF.F.NOM’

3.3 Diphthongs

The Bonke variety of Gamo has two semivowels: /j/ and /w/. When these occur in the beginning of a word or between two vowels, they are naturally analyzed as consonants in the onset position of the syllable, like the words in (9). All syllables in the Bonke variety of Gamo have consonantal onset, and it would be surprising to find sequences of as many as four vowels, e.g. */aaio/ ‘mother’. The word */aa.jó/ is composed of two syllables, and /j/ belongs to the second syllable, as indicated by the full stop between syllables. Since it is in the onset position, we will analyze it as a consonant.

(9) a. /joó.to/ ‘to tell’

b. /woón.no/ ‘black and white monkey’

c. */aa.jó/ ‘mother’

d. /ga.wa.rá/ ‘cat’

---

⁴Recall that Hayward and Chabo call the front vowels palatal vowels.

⁵The feminine form of /kawó/ ‘king’ translates into ‘queen’. In other cases, where the word does not denote an animate, the feminine can invoke a diminutive meaning of the word.
3.3. DIPHTHONGS

The difficulty presents itself when a potential semivowel occurs before another consonant or in word-final position. In analyzing these words, we have two possibilities. Either it is a consonant, or it is a vowel. If it is a vowel, the Bonke variety of Gamo has diphthongs. In Table 3.8 the two analyses are presented next to each other. We shall call the two different analyses the **consonant analysis** and the **vowel analysis**.

<table>
<thead>
<tr>
<th>translation</th>
<th>C-analysis</th>
<th>V-analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘four’</td>
<td>‘?ojddá’</td>
<td>‘?oiddá’</td>
</tr>
<tr>
<td>‘grab!’</td>
<td>‘?ójkká’</td>
<td>‘?ókká’</td>
</tr>
<tr>
<td>‘crocodile’</td>
<td>‘hajlafó’</td>
<td>‘hailafó’</td>
</tr>
<tr>
<td>‘tail’</td>
<td>‘goyná’</td>
<td>‘goiná’</td>
</tr>
<tr>
<td>‘eye’</td>
<td>‘?ájpe’</td>
<td>‘?áípe’</td>
</tr>
<tr>
<td>‘lip’</td>
<td>‘mojdo’</td>
<td>‘moiído’</td>
</tr>
<tr>
<td>‘goat’</td>
<td>‘dejffé’</td>
<td>‘deíffé’</td>
</tr>
</tbody>
</table>

If we adopt the consonant analysis, we need to account for an array of consonant clusters where /j/ and /w/ are C₁, that is, the first consonant in the cluster. These consonant clusters are listed in Table 3.9. They follow the same pattern as the other consonant clusters in the Bonke variety of Gamo (see section 4.6), where the normal situation is that a consonant with high sonority is followed by a consonant with lower sonority. This is also the case in these semivowel + consonant clusters. Note that no other consonant cluster can have /l/ or /r/ as C₂, with the potential exception of semivowel + /r/ /l/. This could be argued to be a consequence of the tendency for falling sonority in consonant clusters. The semivowel /j/ is more sonorous than /l/ and /r/, and this is why it can precede these consonants. We could therefore account for the consonant clusters in Table 3.9 in a consonant analysis. In the vowel analysis, these clusters would not be clusters, but consonants preceded by diphthongs. Looking at the possible consonant clusters, both analyses seem plausible.

<table>
<thead>
<tr>
<th>C₁</th>
<th>stop</th>
<th>affricate</th>
<th>fricative</th>
<th>nasal</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>j</td>
<td>jp, jt, jk</td>
<td>jts, jf</td>
<td>js, if</td>
<td>jm, jn</td>
<td>jl, jr</td>
</tr>
<tr>
<td>w</td>
<td>jdf, jk’</td>
<td>jts’</td>
<td>jz</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The realization of the phonemes /p/ and /b/ after the semivowels/vowels does not unam-
biguously provide us with arguments in favor of the consonant analysis or the vowel analysis. We could say that the pronunciation of the word /ʔāípe/ ‘eye’ points towards the vowel analysis. In the discussion of the phoneme /p/ (section 4.3.1), I argue that intervocalic /p/ is realized as [f] or [f']. The word /ʔāípe/ was pronounced as [ʔáífɛ] or [ʔáfɛ] by all of my informants. But the realization of /p/ in these words could very well be conditioned by the semivowel /j/ since the articulation of this consonant is close to the articulation of the vowel /i/. The phoneme /b/ also has an intervocalic allophone [β] (see section 4.3.2). We could expect to find this allophone when /b/ occurs in a similar environment as /p/ in /ʔāípe/. The Bonke data contains one such word: ‘to count’, see (10). This word is only recorded once for one informant, so there is a possibility that other speakers would pronounce it differently. What makes this example relevant, is that we do not find the intervocalic allophone of /b/. This points to the consonant analysis.

(10) ‘to count’
   a. /tájbo/ [tájbo]
   b. /táfbo/ [táfbo]

The above arguments are not strong enough to point us in the direction of either the vowel analysis or the consonant analysis.

It has already been mentioned that we potentially have semivowels in word-final position. Often, this is a situation that arises when the nominative suffix -i is added to a word that ends in a vowel. The Bonke data also contain other words that are not the nominative form of nouns, but still end in a semivowel or a vowel. Examples are shown in Table 3.10.

<table>
<thead>
<tr>
<th>translation</th>
<th>C-analysis</th>
<th>V-analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘rain.NOM’</td>
<td>/ʔiraj/</td>
<td>/ʔirai/</td>
</tr>
<tr>
<td>‘man.NOM’</td>
<td>/ʔáddev/</td>
<td>/ʔáddëj/</td>
</tr>
<tr>
<td>‘lion.NOM’</td>
<td>/gaammój/</td>
<td>/gaammóï/</td>
</tr>
<tr>
<td>‘go.PRS.INT.2SG’</td>
<td>/báj/</td>
<td>/bái/</td>
</tr>
<tr>
<td>‘know.PRS.INT.2SG’</td>
<td>/ʔeraj/</td>
<td>/ʔerai/</td>
</tr>
<tr>
<td>‘or, maybe’</td>
<td>/wój/, /wéj/</td>
<td>/wóï/, /wéï/</td>
</tr>
<tr>
<td>‘what’</td>
<td>/ʔáj/</td>
<td>/ʔáï/</td>
</tr>
</tbody>
</table>

Even though, according to Hayward and Chabo (2014), word-final consonants are not widespread in Gamo, some word forms often end in consonants. Several postpositions or case endings\(^6\) have the form of a consonant, and verbs in diverse declinations also end in

\(^6\)Recall from section 1.3.4 that Hayward and Chabo argue that -n, -s, -ppe, and -ra are postpositions.
3.3. DIPHTHONGS

consonants. Thus, word-final consonants are not unheard of in Gamo, the Bonke variety included. Consequently, we cannot conclude that the consonant analysis of the words in Table 3.10 is wrong solely because they end in a consonant. But there are some forms of the verb that strongly suggest that the vowel analysis is the correct one.

Let us look at a part of the declination of some verbs. These are listed in Table 3.11. The forms we are interested in are the first person singular and the third person feminine singular. These forms end in -ais or -ajs, and -aus or -aws. If we adopt the consonant analysis here, we would have to accept that the Bonke variety of Gamo has word-final consonant clusters, viz. /-js/ and /-ws/. Word-final consonant clusters are not attested in any other words in the Bonke data.\(^7\) Hayward and Chabo (2014) also claim that there are no word-final consonant clusters in Gamo. On the basis of these examples, I adopt the vowel analysis, and argue that the Bonke variety of Gamo has diphthongs. An analysis that includes diphthongs easily explains why the last vowel in the diphthong can be tone bearing, as indicated in Table 3.10.

<table>
<thead>
<tr>
<th>Person</th>
<th>/muussu/</th>
<th>/buussu/</th>
<th>/juussu/</th>
<th>/gelo/</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg</td>
<td>máis</td>
<td>bás</td>
<td>jás</td>
<td>geláis</td>
</tr>
<tr>
<td>3msg</td>
<td>mées</td>
<td>bées</td>
<td>jées</td>
<td>gelées</td>
</tr>
<tr>
<td>3fsg</td>
<td>máus</td>
<td>báus</td>
<td>jáus</td>
<td>geláus</td>
</tr>
<tr>
<td>1pl</td>
<td>móos</td>
<td>bóos</td>
<td>jóos</td>
<td>gelóos</td>
</tr>
</tbody>
</table>

Table 3.11: The present indicative form of some verbs

As we saw in the review of literature on Gamo vowels, Hayward and Chabo (2014) found the diphthongs /ai/, /ei/, /oi/, /ui/ and /au/. These are also found in the Bonke data, but in addition to these, we also find the long diphthongs /aai/ and /ooi/.\(^8\) In the analysis of Hayward and Chabo, diphthongs like these are not supposed to exist, since syllables are not allowed to have three vocalic morae. In (11) we see examples of all the diphthongs. The two last words /naáí/ and /tóóí/ are the only words where the long diphthongs are found. Note that there are alternative forms for both words: /naʔáí/ and /tohóí/. The latter are considered by some of my informants to be “more correct” or the most widespread variant.

(11) a. /taíssa/ ‘mine’
    b. /neíssa/ ‘your’
    c. /nuíssa/ ‘our’

---

\(^7\)I analyze /ts/, /ts’/, /ŋ/, /ŋ’/, /k/ and /k/ as monophonematic affricates, not sequences of a stop and a fricative sibilant.

\(^8\)My use of the term long diphthong is different than the one in Hayward and Chabo (2014). Hayward and Chabo use the term long diphthong to refer to bimoraic diphthongs. I reserve this term for diphthongs that are longer than two vowels.
d. /ʔoiddá/ ‘four’

e. /naáí/ ‘child.NOM’

f. /tóóí/ ‘foot, leg.NOM’

The long diphthongs are not compatible with Hayward and Chabo’s analysis, but I do not think that we would gain anything by claiming that the long diphthongs are long vowels followed by /j/. If we accept the vowel analysis and by extension the diphthongs, the nominative suffix -i would be considered a vowel. If we were to analyze the long diphthongs as long vowels + /j/, we would have to posit a rule where the nominative suffix is a semivowel in only one context, that is, after long vowels. In his analysis of Koorete, Theil (2011) includes long diphthongs as well as short diphthongs, so long diphthongs are not unattested of in Omotic languages. The various diphthongs are listed in Table 3.12.

Table 3.12: Gamo diphthongs

<table>
<thead>
<tr>
<th>SHORT</th>
<th>LONG</th>
</tr>
</thead>
<tbody>
<tr>
<td>ui</td>
<td>ooi</td>
</tr>
<tr>
<td>ei</td>
<td>ai</td>
</tr>
<tr>
<td>oi</td>
<td>aai</td>
</tr>
<tr>
<td>ai</td>
<td></td>
</tr>
<tr>
<td>au</td>
<td></td>
</tr>
</tbody>
</table>

3.4 Summary

The Bonke variety of Gamo has five short vowels, five long vowels, five short diphthongs, and two long diphthongs. The vowels are distinguished by height, and the non-low vowels are in addition separated from each other by being front/not rounded or back/rounded. More data might reveal whether there are long counterparts of all the short diphthongs. Vowel quality and vowel quantity are distinctive. The vowel inventory is the same for all the positions in the word, but we find vowel harmony in roots.
Chapter 4

Consonants

This is the chapter where I discuss the consonant system of the Bonke variety of Gamo and establish the consonant phonemes. The first section is a review of earlier descriptions of Gamo. Then I will continue to the description and analysis of the consonant inventory, followed by looking at all the phonemes. These are grouped into pulmonic and glottalic consonants, and will be described in this order. After the phoneme inventory has been established, we will continue by looking at consonant clusters, gemination, and harmony. A summary is presented at the end of the chapter.

4.1 State of the art

A note to the reader: The authors differ with regard to the transcription convention they use. When discussing the consonants, I will use the corresponding IPA character, instead of adopting the different conventions. So, for example, instead of switching between $s'$, $s'$ and $\hat{t}'$, I will only use $\hat{t}'$. Hompó is the only writer who included the IPA transcriptions in the original chart. In the other charts I have included the IPA symbols that were mentioned in the text alongside the original transcription.

Cited examples are transcribed as they are found in the source.

4.1.1 Hompó (1990)

To my knowledge, the earliest description of Gamo is Hompó’s *Grammatical Relations in Gamo: A Pilot Sketch* from 1990. In Table 4.1 Hompó’s consonant phonemes are repeated, with the IPA transcription as provided in the source.¹

Hompó claims that all the consonants can be geminated, except /r/, /w/, /l/ and /h/. The geminated consonant that corresponds to /p/ and /f/ is the same: [pʰ]. This leads

---

¹There are two occurrences of /s/ in the original, one for [s], and one for [ʃ]. I took the liberty of changing the latter to /ʃ/ in Table 4.1. In the transcribed examples in Hompó’s article /ʃ/ occurs.
Table 4.1: Hompó (1990)'s consonant chart

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>[b]</td>
<td>d</td>
<td>[d]</td>
<td>j</td>
<td>[dʒ]</td>
<td>g</td>
<td>[g]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>[f/φ]</td>
<td>s</td>
<td>[s]</td>
<td>š</td>
<td>[ʃ]</td>
<td>h</td>
<td>[h]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>[m]</td>
<td>n</td>
<td>[n]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>[l]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>[r]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>w</td>
<td>[w]</td>
<td>y</td>
<td>[j]</td>
<td>?</td>
<td>[ʔ]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hompó to question the phoneme status of /f/. /p/ and /f/ might not be phonologically distinct.

4.1.2 Taylor (1994)

In Gamo Syntax from 1994, which is an account of the syntactic structure of Gamo within the framework of Government and Binding, Taylor provides a short overview of the phonology of Gamo. The consonants, or “fully specified segments” that Taylor lists are illustrated in Table 4.2. Those IPA characters that Taylor provides in the text are added to the table.

According to Taylor, /t’/ and /f/ are only found in loan words, hence the brackets in the chart. /d’/ is an implosive, and /s”/, /č’/, /p’/, and /k’/ are ejective. These ejective consonants are described as voiceless glottalized stops. Taylor explains that /p/ is realized as a lightly aspirated plosive, which always undergoes spirantization when it occurs between two vowels. This spirantization is optional for word-initial /p/.

Table 4.2: Taylor (1994)'s consonant chart

<table>
<thead>
<tr>
<th>b</th>
<th>d</th>
<th>z’ [dz]</th>
<th>j [dʒ]</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>t</td>
<td>š’ [ts]</td>
<td>č [tʃ]</td>
<td>k</td>
</tr>
<tr>
<td>p’</td>
<td>(t’)</td>
<td>s” [ts’]</td>
<td>č’ [tʃ’]</td>
<td>k’</td>
</tr>
<tr>
<td>(f)</td>
<td>s</td>
<td>š [ʃ]</td>
<td>h</td>
<td></td>
</tr>
<tr>
<td>d’</td>
<td>[ɗ]</td>
<td>z</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>w</td>
<td>y [j]</td>
<td>?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.1. STATE OF THE ART

4.1.3 Sottile (1999)

A more thorough account and discussion of the consonant system of Gamo is found in The Consonant System of Gamu by Sottile (1999). The material on which this article is based was collected by Marcello Lamberti, and contains 1000 lexemes. Sottile discusses the phoneme status of the different recorded phones in his data material, and he lists many minimal pairs. Gemination and consonant clusters are given some attention. The phones, as presented in the article, are listed in Table 4.3. In the text, Sottile provides IPA transcriptions of some of the elements in Table 4.3, and these are added to the table here. It should be noted that conventionally /y/ is employed for /j/. This is most likely the case in Sottile’s article as well, even though he does not explicitly mention it.

Table 4.3: Sottile (1999)'s consonant chart

<table>
<thead>
<tr>
<th></th>
<th>labial</th>
<th>lab.-dental</th>
<th>alveo-dental</th>
<th>palatal</th>
<th>velar</th>
<th>glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plosive</td>
<td>b</td>
<td>d</td>
<td>g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implosive</td>
<td>p</td>
<td>t</td>
<td>k</td>
<td></td>
<td></td>
<td>?</td>
</tr>
<tr>
<td>Ejective</td>
<td>p’</td>
<td>d’</td>
<td>c’ [tʃ']</td>
<td>k’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affricate</td>
<td></td>
<td>ts’</td>
<td>c [tʃ]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postglottal</td>
<td>m’</td>
<td>n’</td>
<td>l’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative</td>
<td>f</td>
<td>s</td>
<td>sh [ʃ]</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td>r</td>
<td>l</td>
<td>y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glide</td>
<td>w</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sottile sets out to prove the phonemic status of the various phones, and seeks to illustrate the phonological opposition between different sounds. All the phones listed in Table 4.3 are argued to be distinct phonemes. According to Sottile, /p/ varies with /f/ in word-initial position. Between vowels /p/ is most often a geminated sound, or it may alternate with /f/. Still he argues that both sounds should be considered distinct phonemes in Gamo. Sottile claims that the phonological opposition between /p/ and /b/ is only found in word-initial position.

The difference between /d/ and /t/, and /z/ and /s/ is attributed to the difference in pronunciation between voiced and voiceless sounds. Labialization of consonants followed by /o/ is regarded as a phonetic feature.

Sottile claims that the nasals /m/ and /n/ are in phonological opposition, even though he can’t find a minimal pair to illustrate this opposition. Still, he argues, both sounds stand
in opposition to other sounds in Gamo, both in word-initial position and between vowels. He reports that /m/ is more frequent than /n/ in word-initial position. The phonemic status of /l/ and /r/ is more problematic than that of the nasals, according to Sottile. /r/ was only found in word-initial position for one word, ruze, a loan word from Amharic meaning ‘rice’. In contrast, /l/ is common in word-initial position, as well as geminated. Both can appear in consonant clusters. Sottile argues that /r/ and /l/ are not two variants of the same phoneme, but different phonemes.

The phonological status of the affricates is also discussed. Even though /c/ [tʃ] in his data almost always occurs between vowels, and most often as geminated, Sottile regards this as a full phoneme. The ejective counterpart /c'/ [tʃ'] is commonly found in word initial position. /j/ [dʒ] is only found in one loanword from Amharic, namely jammar- ‘to begin’. Sottile writes that the phoneme status of /j/ is yet to be established.

The postglottalized consonants /m'/, /n'/, and /l'/ are not given phoneme status by any other authors. Sottile admits to not finding any minimal pairs showing the opposition between the postglottalized sound and the corresponding sonorant sound.

According to Sottile, all words in Gamo start with a consonant. Words that might seem to start with a vowel, do in fact start with the glottal stop /ʔ/. He notes that the phonological status of /ʔ/ and /h/ is problematic. In some words, these two sounds seem to vary in word-initial position, cf. ṭacci vs. hacci ‘today’, ṭayttse vs. hayttse ‘ear/leaf’, ṭomarse-wode vs. homarsa-wode ‘evening’. According to Sottile, these two sounds stand in phonological opposition to other sounds in Gamo, both in word-initial position and between vowels. The only minimal pair that Sottile found involving /ʔ/ and /h/ was with the sounds in word-initial position: ṭola ‘war’ vs. hola ‘throw!’. Sottile opens up for the possibility that /ʔ/ and /h/ are in fact not distinct phonemes, but phonetic variants of the same phoneme.

Sottile mentions that his data support the sibilant harmony as discussed in Hayward (1988), even though he mentions some exceptions to the rule. He notes that these may be recent loans.

Sottile argues that gemination of consonants is phonologically relevant in Gamo. All but the following consonants were found geminated: /h/, /w/, /ʔ/, /m'/, /n'/, and /l'/.

4.1.4 Hayward and Chabo (2014)

In the grammar section of the recently published Gamo-Amharic-English Dictionary Hayward and Chabo (2014), a whole chapter is devoted to the phonology of Gamo. The consonant inventory presented is repeated below. The sounds /ts'/, /dz/, /z/, /s/, /ʃ/, /j/, /c'/,
and /ʃ/ are in addition classified as sibilants.

According to Hayward and Chabo (2014, p. 22), /d’/ and /p’/ are “largely voiceless and somewhat implosive stops having a markedly laryngealized quality”, giving the IPA characters [ɓ] and [ɗ]. The realization of the plain voiceless stops is aspirated. They argue that the stops could be analyzed phonologically in terms of the three laryngeal features glottalized, aspirated and voiced, and that voicelessness would be redundant for stops. Still, they choose to keep voiceless because this is needed for the classification of the spirants. Sibilants are divided into palatal sibilants and dental sibilants, in their analysis. This distinction is regarded as important, since a root with more than one sibilant can only have sibilants from one of the two groups. This constraint is known as sibilant harmony (see below).

The realization of /p/ depends on the position in the word. We find the voiceless aspirated bilabial stop [pʰ] when /p/ follows a nasal. In other positions the pronunciation is that of a bilabial spirant [ɸ] or a labiodental spirant [f].

### 4.1.5 Harmony

According to Hayward and Chabo (2014), Gamo exhibit sibilant harmony. Sibilant harmony is a phenomenon where the sibilants in a given domain must be from the same group. There are two such groups in Gamo: 1) the dental sibilants, and 2) the palatal sibilant. In the phoneme inventory of Hayward and Chabo, /s/, /z/, /ts/, /ts’/ and /ʃz/ are the dental sibilants, and /ʃ/, /ʃʃ/, /ʃʃ’/, and /ʃʃ’/ are the palatal sibilants. The domain of sibilant harmony in Gamo is the root. Thus, the sibilants in Gamo roots are either dental or palatal. In some Omotic languages the domain for sibilant harmony is the stem, while others again have sibilant harmony beyond the stem (Hayward, 1988).
Another type of harmony is mentioned in Hayward and Chabo (2014), called the stop glottalization harmony. They observe that in all the words starting with an “initial glottalized labial stop”, i.e. the implosives, any other stop in the root will also be glottalized. If the initial consonant is any other glottalized stop, other stops in the root do not need to be glottalized.

### 4.1.6 Consonant clusters

Sottile (1999) points out that alternations between vowel and consonant are more common than consonant clusters in Gamo. He argues that the consonant clusters that do occur are subject to certain restrictions, as listed in (12).

(12) a. Consonant clusters do not contain more than two consonants  
   b. Consonant clusters do not contain any geminated consonants  
   c. The majority of consonant clusters have the structure sonorant + consonant  
   d. Consonant clusters can also have the structure sibilant + consonant, but these are fewer in number

When a nasal is the first member of a consonant cluster, there is a difference in distribution of /m/ and /n/. /m/ occurs before bilabial consonants, like /p/ and /b/, and /n/ occurs before all the other consonants. All the consonant clusters attested by Sottile, as well as those consonant clusters he mentioned he did not find, are listed in Table (4.5).

<table>
<thead>
<tr>
<th></th>
<th>attested</th>
<th>not attested</th>
</tr>
</thead>
<tbody>
<tr>
<td>mp</td>
<td>nt</td>
<td>lb</td>
</tr>
<tr>
<td>mb</td>
<td>nd</td>
<td>ld</td>
</tr>
<tr>
<td>nk</td>
<td>lk’</td>
<td>rb</td>
</tr>
<tr>
<td>ng</td>
<td>lts</td>
<td>rp</td>
</tr>
<tr>
<td>nk’</td>
<td></td>
<td>rt</td>
</tr>
<tr>
<td>nts</td>
<td></td>
<td>rk</td>
</tr>
<tr>
<td>nts’</td>
<td></td>
<td>rs</td>
</tr>
<tr>
<td>ntsf</td>
<td></td>
<td>rf</td>
</tr>
<tr>
<td>nz</td>
<td></td>
<td>rz (loan word)</td>
</tr>
<tr>
<td>ns (loan word)</td>
<td>rts’</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>rk’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>rm (loan word)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>rn (loan word)</td>
</tr>
</tbody>
</table>

Table 4.5: Sottile’s consonant clusters
Hayward and Chabo (2014) also discuss the possible consonant clusters, or *consonant sequences* in their terms, in Gamo. They argue that a consonant sequence can only comprise two members, in other words, no more than two consonants can follow each other. This is taken as an argument in favor of a diphthong analysis as opposed to a vowel + glide analysis. To account for the long obstruents after nasals or /l/, they argue that these obstruents are fortified in this position, and that this is a phonetic mechanism — the obstruents are not geminated after nasals or /l/, they are just phonetically lengthened.

Three word-initial consonant sequences are mentioned: /br-/, /kw-/ and /skr-/. The last two are found in loan words, and the first is found in both a loan word and a not-loan word. Regarding /br-/, they note that “[…] *br* is doubly anomalous; in addition to representing a complex onset, it also displays *r* in a word-initial syllable onset, which is a unique phenomenon […]. Onomatopoeia is well-attested cross-linguistically as disrupting phonological regularity, and this possibility may be the explanation here” (Hayward and Chabo, 2014, p. 36).

It is noted that the consonant sequences in Gamo all respect the sonority hierarchy, but that there has to be some additional restrictions, since not all possible consonant sequences are attested. Also, they suggest that /r/ has higher sonority than the nasals and possibly the other sonorants as well.

### 4.1.7 Gemination

Hompó (1990), Sottile (1999) and Hayward and Chabo (2014) all state that gemination is phonologically relevant in Gamo, and that almost every consonant can be geminated. Hompó claims that the following consonants do not have geminated counterparts: /r/, /w/, /ʔ/, and /h/. Sottile reports that /h/, /w/, /ʔ/, /m′/, /n′/, and /l′/ cannot geminate, and that /r/ and /dz/ only do so in one word each. In the case of /r/, this is in a loan word. The geminated /dz/ occurs in *heedza* ‘three’. He also claims to have found geminated /f/, as mentioned above. Hayward and Chabo also specify which consonants that do not geminate. These are /h/, /r/, /ʔ/, /w/, /n/ and possibly /dz/ with the exception of *heedzā* ‘three’. All the authors agree that /h/ and /w/ does not geminate.

Hayward (2003) discusses gemination in Gamo. He notes that the infinitive2 and the finite form of a verb may differ in the length of the stem-final consonant. This variation is claimed to be lexically determined. The alternation does not apply to verbs whose stems have a geminated consonant or a heterosegmental consonant sequence in word-medial position. In addition, Hayward claims that obstruents after /n/ or /r/ differ from other consonant clusters in allowing the obstruent to be geminated. In this analysis, consonant clusters with /n/ or /r/ + obstruent seem to be regarded as sequences of three consonants. As we saw in the previous section, this analysis is not continued in Hayward and Chabo (2014).

---

2The infinitive is analyzed as a verbal noun in Hayward and Chabo (2014). These forms add -o to the verb root. High tone is always found on the root, not on the final -o.
An important focus in Hayward (2003) is the restrictions on distribution of geminates in Gamo: Consecutive gemination seems to be disallowed. Hayward reports that there is never more than one geminated consonant in a simple stem. For derived stems, there can be several occurrences of geminated consonants, as long as these are separated from each other by a simple consonant. Some derivational morphemes (or *formatives* in Hayward’s terms) display alternating realization depending on the presence or absence of gemination in the stem. Examples are the passive suffix *-ett* and the causative suffix *-iss*. If any of these suffixes are added to a stem with only single consonants, or with a heterosegmental consonant cluster, the suffix will surface with its gemination intact, and the simple stem will not display any change. If these suffixes are combined, only the last one will have a geminated consonant, as illustrated in Table 4.6. When one of these suffixes is added to a stem with a geminated consonant stem-finally, the gemination in the simple stem will be no longer, and the only geminated consonant is that of the suffix. Should two of these suffixes be added to such a stem, only the suffix closest to the simple stem will lose its gemination, resulting in two, noncontiguous occurrences of geminated consonants.

Table 4.6: *Gemination with -ett and -iss* From Hayward (2003, p. 251)

<table>
<thead>
<tr>
<th>Simple stem</th>
<th>Passive</th>
<th>Causative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>simple stem + -ett</td>
<td>simple stem + -iss</td>
</tr>
<tr>
<td>'sprinkle'</td>
<td>d’ač’-ees</td>
<td>d’ač’ett-ees</td>
</tr>
<tr>
<td>‘cross, traverse’</td>
<td>kanš-ees</td>
<td>kanšett-ees</td>
</tr>
<tr>
<td>‘slap’</td>
<td>bak’k’-ees</td>
<td>bak’ett-ees</td>
</tr>
</tbody>
</table>

Reciprocal

<table>
<thead>
<tr>
<th>Passive</th>
<th>Causative</th>
<th>Reciprocal causative</th>
</tr>
</thead>
<tbody>
<tr>
<td>passive stem + -ett</td>
<td>causative stem + -iss</td>
<td>reciprocal stem + -iss</td>
</tr>
<tr>
<td>'sprinkle'</td>
<td>d’ač’eteet-ida</td>
<td>d’ač’isiss-ees</td>
</tr>
<tr>
<td>‘cross, traverse’</td>
<td>kanšetett-ida</td>
<td>kanšisiss-ees</td>
</tr>
<tr>
<td>‘slap’</td>
<td>bak’etett-ida</td>
<td>bak’isiss-ees</td>
</tr>
</tbody>
</table>

The constraints on gemination in inflectional suffixes or clitics is somewhat different. Three examples in Table 4.7 illustrate this. The examples are taken from Hayward (2003, pp. 252-253). According to Hayward the suffix *-opp* expresses the negative imperative, whereas the postposition *-ppe* can be translated to ‘from, than’. What we observe is that the gemination in the suffix or the postposition will lose to the gemination in the stem. Note that the suffix or the postposition will also be lost if there is a consonant cluster in the stem. Gemination in the stem is not influenced by consonant clusters, so that both a consonant cluster and a geminated consonant can occur in the same stem.

According to Hayward these phenomena could be analyzed as two processes; a process
of leftward degemination for derived stems, and a process of rightward degemination for inflection and clitics. But in this article, Hayward adopts a constraint-based approach, and tries to explain the situation in terms of the Optimality Theory (OT). In this analysis, there are three constraints that are proposed to account for the restricted distribution of geminated consonants in Gamo. ONE-GEMINATE disallows more than one moraic consonant (geminate) in the stem. NO-CLASH $\mu$-$c$ disfavors contiguous moraic consonants. Finally, ALING R, C$|\theta$ requires that moraic consonants align with the edge of the stem. Of these constraints, ONE-GEMINATE is ranked higher than ALING R, C$|\theta$, which again is ranked higher than NO-CLASH $\mu$-$c$. In addition to these constraint, Hayward operates with a few faithfulness constraints. MAX-$\mu$-$c$ is there to preserve the consonant weight in the output. DEP-$\mu$-$c$ disallows epenthesis of moraic consonants. If the output does not preserve the single consonant in the input, the output will violate DEP-$\mu$-$c$. Finally, MAX-c disallows cluster simplification.

Below I have reproduced two of Hayward’s tableaux, one that illustrates the stem-internal restriction, and one that illustrates the restriction on inflection and postpositions after a stem with a geminated consonant. In Table 4.8 we find the verb bak’etett-ida ‘they slapped each other’. The first output has the most severe violation because it has two geminated consonants in the stem. The winning output violates MAX-$\mu$-$c$ twice because two of the geminated consonants in the input are simplified.

```
<table>
<thead>
<tr>
<th>bak’k’etett-ida</th>
<th>DEP-$\mu$-$c$</th>
<th>MAX-$c$</th>
<th>ONE-GEM</th>
<th>ALING R</th>
<th>NO-CLASH</th>
<th>MAX-$\mu$-$c$</th>
</tr>
</thead>
<tbody>
<tr>
<td>bak’k’etett-ida</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* bak’etett-ida</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td>**</td>
</tr>
</tbody>
</table>
```

In Table 4.9 we have the noun keess’-pe-ikka ‘even from/than a house’. -ikka expresses inclusive (‘even’) according to Hayward. This example illustrates how the gemination in
inflection and clitics is preserved in the rightmost element. The two first outputs violate ALING R because the gemination is not on the rightmost element. The winning output only violates MAX–µ–C once.

Table 4.9: OT-tableau for keešša-pe-ikka ‘even from/than a house’

<table>
<thead>
<tr>
<th>keešša-ppe-ikka</th>
<th>DEP–µ–C</th>
<th>MAX–C</th>
<th>ONE–GEM</th>
<th>ALING R</th>
<th>NO–CLASH</th>
<th>MAX–µ–C</th>
</tr>
</thead>
<tbody>
<tr>
<td>keešš-ppe-ika</td>
<td></td>
<td></td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>keeššappeika</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>keeššapeikka</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

The insights from this analysis is included in Hayward and Chabo (2014).

4.1.8 Summary

By comparing the individual descriptions of Gamo, we observe that the similarities in the proposed consonant inventories are bigger than the differences. The similarities are illustrated in Table 4.10. The indications of place and manner of articulation are only meant to be general summaries, and should not be taken to be representative for the individual accounts described above. The consonants in Table 4.10 and Table 4.11 are represented by IPA symbols.

Table 4.10: What is agreed upon?

<table>
<thead>
<tr>
<th></th>
<th>lab.</th>
<th>dent./alv.</th>
<th>pal.</th>
<th>vel.</th>
<th>glott.</th>
</tr>
</thead>
<tbody>
<tr>
<td>plosive</td>
<td>p</td>
<td>t</td>
<td>k</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b</td>
<td>d</td>
<td>g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fricative</td>
<td>s</td>
<td>f</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>z</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nasal</td>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>liquid</td>
<td>r</td>
<td>l</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>glide</td>
<td>w</td>
<td>j</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>affricate</td>
<td>ts</td>
<td>f</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ts’</td>
<td>f’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>implosive</td>
<td>cf</td>
<td></td>
<td></td>
<td></td>
<td>k’</td>
</tr>
</tbody>
</table>
The differences are listed in Table 4.11, together with the authors who include them in their own description. A name in parentheses indicates that the author mentions some restrictions for this particular consonant, either that it is only found in loanwords or that the phoneme status is questionable. The differences in the consonant inventory could in theory be attributed to a difference in varieties of Gamo, but all of the above mentioned accounts have had the same main informant (cf. Hayward and Chabo, 2014, p. 5). This informant was born in the highlands of Chencha which is “[…] universally acknowledged as the main urban centre of Gamo population” (Hayward and Chabo, 2014, p. 6). This variety is claimed to be understood by speakers of other lects of Gamo, even though someone who only speaks this variety might not understand all the other lects.

Table 4.11: What is not agreed upon?

<table>
<thead>
<tr>
<th>phoneme</th>
<th>present in these descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ďz</td>
<td>Taylor, Sottile, Hayward</td>
</tr>
<tr>
<td>ďg</td>
<td>Hompó, Taylor, Hayward</td>
</tr>
<tr>
<td>p’</td>
<td>Taylor, Sottile</td>
</tr>
<tr>
<td>ĕ</td>
<td>Hompó, Hayward</td>
</tr>
<tr>
<td>f</td>
<td>Sottile, (Hompó, Taylor)</td>
</tr>
<tr>
<td>ā</td>
<td>Hayward</td>
</tr>
<tr>
<td>t’</td>
<td>(Taylor)</td>
</tr>
<tr>
<td>m’</td>
<td>Sottile</td>
</tr>
<tr>
<td>n’</td>
<td>Sottile</td>
</tr>
<tr>
<td>l’</td>
<td>Sottile</td>
</tr>
</tbody>
</table>

4.2 The consonants of the Bonke variety of Gamo

The Bonke variety of Gamo has 25 consonantal phonemes.\(^3\) These are presented in Table 4.12. In this section I will give a condensed presentation of all these phonemes. In the following discussion I will divide the consonants into two groups, one for the pulmonic consonants, and one for the glottalic consonants. Each phoneme will be described and discussed, and oppositions between different phonemes will be illustrated in the appropriate contexts. Almost all the consonants can appear in word-initial position, between vowels, geminated and in a consonant cluster. The exceptions will be mentioned under the appropriate phoneme. A few phonemes can also appear word-finally. A non-geminated consonant will be referred to as single.

\(^3\)If we include ĕ there will be 26 consonantal phonemes.
Table 4.12 does not specify anything more than the active articulator and the laryngeal setting for the pulmonic consonant. The glottalic consonants are grouped together under the heading *glottalic*, without any further subclassifications. The manner of articulation is not included because there are phonemes whose allophones differ in manner of articulation. The consonants produced with the tip or the blade of the tongue are grouped together as *coronals*, and I argue that other properties like the passive articulator and manner of articulation are sufficient to distinguish the coronals. The pulmonic consonants are classified as voiced or voiceless. The latter term will be discussed in relation to aspiration. The details of this classification is presented below.

<table>
<thead>
<tr>
<th></th>
<th>labial</th>
<th>coronal</th>
<th>dorsal</th>
<th>unspecified</th>
</tr>
</thead>
<tbody>
<tr>
<td>voiceless</td>
<td>p</td>
<td>t</td>
<td>s</td>
<td>tf</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ts</td>
<td>k</td>
<td>h</td>
</tr>
<tr>
<td>voiced</td>
<td>b</td>
<td>d</td>
<td>z</td>
<td>g</td>
</tr>
<tr>
<td></td>
<td>m</td>
<td>n</td>
<td>r</td>
<td></td>
</tr>
<tr>
<td></td>
<td>w</td>
<td>l</td>
<td>j</td>
<td></td>
</tr>
<tr>
<td>glottalic</td>
<td>6</td>
<td>d</td>
<td>ts'</td>
<td>k'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>?</td>
</tr>
</tbody>
</table>

The phonemes /s/, /ʃ/, /z/, /ʃz/, /ts/, /ts'/, /ʃ'/, and /ʃ'/ form the class of *sibilants*. The phonemes in this class behave in similar ways that distinguish them from other consonants.

### 4.3 Pulmonic consonants

There are 19 pulmonic consonants in the Bonke variety of Gamo.\(^4\) These are all produced with the pulmonic egressive airstream mechanism. All but two of the pulmonic consonants are oral consonants. The two nasals are /m/ and /n/. What separates the pulmonic consonants is the place and manner of articulation, as well as the configuration of the vocal folds, i.e. the laryngeal setting.

The fact that the articulation of some consonants is influenced by the succeeding vowel is considered non-distinctive, phonetic variation. An example is the rounding of the lips for consonants followed by back/rounded vowels. The presence of /i/ can also influence the articulation of the preceding consonant, that is, influencing the consonant so that is

\(^4\)This number can be raised to 20 if the palatal nasal [n̥] is analyzed as a distinct phoneme. We will not take this consonant into consideration before the section on nasals.
it palatalized. These mechanisms are illustrated by the two phonetic rules in (13). These details will not be noted in the phonetic transcription, unless it is relevant for the discussion.

(13) a. $C > C^w / \_ /u, o/$
   b. $C > C^j / \_ /i/$

4.3.1 /p/

The realizations of /p/ all have the lower lip as the active articulator. Two of the allophones have labio-labial articulation, and one has labio-dental articulation.\(^5\) When /p/ is geminated or occurs in a consonant cluster, it is always realized as an labio-labial aspirated stop [pʰ]. By *consonant cluster* I refer to a sequence of two distinct consonant phonemes within a word. This allophone of /p/ is frequently found in utterance-initial position, as well.

(14) a. /pará/ ‘horse’ [pʰärá]
   b. /léppa/ ‘slow’ [léppʰä]
   c. /górho/ ‘massage, rub’ [góρpʰο]

Between vowels we find two different realizations of /p/: the voiceless labio-labial fricative [ϕ] and the voiceless labio-dental fricative [f]. These two realizations seem to be in free variation for the speakers, even though some of my informants did seem to favor one over the other.

(15) a. /kapó/ ‘bird’ [kʰäfɔ] or [kʰäfɔ]
   b. /?páipe/ ‘eye’ [ʔáiϕe] or [ʔáϕe]

In utterance-initial position [pʰ] seems to be in free variation for some of the informants, but the allophone [f] does not occur in the speech of all the informants. Indeed, for one of the informants [f] was never recorded, and [ϕ] was only found between vowels. This informant pronounced the word /parän̯a/ ‘foreigner’ as [pʰäɾäɲą]. One of the other informants had an initial [f] in his pronunciation of the same word: [färäɲą]. This same informant also varied how he pronounced the word /pirípitɔ/ ‘butterfly’, cf. (16).

(16) /pirípitɔsa/ ‘butterfly’ as pronounced by one informant
   a. [fiɾifìtɔsɔ]
   b. [pirifìtɔsɔ]
   c. [fiɾifìtɔsɔ]

---

\(^5\)I use the term *labio-labial* instead of *bilabial*. I have chosen use hyphenated terms that specify both the active and the passive articulator. I did not want to make an exception to this rule.
When a word with a word-initial /p/ follows a word ending in a vowel, the realization of /p/ can be either of the three allophones: [pʰ], [f] or [φ]. Notice the different pronunciations of *pará* ‘horse’ in (14) and (17). This variation is present at the level of the individual speaker.

(17) a. /masará para/ ‘colorful horse’ [másárä färä]
   b. /lóʔo péʔâdi/ ‘good afternoon’ [lóʔo pʰɛʔâdʰi] or [lóʔo φɛʔâdʰi] or [lóʔo fɛʔâdʰi]

On the basis of the examples above I conclude that [f] is an allophone of /p/ in the Bonke variety of Gamo, alongside [pʰ] and [φ]. The allophones of /p/ share the active articulator and the fact that they are voiceless. The manner of articulation is not the same for all the allophones, even though they are all obstruents. One is a stop, while the two others are fricatives. Since the phoneme is the sum of phonologically relevant properties, manner of articulation cannot be a phonologically relevant property of /p/.

The examples above illustrate the distribution of /p/. When /p/ is non-geminated, it can appear word-initially, between vowels and in consonant clusters. Geminated /p/ can only occur in word-medial position. In consonant clusters /p/ is always the last of the two consonants. The data contain the following consonant clusters: /-mp-/, /-rp-/ and /-sp-/.

Consonant cluster are discussed in section 4.6.

### 4.3.2 /b/

/b/ is the voiced counterpart of /p/. There are two possible realizations of /b/, and their distribution can be compared to those of /p/. Utterance-initial, when geminated and in consonant clusters, /b/ is realized as a labio-labial voiced stop: [b]. This is exemplified in (18).

(18) a. /bollá/ ‘body, on (prep)’ [bollá]
   b. /ʔabbá/ ‘lake’ [ʔabbâ]
   c. /bábbo/ ‘to fear’ [bábbo]
   d. /gálba/ ‘skin, hide’ [gálbâ]
   e. /brádfé/ ‘finger’ [brádfé]

The realization of /b/ between vowels is realized as a labio-labial voiced approximant [β].

The Bonke data does not contain any labio-dental realizations. A word-initial /b/ occurring after a word ending in a vowel can be realized as [b] or [β]. The two pronunciations seem to be in free variation in this position, also in the speech of one single individual. The /b/ of

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6This consonant is not produced with turbulent airstream, a defining property of fricatives according to Ladefoged and Maddieson (1996). See Martínez-Celdrán (2004) for a discussion regarding the classification of this consonant as an approximant.
4.3. PULMONIC CONSONANTS

the consonant clusters is always realized as [b], also when it follows a vowel. This indicates that [β] only occurs between vowels. Both the allophones of /b/ are bilabial and voiced. Since they do not have the same manner of articulation, this will not be a defining part of the phoneme /b/. Furthermore, we cannot classify /b/ as an obstruent, since one of the allophones is an approximant. All the realizations of /b/ are illustrated in (19).

(19) a. /bábo/ ‘fear’ [báβo]
    b. /liblíbo/ ‘bat’ [liblíbo]
    c. /tóó bolla τutettsi/ ‘sit on the foot (squat)’ [tóó follá ṭutettsi]
    d. /keettsá bolla/ ‘on (the) house’ [kêettsá bollá]
    e. /giddó bradde/ ‘middle finger’ [giddó bradde]

No words with final /b/ have been recorded, but this is quite typical for the consonants of Bonke. The recorded consonant clusters are /lb/, /bl/ and the word-initial cluster /br-. Word-initial consonant clusters are very rare, and will be further discussed in section 4.6.

As we have seen, the realizations of /p/ and /b/ can occur in almost exactly the same environments, with the exception of which consonants they can combine with in consonant clusters. This leads me to conclude that they are different phonemes in the Bonke variety. To further illustrate this, using a near minimal pair, I will show that the substitution of one for the other actually has a distinctive function, i.e., the meaning of the word changes, see (20).

(20) a. /puúso/ ‘to drizzle’ [puusó]
    b. /buússu/ ‘to go’ [buússu]

The two phonemes /p/ and /b/ stand in distinctive opposition. Since both phonemes are labial, the phonological property that distinguishes them is the difference between voiceless and voiced. Manner of articulation is not relevant, since manner of articulation is not a part of the phonologically significant properties of the phoneme.

4.3.3 /t/

/t/ is realized as an aspirated and voiceless apico-alveolar stop [tʰ], regardless of position in the word. We find /t/ in word-initial position, between vowels and in consonant clusters. When /t/ appears in a consonant cluster, it is always as the second consonant. The observed clusters are /nt/, /rt/, /lt/, and /st/. Geminated /t/ was only found between vowels. Examples of all these positions are found in (21).
CHAPTER 4. CONSONANTS

4.3.4 /d/

/d/ is realized as a voiced apico-alveolar stop [d], and this is the voiced counterpart of /t/. This realization was found in all positions: word-initially, between vowels both simple and geminated, and in consonant clusters. The recorded consonant clusters are /rd/, /nd/, and /dr/.

(22) a. /duússu/ ‘to live, exist’ [duóssu]
   b. /dadá/ ‘thunder’ [dädá]
   c. /ʔaddé/ ‘man, male’ [ʔäddé]
   d. /ʔórde/ ‘thick (for humans)’ [ʔórde]
   e. /ʔindó/ ‘female, woman’ [ʔindð]
   f. /wódra/ ‘inside of thigh’ [wódræ]

Both /t/ and /d/ share the same place and manner of articulation, and they have similar distribution. Together with the fact that there is a minimal pair illustrating that /t/ and /d/ are distinctive, we conclude that the Bonke variety has a phoneme /t/ and a phoneme /d/.

(23) a. /tuússu/ ‘pillar’ [tʰuóssu]
   b. /duússu/ ‘to exist, live’ [duóssu]

4.3.5 /k/

/k/ is always realized as a stop. The realizations are produced with the tongue body as the active articulator. Depending on the vowel that follows, the passive articulator can be the velum or the hard palate. The target for the closure between the tongue and the roof of the mouth is further back for back/round vowels than for front vowels. The realizations are therefore dorso-velar or dorso-palatal. /k/ is aspirated in all positions: [kʰ]. We find /k/ in
4.3. PULMONIC CONSONANTS

word-initial position, between vowels, and in consonant clusters /kr-/, /nk/, /rk/, and /sk/. It is also possible for /k/ to be geminated between vowels.

(24) a. /kútto/ ‘chicken (gen. name)’ [kóttʰo]
    b. /krínno/ ‘to hit with elbow’ [kʰrínno]
    c. /gáko/ ‘to arrive’ [gákʰo]
    d. /zókko/ ‘back (bodypart), bridge’ [zókkʰo]
    e. /jankáto/ ‘to hunt’ [jánkʰató]

4.3.6 /g/

There are many similarities between the realization of /k/ and /g/. /g/ is also realized as a stop where the body of the tongue is raised and touches the roof of the mouth. Depending on the succeeding vowel, the realizations are either dorso-velar or dorso-palatal. The difference in passive articulator is not considered to be phonologically relevant. In contrast to /k/, the realizations of /g/ are always voiced. We will use the IPA character [g] to symbolize these realizations. /g/ is found in word-initial position and between vowels, as well as geminated. In the consonant clusters found in the Bonke data /g/ is always the second consonant. The clusters that were found are /ng/, /rg/, /lg/, and /zg/.

(25) a. /godaré/ ‘hyena’ [godáré]
    b. /dúge/ ‘down’ [dógɛ]
    c. /maggúlo/ ‘to dance (with stick)’ [mággołə]
    d. /bánga/ ‘barley’ [báŋgə]
    e. /hárgo/ ‘to be sick’ [hárgo]
    f. /balgó/ ‘winter, rainy season’ [bálgɔ]
    g. /pézgo/ ‘to listen’ [pézgo]

/k/ and /g/ are the only dorsal stops in the Bonke variety, except for the ejective stop /k’, which will be discussed in section 4.4.2. The semivowel /j/ is also dorsal, so the manner of articulation is a phonologically relevant property for /k/ and /g/. Consequently, with /k/ and /g/ are distinguished from all the other pulmonic consonants by being dorsal stops. The property that separate the two are whether they are voiced or voiceless/aspirated. In the discussion on /k’, we will compare all the three dorsal stops.
4.3.7 /h/

/h/ differs from the other consonants discussed so far, because the realization of this phoneme does not involve any closing or narrowing of the vocal tract. /h/ is often classified as a fricative, but the noise produced when articulating this sound is not made by letting the air out through a narrow passage. /h/ is an atypical member of the consonant group. From a phonetic point of view [h] can be compared to vowels (cf. Ladefoged and Maddieson, 1996). I will, however, group /h/ together with the consonants because it functions like a consonant in the Bonke variety. /h/ is asyllabic and is found in word-initial position and between vowels. I use the IPA character [h] to represent this sound. Ladefoged and Maddieson (1996) suggest that [h] (and [ɦ]) could be specified for laryngeal setting only. Here I will regard /h/ as unspecified for active articulator. /h/ in the Bonke variety is realized as an aspirated consonant word-initially [h], but between vowels it will be voiced [ɦ]. The voiced realization of /h/ is due to the fact that it is surrounded by voiced elements. The voicing is merely phonetic, and does not have phonological significance.

As already mentioned, /h/ can appear word-initially and between vowels - it is always in the onset position in a syllable. The data contain no examples of geminated /h/ or any consonant clusters containing this phoneme.

(26) a. /haré/ ‘donkey’ [hârê]
   b. /méhe/ ‘domestic animal’ [mêfê]

We can observe an interesting variation with regard to /h/. Some words have two possible pronunciations: one with /h/ and one without /h/ but with /ʔ/ instead, as illustrated in Table 4.13. This type of variation was also mentioned by Sottile (1999), who proposes an analysis where /h/ alternates with /ʔ/. As we can see in the last example in Table 4.13, there is an example of a disyllabic word with /h/ in the onset position of the second syllable alternating with a monosyllabic word where the /h/ is not present.

<table>
<thead>
<tr>
<th>Table 4.13: Alternation between [h] and [ʔ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>/hínteni/</td>
</tr>
<tr>
<td>/hósppuna/</td>
</tr>
<tr>
<td>/tóho/</td>
</tr>
</tbody>
</table>

The word /hínteni/ ‘you.3PL.NOM’ is interesting. Some of my informants were not consistent in their pronunciation of this word, and they pronounced it sometimes as [ʔínteni] and sometimes as [hínteni]. The other informants used one variant consistently, at least when they

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7 According to my informants, /méhe/ does not include cats or dogs, because you don’t eat them or sell them. They are /sóó mehe/ ‘home animals’, because they live in people’s homes.
were recorded. This might weaken the phoneme analysis of /h/ in the Bonke variety, but we do find words where the choice between /h/ and another consonant affects the meaning of a word, see Table 4.14.

Table 4.14: Minimal and near minimal pair

<table>
<thead>
<tr>
<th>Bonke</th>
<th>translation</th>
<th>Bonke</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>/héé/</td>
<td>‘there, close to listener’</td>
<td>/?ée/</td>
<td>‘yes’</td>
</tr>
<tr>
<td>/hééra/</td>
<td>‘area, place’</td>
<td>/?éra/</td>
<td>‘knowledge, someone wise’</td>
</tr>
<tr>
<td>/haissí/</td>
<td>‘this.M.NOM’</td>
<td>/?áissí/</td>
<td>‘why 1’</td>
</tr>
<tr>
<td>/hessí/</td>
<td>‘that.M.NOM’</td>
<td>/?éassi/</td>
<td>‘honey’</td>
</tr>
<tr>
<td>/hái/k’o/</td>
<td>‘death’</td>
<td>/dái/k’o/</td>
<td>‘to throw with a sling’</td>
</tr>
<tr>
<td>/hanná/</td>
<td>‘this.F.NOM’</td>
<td>/ganná/</td>
<td>‘backside of neck’</td>
</tr>
<tr>
<td>/hó?o/</td>
<td>‘warm, hot’</td>
<td>/ló?o/</td>
<td>‘good’</td>
</tr>
<tr>
<td>/hánk’o/</td>
<td>‘anger’</td>
<td>/mánk’o/</td>
<td>‘poor’</td>
</tr>
<tr>
<td>/háré/</td>
<td>‘donkey’</td>
<td>/maré/</td>
<td>‘honey with beewax’</td>
</tr>
<tr>
<td>/héégo/</td>
<td>‘light (weight)’</td>
<td>/meegó/</td>
<td>‘cold’</td>
</tr>
<tr>
<td>/háá/</td>
<td>‘here’</td>
<td>/naá/</td>
<td>‘child, person’</td>
</tr>
<tr>
<td>/hái/k’o/</td>
<td>‘death’</td>
<td>/wái/k’o/</td>
<td>‘to whistle’</td>
</tr>
<tr>
<td>/haré/</td>
<td>‘donkey’</td>
<td>/záre/</td>
<td>‘tribe’</td>
</tr>
<tr>
<td>/?ého/</td>
<td>‘to bring’</td>
<td>/?éko/</td>
<td>‘to take, to marry (for men)’</td>
</tr>
<tr>
<td>/?éra/</td>
<td>‘to bring’</td>
<td>/?eró/</td>
<td>‘okay’</td>
</tr>
<tr>
<td>/tóho/</td>
<td>‘foot, leg’</td>
<td>/tóko/</td>
<td>‘to plant’</td>
</tr>
</tbody>
</table>

Unfortunately, none of the examples in Table 4.14 can prove that it is the presence of /h/ in word-initial position that changes the lexical meaning of a word. There is a possibility that these /h/ initial words have an alternative pronunciation with /ʔ/ that went unnoticed during the fieldwork. The first example, /héé/ vs. /?ée/, could have illustrated that [h] and [ʔ] were in distinctive opposition, had it not been for the difference in tone. Likewise for /hééra/ vs. /?éra/. As we saw in chapter 3, vowel length is distinctive in the Bonke variety, so this does not give us a good example of the distinctive function of /h/ in word-initial position either. The last three examples in Table 4.14 illustrate that /h/ has a distinctive function in word-medial position. To summarize, an analysis where /h/ has phoneme status is supported by the fact that the realization of this phoneme stands in a distinctive opposition to other phonemes in word-medial position. When we look at the word-initial position, the phoneme status of /h/ seems more uncertain. But both [h] and [ʔ] stand in opposition to many of the other consonants, also in word-initial position. Some examples of minimal pairs showing that /h/ and /ʔ/ stand in distinctive opposition to the same three phonemes are given in Table 4.15.
Minimal pairs as the ones in Table 4.15 as well as the distinctive function in word-medial position leads me to conclude that /h/ and /ʔ/ are distinct phonemes in the Bonke variety. Ultimately, more research is needed to confirm or reject this analysis. The variation between /h/ and /ʔ/ in word-initial position is also a phenomenon that should receive more attention in the future.

4.3.8 /s/

/s/ is realized as a lamino-alveolar voiceless fricative, and I will represent this sound by the IPA character [s]. As already mentioned, any difference in the configuration of the lips during the pronunciation of this consonant is attributed to phonetic change according to the following vowel. We find /s/ in word-initial position, between vowels, in consonant clusters, and in word-final position. The consonant can also occur as geminated between vowels and in consonant clusters. The word-final /s/ can be analyzed as a dative marker, see section 1.3.4.

/s/ can be the first or the second consonant in a consonant cluster. With /s/ as C₁, the consonant clusters /sp/, /sk/, and /st/ have been registered. The consonants that can precede /s/ are /r/ and /n/.

(27) a. /sóó/ ‘home’ [sóó]
   b. /masará/ ‘colorful’ [mäsārā]
   c. /súússa/ ‘rope made from false banana’ [suússä]
   d. /disko/ ‘to sleep’ [dīskɔ̞]
   e. /gawaras/ ‘to (the) cat’ [gāwarās]

The phoneme status of all the sibilants will be discussed in section 4.3.16 after all of the sibilants have been accounted for.

8I was not able to precisely place the passive articulator for this consonant. It might be lamino-dentalveolar.
4.3.9 /z/

/z/ is the voiced counterpart of /s/. The realizations of /z/ are produced as lamino-alveolar fricatives (IPA [z]). The allophones of /z/ can be rounded or not rounded, depending on the following vowel, just as for /s/, but this is not phonologically relevant. /z/ appears in word-initial position and between vowels. The only recorded consonant cluster containing /z/ is /zg/, see (28). Only a few instances of geminated /z/ were recorded, and one word has an alternative pronunciation involving the affricate [dz] (see section 4.3.14). As we will see in the discussion of the affricate [dz], /z/ might have an affricate realization in other positions as well. A final analysis is presented in section 4.3.16.

(28) a. /zókko/ ‘back, bridge’ [zókkʰɔ]
   b. /miízi/ ‘cow’ [míizi]
   c. /ʔuzzó/ ‘gimmer, ewe lamb’ [ʔuzzɔ]
   d. /gazzá/ ‘colorful (for cattle)’ [ɡäßɔ]
   e. /mazzé/ ‘type of false banana 6’ [mäßɛ]
   f. /ʔézgo/ ‘to listen’ [ʔézɡɔ]

4.3.10 /ʃ/

We will use the IPA symbol [ʃ] to represent the realizations of /ʃ/. The realization of /ʃ/ is like that of /s/ in being a laminal voiceless fricative. The difference in articulation that results in the acoustic differences could be that the passive articulator is further back for [ʃ] than for [s]. I will tentatively describe this sound as a voiceless lamino-palatal fricative.

Since the palatography during the fieldwork did not work out, the only non-sound related indications of the passive articulator are accounts of informants trying to describe and show where in their mouth the tongue touches the roof of their mouth.

The distribution of /ʃ/ is similar to that of /s/. We find the former in word-initial position, between vowels, and in one consonant cluster: /rʃ/. /ʃ/ can also be geminated. An instance of word-final /ʃ/ was also recorded, cf. the last word in (29). This word was also found with a word-final /i/. See section 3.2.2 for an account of this phenomenon.

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9It is also possible that the difference can be attributed to the size of the passage where the air passes through, or the configuration of the tongue itself, cf. Ladefoged and Maddieson (1996).

10The following example suggest that the passive articulator is this far back: [ʔɔdɒtʃɛl] ‘colorful (combination of black and white for horses)’. It seems like the palatalization of /l/ is conditioned by the following affricate. It could be argued that the IPA symbol c should be used instead of ʃ, but I choose to stick with the more common ʃ. The classification of the phoneme /ʃ/ as palatal or perhaps postalveolar does not have severe consequences for the consonant system as it is analyzed here.
The phoneme status of /š/ is not as certain as that of /ʃ/. The sound that we might analyze as the realization of this phoneme is the voiced counterpart of /ʃ/, that is a voiced lamino-palatal fricative, and we will represent it by the IPA symbol [ʒ]. To my knowledge, this sound has not been given independent status in any other work on Gamo. Its distribution is quite limited, and an exhaustive list of the recorded examples is given in (30). This sound was only found between vowels, and gemination never occurs, at least not in this material.

The main problem with analyzing this sound as a distinct phoneme is that it sometimes alternated with the affricate [ʣ]. The word for ‘big wasp’ is pronounced as [hâže] by some informants, and as [hâʤe] by others. One informant varied his pronunciation of ‘bad’ between [dôʤä] and [dôʤä]. The word for ‘spoiled potato, false banana’ could be a variant for the same word ‘bad’. I found no similar variation for the word for ‘seed from tree used as toy’. The variation, together with the very limited distribution, leads us to question the validity of operating with two distinct phonemes /ʒ/ and /ʣ/. The discussion continues in section 4.3.15 and 4.3.16.

4.3.12 /ts/

The phoneme /ts/ is realized as an aspirated, voiceless affricate, and I will represent the realizations of this phoneme as [tʃ]. An affricate is a monophonematic sound where the articulation starts as a plosive, and ends as a fricative. This affricate is lamino-alveolar. According to Hayward and Chabo (2014, p. 38), this affricate is never found in word-initial position. Sottile (1999, p. 431) mentions one occurrence of word-initial [ts], but add that this might well be a mispronunciation. I have recorded two words with word-initial [ts]. The
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word for ‘spur (claw-like outgrowth on the leg of chickens)’ was produced with the initial aspirated affricate [ts] by more than one informant, so it is doubtful that this is a case of mispronunciation. Still, the possibility of /ts/ in word-initial position is at best very limited. Contrary to this, we often find /ts/ between vowels and in consonant clusters. We find it both single and geminated in these positions. /ts/ is always C₂ in a consonant cluster (more on this in section 4.7). Geminated /ts/ will be transcribed as /ttʃ/.

(31) a. /tsohé/ or /tsóke/ ‘spur’ [tʃʰəhɛ] or [tʃʰəkʰɛ]
    b. /tsɪko/ ‘to pick off hair from local hairy potato’ [tʃʰɪkʰo]
    c. /lipítsó/ ‘to kick with side of foot, to kick someone’s ass’ [lipítsʰɔ]
    d. /pirípɪttʃ ‘butterfly’ [pirípɪttʃʰ]
    e. /máttʃ ‘bee’ [máttʃʰ]
    f. /kútsatsé/ ‘small, narrow basket’ [kʰɔrtsʰáttʃɛ]
    g. /síbumbnuttʃa/ ‘eyebrow, eyelash’ [síbumbnuttʃʰá]

The examples /máttʃ ‘bee’ and /pirípɪttʃ ‘butterfly’ illustrate that the affricate might be word-final. These words are also found with a word-final vowel. One informant denied the possibility of having a vowel in word-final position for the word ‘butterfly’, others had an /i/ or an /a/ in this position.

4.3.13 /ttʃ/

The difference in articulation between the realizations of /ts/ and /ttʃ/ are similar to those discussed for /s/ and /ʃ/. The phoneme /ttʃ/ is realized as an aspirated, voiceless lamino-palatal affricate, which will be transcribed phonetically as [ttʃʰ]. The distribution of this phoneme is very similar to that of /ts/. Hayward and Chabo (2014) claim that /ttʃ/ is never found in word-initial position. The Bonke data contain one example of a word-initial /ttʃ/, see (32). With the exception of this word /ttʃ/ can occur between vowels and in consonant clusters. In consonant clusters it is always the last of the two. We find both single and geminated /ttʃ/ between vowels, but the Bonke data does not contain any examples of geminated /ttʃ/ in a consonant cluster.

(32) a. /ttʃóóʃe/ ‘cutting using a blunt knife’ [ttʃʰóóʃe]
    b. /k’áʃfo/ ‘to tie’ [k’áʃфɔ]
    c. /mttfó/ ‘sister’ [mttfʰɔ]
    d. /ʃank’ántʃa/ ‘hunter’ [ʃank’ántʃʰá]
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4.3.14  [dz]

We will use the IPA symbol [dz] to represent the voiced lamino-alveolar affricate recorded in the Bonke variety of Gamo. No words with this sound in word-initial position are present in the data material. Earlier accounts have pointed out that the only stable realization of [dz], that is, where no alternative pronunciation with [z] is possible, is the word /heeddá/ ‘three’. This is also true for my material. The phoneme status of /dz/ is thus questionable. It could very well be that this is an alternative realization of geminated /z/. Some words where only the affricate pronunciation was recorded are listed in example (33). Examples of words with alternating pronunciation are given in (34). Notice that all these examples involve words with geminated /z/. This could indicate that [dz] is an alternative realization of geminated /z/. This discussion is continued in section 4.3.16 below.

(33)  a.  [heeddá] ‘three’
     b.  [phédz] ‘traditional short (for men only)’
     c.  [ʔeddó] ‘wheel used by shepherds for play and practice’

(34)  a.  [ʔózz] and [ʔódz] ‘gimmer, ewe lamb’
     b.  [bánzz] and [bándz] ‘bad, difficult’
     c.  [dónnz] and [dóndz] ‘adult’

4.3.15  [dʒ]

The difference in articulation between this voiced lamino-palatal affricate [dʒ] and the above-mentioned voiced lamino-alveolar affricate [dz] is parallel to the difference between /z/ vs. /ʒ/, /s/ vs. /ʃ/ and /su/ vs. /ʃu/. One word with the affricate /dʒ/ in word-initial position was found, but this is most likely a loan, arguably from English: /dʒuúse/ ‘juice’. If we exclude this example, the distribution of [dʒ] is exclusively between vowels or in word-medial consonant clusters. In these positions, we find both single and geminated versions of the consonant.

(35)  a.  [dʒuúse] ‘juice’
     b.  [kʰorádʒ] ‘bag’
     c.  [gódʒ] ‘to add’
     d.  [ʔádʒádʒ] ‘type of disease’
     e.  [wáddʒá] ‘type of big house’
     f.  [ʔándʒ] ‘to bless, thank’
4.3. PULMONIC CONSONANTS

4.3.16 The phoneme status of the fricatives and affricates

From the discussion above it should be clear that the phoneme status of the fricatives and affricates is somewhat problematic, especially for the voiced ones.

**Table 4.16: Near minimal pairs: pulmonic sibilants**

<table>
<thead>
<tr>
<th></th>
<th>/šíko/ ‘to sew’</th>
<th>/há řík’á/ ‘close to me!’</th>
</tr>
</thead>
<tbody>
<tr>
<td>s:j</td>
<td>/šóó/ ‘home’</td>
<td>/jóóre/ ‘river’</td>
</tr>
<tr>
<td></td>
<td>/ʔasá/ ‘person, man’</td>
<td>/ʔiʃá/ ‘brother’</td>
</tr>
<tr>
<td></td>
<td>/dorssé/ ‘sheep’</td>
<td>/darʃʃo/ ‘young male sheep’</td>
</tr>
<tr>
<td>s:z</td>
<td>/súgo/ ‘to push’</td>
<td>/zugé/ ‘bamboo stick used in game’</td>
</tr>
<tr>
<td></td>
<td>/suulé/ ‘shin’</td>
<td>/zuullá/ ‘rainbow’</td>
</tr>
<tr>
<td></td>
<td>/ʔússu/ ‘heifer’</td>
<td>/ʔúzzo/ , /ʔúddzo/ ‘gimmer, ewe lamb’</td>
</tr>
<tr>
<td></td>
<td>/muússu/ ‘to eat’</td>
<td>/muúże/ ‘banana’</td>
</tr>
<tr>
<td></td>
<td>/báis/ ‘go.PRS.1SG’</td>
<td>/báʃo/ ‘to sell’</td>
</tr>
<tr>
<td>s:ts</td>
<td>/ʔéessa/ ‘honey’</td>
<td>/ʔéétsá mittši/ ‘firewood’</td>
</tr>
<tr>
<td></td>
<td>/guússu/ ‘to say’</td>
<td>/guútsu/ ‘small, few’</td>
</tr>
<tr>
<td></td>
<td>/suússu/ ‘rope’</td>
<td>/suútsu/ ‘blood’</td>
</tr>
<tr>
<td>z:j</td>
<td>/ʔíza/ ‘he.ACC’</td>
<td>/ʔiʃá/ ‘brother’</td>
</tr>
<tr>
<td>f:tf</td>
<td>/darʃʃo/ ‘young male sheep’</td>
<td>/dártʃo/ ‘to spread’</td>
</tr>
<tr>
<td></td>
<td>/goʃʃe/ ‘farming’</td>
<td>/gútʃe/ ‘feather for headdress’</td>
</tr>
<tr>
<td>ts:ʃf</td>
<td>/guútsu/ ‘small, few’</td>
<td>/goɔʃo/ ‘to drag’</td>
</tr>
<tr>
<td></td>
<td>/keetše/ ‘house’</td>
<td>/kéetʃe/ ‘big basket’</td>
</tr>
</tbody>
</table>

---

11. This type of stick is apparently used in a game played while riding horses.
12. This type of rope is made from false banana.
Due to the fact that [s] and [ʃ] can appear in the same positions in a word, together with the near minimal pairs listed in table 4.16, I will argue that the consonant system of Bonke has a phoneme /s/ and a phoneme /ʃ/. Although the distribution of [z] is not the same as for these two fricatives, we still find it in a distinctive opposition to the voiceless fricatives, so it seems that there is also a phoneme /z/ in Bonke, at least when it is single. We have already seen that [z] may alternate with [ʣ] when /z/ is geminated, either between vowels or in a consonant cluster. That a geminated consonant can be realized as an affricate is attested in the Omotic language Kafa (Theil, 2007), and regarding Koorete, another Omotic language, Theil (2011, p. 284) gives the following description of the realization of the sibilants:

The pulmonic sibilants s z f ñ are realized as the affricates [ts ʣ ʧ ʤ] after a nasal (n) or a liquid (r 1), and as [s z f ñ] elsewhere. Word initially, ñ varies freely between the fricative [ñ] and the affricate [ʧ].

In the Bonke data, [ʣ] is always geminated, regardless of whether it follows the nasal /n/ or if it occurs between vowels. Geminated /z/ is rare, and after the nasal /n/ it can alternate with the affricate [ʣ], as illustrated in (34).

The data do not contain any consonant clusters with single [z] or [ʣ] as C₂, so we cannot know if a single /z/ after a nasal (if such a combination exists) can be realized as an affricate, or if it is only geminated /z/ that has the alternative realization [ʣ]. However, the distribution of [z] and [ʣ] is overlapping, with the exception that only [z] can occur word-initially. We will conclude that there is a phoneme /z/ in the Bonke variety of Gamo, and that this phoneme is realized as [z] when it is not geminated, and as [zz] or [ʣ] when it is geminated. Consequently, [ʣ] is not given phoneme status.

A similar analysis can be formulated for the palatal sibilants as well. It should be noted that the behavior of [ʤ] is not exactly parallel to that of [ʣ]. As we saw in (36), [ʤ] can alternate with a single [ʒ]. The distribution of [ʤ] is wider than that of [ʒ], and [ʤ] can occur in every position where a single [ʒ] can stand, but also in positions where we do not find any single [ʒ], namely word initially (a loanword) and as the second member of a consonant cluster. We have one example of [ʒ] in a consonant cluster, but here it is the first member of the cluster. None of the other affricates are known to occupy this position. Although [ʒ] and [ʤ] have overlapping distribution, this alternation indicates that they might be allophones, or optionally phonetic variants, of the same phoneme. I propose that Bonke has the phoneme /ʒ/, whose single (non-geminated) realization is optionally [ʒ] or [ʤ] between vowels. Before the glottal stop /ʔ/, the realization is always [ʒ]. In consonant clusters where /ʒ/ is the second consonants, or when it is geminated, it is realized as the affricate [ʧ].

The arguments for positing /z/ as a phoneme at the expense of /ʣ/ seems reasonable when we look at the distributional pattern. This argument based on the distributional pattern does not support choosing [ʒ] over [ʤ] to represent the phoneme, but in doing this we arrive at a symmetric sibilant system with two voiceless and two voiced sibilants.
The voiceless fricative sibilant /s/ has a similar distribution as the affricate sibilant /ts/. This, together with the distinctive function illustrated in Table 4.3.16 support the analysis of these two as distinct phonemes in the Bonke variety of Gamo. The same can also be said for /ʃ/ and /tʃ/. The conclusion is that the Bonke variety has two pulmonic voiceless affricate phonemes. The voiced affricates are allophones of the two voiced sibilants /z/ and /ʒ/.

4.3.17 Nasals

I will argue that there are two separate nasal phonemes in the Bonke variety. These are /m/ and /n/. In word-initial position and between vowels /m/ is realized as a labio-labial nasal: [m]. The realization of /n/ in the same two positions is an apico-dental nasal: [n]. As illustrated in Table 4.17, substituting /m/ for /n/ in a word can result in a difference of meaning. Both nasals can be geminated, and both of them can form a consonant cluster with another consonant.

<table>
<thead>
<tr>
<th>Table 4.17: Near minimal pairs /m/ vs. /n/</th>
</tr>
</thead>
<tbody>
<tr>
<td>/tana/ ‘I.ACC’</td>
</tr>
<tr>
<td>/muússu/ ‘to eat’</td>
</tr>
<tr>
<td>/nam?á/ ‘two’</td>
</tr>
</tbody>
</table>

In consonant clusters where the first consonant is a nasal, we find several allophonic variants of the nasals, depending on the nature of the second consonant in the cluster. Examples are presented in Table 4.18. If the second consonant is the labio-labial [pʰ], the nasal is the labio-labial [m]. When the second consonant is a dental or alveolar consonant, we find that the nasal is pronounced as [n]. When the second consonant is palatal, the nasal is pronounced as [ɲ]. Finally, when the second consonant is dorso-velar or dorso-palatal, the nasal is realized as [ŋ]. This begs the question of whether there actually are two different nasal phonemes in Bonke.

<table>
<thead>
<tr>
<th>Table 4.18: Consonant clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₁  C₂</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>m  p</td>
</tr>
<tr>
<td>n  t</td>
</tr>
<tr>
<td>n  ʃ</td>
</tr>
<tr>
<td>n  g</td>
</tr>
</tbody>
</table>
One could argue that the difference between /m/ and /n/ is neutralized in consonant clusters, and that we are dealing with an archiphoneme N which is unspecified for place of articulation, and that the different realizations are the result of the articulation of the second consonant in the cluster. But this analysis does not account for the possibility of having both /n/ and /m/ before /ʔ/ in consonant clusters (see Table 4.19).

Table 4.19: /m/ and /n/ followed by a glottal stop

<table>
<thead>
<tr>
<th></th>
<th>m</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>/gámʔo/ ‘later’</td>
<td>/k’únʔa/ ‘very big basket’</td>
<td></td>
</tr>
<tr>
<td>/namʔá/ ‘two’</td>
<td>/k’anʔé ‘breakfast’</td>
<td></td>
</tr>
<tr>
<td>/gúmʔo/ ‘to squeeze’</td>
<td>/zínʔo/ ‘to lie for a long time’</td>
<td></td>
</tr>
</tbody>
</table>

The examples in (37) illustrate that the presence of the glottal stop can affect the meaning of words.

(37) a. /gámʔo/ ‘later’
    b. /gamó/ ‘Gamo’
    c. /gaammó/ ‘lion’

The fact that /m/ and /n/ contrast before the glottal stop /ʔ/ suggests that the difference between the two consonants is not neutralized in all types of consonant clusters. The neutralization takes place when the second consonant in the cluster is specified for articulation. The glottal stop is not specified for anything else than laryngeal setting, and cannot trigger neutralization. Therefore, we will conclude that there are two distinct nasal phonemes in Bonke. In consonant clusters where the nasal is C₁, and C₂ is specified for place of articulation, then we can observe neutralization. This neutralization was in a few cases registered to occur across a word boundary.

(38) a. /ʔápʔuŋ k’àmmá/ ‘how many days?’ [ʔápʰuŋ k’àmmá]
    b. /ʔabbán bóos/ ‘we are going to the lake’ [ʔābbām bóos]

In the current data, /m/ is the only nasal that can be the second member of a consonant cluster. In this consonant cluster, there is no neutralization.

(39) /gormóte/ ‘evil-eyed person’ [ɡərmóte]  

Of the few consonants to occur in word-final position we find both /m/ and /n/. The word /tamma/ ‘ten’ can be pronounced as in /laáppun tam/ ‘seventy’. In the case of /n/,
the numerals in dependent form end in a consonant, like /tamman laappuna/ ‘seventeen’, and there is the case marker or clitic -n, as in /?abbá-n bás/ ‘I’m going to the lake’.

The nasal [n] was only recorded in one word where its presence could not be explained by neutralization in a consonant cluster. This word is [zábánya] ‘security guard’. This word is a loan from Amharic zäbänya ‘guard’, and this could explain the recorded pronunciation.¹³

4.3.18 /r/

/r/ is classified as a liquid. The main realization of /r/ is a voiced apico-alveolar flap: [ɾ].¹⁴ In some positions, for some informants, the realization gets more “intense”, and a sound almost like a voiced apico-alveolar trill (IPA [r]) is observed.¹⁵ This last realization is most often found in consonant clusters where /r/ is C₁ and C₂ is not a sibilant. This trill-like realization is somewhat longer than the flap, even though the duration of both are shorter than that of the other consonants.

A word cannot begin with a word-initial /r/. However, three word-initial consonant clusters with /r/ have been detected in the data. To my knowledge, none of these words have been mentioned in the literature as examples of words with more than one consonant in the word-initial position. The cluster /br-/ is discussed in Hayward and Chabo (2014, p. 36), but for other words. The word for ‘finger’ has been reported as biradjde. The majority of my informants pronounced this word with the initial cluster, one of these with the trill-like realization of /r/. The initial consonant clusters /kr-/ and /dr-/ were always pronounced as clusters, without any intervening vowel. /dríbe/ ‘double cockscomb’ is a loan from Amharic.

(40) a. bradjde ‘finger’ [bradjde]
   b. krímono ‘to hit with the elbow’ [kʰrímono]
   c. dríbe ‘double cockscomb’ (loan from Amharic) [dríbe]

In word-medial consonant clusters /r/ has been recorded as C₂ in one word: /wódra/ ‘inside of thigh (also a euphemism for the pubic area)’. With a reversed order, with /r/ as C₁, more consonant combinations are possible. We can find /r/ + stop, /r/ + fricative, /r/ + pulmonic affricate, /r/ + nasal, and /r/ + ejective. The possibilities are exemplified in Table 4.20. In the column Occurrence the number of different words with the consonant cluster is counted. Words with the same root are only counted once.

¹³I was told that there is a difference in Gamo between n and n. The recognition of this difference might be aided by the fact that there is one letter to represent n, and one letter to represent ŋ in the Gamo alphabet.
¹⁴The label flap is preferred over tap because of the retraction of the tip of the tongue during articulation.
¹⁵This could be an influence of Amharic. All my informants spoke Amharic.
### Table 4.20: Consonant clusters: \(r + C\)

<table>
<thead>
<tr>
<th>(C_1)</th>
<th>(C_2)</th>
<th>Example</th>
<th>Translation</th>
<th>Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>(r)</td>
<td>(p)</td>
<td>/gópó/</td>
<td>‘to rub’</td>
<td>1</td>
</tr>
<tr>
<td>(r)</td>
<td>(t)</td>
<td>/burtukááne mala/</td>
<td>‘orange (color)’</td>
<td>2</td>
</tr>
<tr>
<td>(r)</td>
<td>(k)</td>
<td>/márkka/</td>
<td>‘witness’</td>
<td>7 (4 in inflection)</td>
</tr>
<tr>
<td>(r)</td>
<td>(g)</td>
<td>/hárgo/</td>
<td>‘to be sick’</td>
<td>2</td>
</tr>
<tr>
<td>(r)</td>
<td>(s)</td>
<td>/parssó/</td>
<td>‘local non-alcoholic beer’</td>
<td>13</td>
</tr>
<tr>
<td>(r)</td>
<td>(ts)</td>
<td>/kurtatsé/</td>
<td>‘small narrow basket’</td>
<td>1</td>
</tr>
<tr>
<td>(r)</td>
<td>(m)</td>
<td>/gormóté/</td>
<td>‘evil-eyed person’</td>
<td>1</td>
</tr>
<tr>
<td>(r)</td>
<td>(f)</td>
<td>/mettérřřa/</td>
<td>‘lower lip’</td>
<td>3</td>
</tr>
<tr>
<td>(r)</td>
<td>(ts)'</td>
<td>/gártlő/</td>
<td>‘to borrow, lend materials’</td>
<td>4</td>
</tr>
<tr>
<td>(r)</td>
<td>(j)‘</td>
<td>/martjő/</td>
<td>‘farm tool’</td>
<td>2</td>
</tr>
<tr>
<td>(r)</td>
<td>(k)‘</td>
<td>/túrká́/</td>
<td>‘mud’</td>
<td>2</td>
</tr>
</tbody>
</table>

#### 4.3.19 \(/l/\)

\(/l/\) is also classified as a liquid. It has a wider distribution than \(/r/\), and can be found in word-initial position, as well as between vowels and in consonant clusters. We also find clear cases where \(/l/\) is geminated. In the majority of the cases, the realization of \(/l/\) is that of a voiced apico-dental velar lateral (IPA \([l]\)). In two words the realization of \(/l/\) is different. In both these words, \(/l/\) form a consonant cluster with a following pulmonic affricate. The realization of \(/l/\) in these words is palatalized: \([l]\). The words in question are /bólę́/ [bólę́] ‘spoiled potato (not suitable for eating)’ and /ʔodólę́/ [ʔodólę́] ‘combination of black and white (for horses)’. Other consonant clusters with \(/l/\) are \(/lt/, /lb/, /ld/, /lg/, /lk’, and \(/l\t/)\), as well as one occurrence of \(/bl/\). We can see that \(/l/\) can only combine with stops to form consonant clusters.

(41) a. /lágge/ ‘friend’ [lágge]
    b. /butalé/ ‘puppy’ [butählé]
    c. /gudullá/ ‘dust’ [gudullá]
    d. /liblíbo/ ‘bat’ [liblíbo]
    e. /mállo/ ‘sweet’ [mállo]

The different distribution of \(/l/\) and \(/r/\), as well as their relative similarity with regard to articulation, leads us to question whether these two are different allophones of the same phoneme. I will give a negative answer to this question. Even though I cannot find that these two sounds are distinctive in word-initial position (since this position is not possible for \(/r/\)), I can illustrate that \(/l/\) and \(/r/\) are distinctive in other positions, see Table 4.21.
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Table 4.21: Minimal pairs /l/ vs. /r/

| /saló/  | ‘sky’  | /sáro (ak’adi)/ | ‘as in good afternoon’ |
| /mála/  | ‘(birth)mark’ | /mára/  | ‘calf’ |

4.3.20 /w/

The semivowel\(^{16}\) /w/ (IPA [w]) is pronounced by rounding the lips and raising the back of the tongue, without making any closure in the vocal tract. This constriction-free articulation is what earns this sound the name semivowel. In the Bonke variety of Gamo, /w/ functions as a consonant. We find it in word-initial position, and between vowels, and always in the syllable onset. I have yet to find any examples where it is geminated or a member of a consonant cluster.

(42) a. /woónno/ ‘Colobus monkey’ [woónno]
    b. /gawará/ ‘cat’ [gāwārā]
    c. /ʔaawá/ ‘father’ [ʔaawá]

The Bonke variety seems to prefer non-front vowels to follow /w/. Only two examples where /w/ was followed by a front vowel were found: /wéí/ ‘or, maybe’ and /kawíja/ ‘king, DEF.SG.F.NOM’, as mentioned in section 3.2.3.

4.3.21 /j/

Throughout this thesis I use IPA symbols to represent the phonemes and sounds I am discussing. In doing so, I depart from the conventions otherwise used in the literature on Gamo. For the most part, the gap between the IPA symbols and the symbols used in the literature on Gamo and Omotic languages is not that wide, but my use of the symbol /j/ could lead to confusion. When I use /j/, I will refer to a palatal semivowel. In other works, /j/ is used to symbol the affricate [ɖ], while /y/ represents the palatal semivowel (or glide). In written Gamo, /j/ is written as <y>. The reason I do not adopt /y/ is to keep close to the IPA norm, where /y/ represents a high rounded vowel.

The palatal semivowel /j/ is pronounced by raising the front part of the tongue, yet without making a closure. Thus, the air flows freely during the articulation of this sound, much in the same way as for /w/. /j/ was found in word-initial position and between vowels, but only in the onset position of syllables.

---

\(^{16}\)I refer to /w/ and /j/ as semivowels because their articulation is close to that of vowels, yet they function as consonants (cf. Ladefoged and Maddieson, 1996).
(43) a. /joóto/ ‘to tell’ [joóţo]
   b. /majó/ ‘clothing’ [májó]
   c. /ʔújo/ ‘to drink’ [ʔójo]

In the Bonke data, all five vowels, both short and long, can follow /j/. We also find that all the short vowels can precede /j/. The data contain no examples of /ii/ or /uu/ before /j/, but this could be a coincidence.

### 4.4 Glottalic consonants

The class of glottalic consonants comprises the ejectives, the implosives, and the glottal stop. The basis for grouping these sounds together is the importance of the laryngeal movement in the production of these sounds. Except for the glottal stop, a glottal movement is used to pronounce these glottalic consonants. For the ejectives, the glottis is closed and is pushed upwards. This movement compresses the air in the mouth. The ejectives in Bonke are produced with a closure between the tongue and the roof of the mouth, and when this closure is released, it is the compressed air that passes through. This separates the ejectives from the pulmonic stops. For the implosives, the glottal movement is downward. As a result of this downward movement, air is sucked in instead of being pushed out.

#### 4.4.1 /ʔ/

The glottal plosive /ʔ/ is produced by closing the vocal cords. Words that seemingly start with a vowel actually have a word-initial /ʔ/. This becomes clear when a word ending in a consonant is followed by another word with /ʔ/ in the word-initial onset. In these contexts, the vowels of the two words do not make up a long vowel or a diphthong.

Besides occurring in word-initial position, we also find /ʔ/ between vowels and in consonant clusters. When /ʔ/ appears in a consonant cluster, it is always the last consonant. It looks like /ʔ/ can only appear in the syllable onset. This can explain the absence of geminated /ʔ/ in the Bonke data. Hayward and Chabo claim to have found geminated /ʔ/ in their data, for example zaʔʔá ‘crack! imperative singular verb’ (Hayward and Chabo, 2014, p. 23).\footnote{I always kept a notebook on me when I was out and about, and often I met people who spoke and wrote Gamo. Some of these wrote the word /lóʔo/ ‘good’ as <loʔo>, while most of my informants wrote is as <loʔo>. My informants even rejected the possibility of a pronunciation with geminated /ʔ/ for this word. “No, no, no, this is Gofa,” they said.}

(44) a. /ʔiʃá/ ‘brother’ [ʔiʃá]
   b. /kóíro ʔiʃá/ ‘first/oldest brother’ [kʰóíro ʔiʃá]
   c. /boʔá/ ‘bald’ [bɔʔá]
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d. /galʔá miiʃe/ ‘old thing’ [gālʔá miiʃe]

We have already seen in the discussion of /h/ that some words have alternative pronunciations with initial /ʔ/ or /h/. I will not repeat this discussion here. In this analysis, /ʔ/ will be analyzed as a distinct phoneme.\textsuperscript{18}

4.4.2 /k’/

The ejective /k’/ is produced as a stop where there is a closure between the tongue body and the root of the mouth. The exact location of the passive articulator depends on the quality of the following vowel, and it may be palatal or velar. We find /k’/ in all the positions where we otherwise find consonants, except as the first member of a consonant sequence. This position is normally not possible for stops (for exceptions see section 4.6). No word-final /k’/ was found.

\[45\] a. /k’íta/ ‘dirt’ [k’ítʰá]  
b. /sík’o/ ‘to love’ [sík’o]  
c. /bak’ólo/ ‘mule’ [bák’ólo]  
d. /siikk’áis/ ‘love.prs.1sg’ [siik’k’áis]

/k’/ stands in distinctive opposition to both the other dorsal stops in Bonke, namely /k/ and /g/, see Table 4.22. I did not find a perfect minimal pair to illustrate the distinctive opposition between /k’/ and /k/, but both sounds contrast with other consonants in Bonke, and there is nothing in the phonological context that would suggest that some realizations of for example /k/ should be ejective in a particular environment.

<table>
<thead>
<tr>
<th>/k’/ vs. /k/</th>
<th>/k’/ vs. /g/</th>
</tr>
</thead>
<tbody>
<tr>
<td>/k’áala/ ‘word’</td>
<td>/k’áko/ ‘to kick with the sole of the foot’</td>
</tr>
<tr>
<td>/kaaló/ ‘younger’ \textsuperscript{19}</td>
<td>/gáko/ ‘to arrive’</td>
</tr>
<tr>
<td>/ʔék’o/ ‘to stand’</td>
<td>/bálk’o/ ‘to divide in equal parts’</td>
</tr>
<tr>
<td>/ʔeko/ ‘to take, to marry (for men only)’</td>
<td>/balgó/ ‘rainy season’</td>
</tr>
</tbody>
</table>

When listening to words with /k’/ and /k/, one striking difference is the aspiration of /k/ which, naturally, is not present for /k’/. But aspiration alone cannot be the distinctive

\textsuperscript{18}A possible explanation of the alternation between word-initial /ʔ/ and /h/ could be that /h/ is optional in some words, and where this /h/ is not present, a default /ʔ/ takes its place because Bonke words always start with a consonant. By adopting this analysis, we are not forced to analyze /ʔ/ and /h/ as allophones of the same phoneme.

\textsuperscript{19}As in /kaaló ?íja/ ‘younger brother’
property to distinguish the different dorsal plosives in Bonke, since both /k'/ and /g/ are unaspirated. If we include voicedness as a distinctive property as well, we are able to separate /k'/ and /g/.

4.4.3 /ts'/

The ejective apiko-alveolar affricate /ts'/ (IPA [ts']) is both voiceless and unaspirated. This sound is found in word-initial position, between vowels and in consonant clusters, but only as the first member of the cluster. /ts'/ frequently occurs in the word-initial position in the Bonke data. We find both simple and geminated /ts'/ between vowels. /ts'/ is also found in consonant clusters, but not geminated. There is one example of a word-final /ts'/ in the word ‘mosquito bite’ /biíné satts'/. An alternative variant for the noun ‘bite’ is /sátt's'a/.

(46) a. /ts'áβo/ ‘root’ [ts'áβo]
    b. /sáts’o/ ‘to bite’ [sáts’o]
    c. /ts'iits'unntsu/ ‘coal’ [-ts'iits'unntso]
    d. /ʔints’árssi/ ‘tongue’ [ʔints’árssi]

4.4.4 /tʃ'/

The distribution of the ejective lamino-palatal affricate /tʃ'/ is similar to that of /tʃ/. In the Bonke data /tʃ'/ is often in word-initial position, in contrast to its non-ejective counterpart. This is the general pattern. The glottalic affricates are found in word-initial position for several words, while the pulmonic voiceless affricates are only recorded in this position in a few words. We find /tʃ'/ both single and geminated between vowels and in consonant clusters.

(47) a. /tʃ'arkko/ ‘wind’ [tʃ'ærkkhɔ]
    b. /dûtʃ’a/ ‘butt’ [dótʃ'ä]
    c. /mééʧ’e’es/ ‘wash.PRS.3MSG’ [mééʧ’e’es]
    d. /tʃ’ínf’a ‘clever’ [tʃ’ínf’ä]
    e. /dártʃ’o/ ‘to spread (e.g. teff)’ [dártʃ’ɔ]

The examples in Table 4.23 illustrate that the glottalic ejective affricates and the pulmonic voiceless affricates stand in a distinctive opposition.
Table 4.23: Ejective affricate vs. voiceless affricate

<table>
<thead>
<tr>
<th>Ejective affricate</th>
<th>Voiceless affricate</th>
</tr>
</thead>
<tbody>
<tr>
<td>/mats'ìnɛ/ ‘salt’</td>
<td>mátsi/ ‘bee’</td>
</tr>
<tr>
<td>/kátsa/ ‘ripe, cooked’</td>
<td>kátsɔ/ ‘to cook’</td>
</tr>
<tr>
<td>/mittʃ’o/ ‘burned’</td>
<td>mittʃɔ/ ‘sister’</td>
</tr>
<tr>
<td>/ʔatʃ’e/ ‘sand’</td>
<td>ʔatʃe/ ‘teeth’</td>
</tr>
</tbody>
</table>

4.4.5 /6/

The labio-labial implosive /6/ is voiced when single [6] and voiceless when geminated [6]. This consonant is found in word-initial position and between vowels. In the latter position, it can be single or geminated. The Bonke data contain no examples of an implosive in a consonant cluster.20

(48) a. /buusbîle/ ‘egg’ [buusbîle]
    b. /hûbe/ ‘head’21 [hóbe]
    c. /harâbê/ ‘dove’ [härâbê]

4.4.6 /d/.

The other implosive in Bonke is the apico-dental implosive /d/. Its distribution is the same as for the other implosive. When this implosive is single it is voiced, [d]. When it is geminated, it is voiceless [d].

(49) a. /disko/ ‘to sleep’ [disko]
    b. /sîfe/ ‘nose’ [sîfe]
    c. /módfɔ/ ‘fat’ [módfɔ]

4.5 The phonologically distinctive relevant properties

In this section I will give a summarized account of why I have grouped the consonants the way that I have. For convenience Table 4.12 is repeated here as Table 4.24.

We saw in the discussion on /b/ that one of the allophones was an approximant. This entails that /b/ cannot be classified as an obstruent, and the possible division of the consonants into obstruents and sonorants will not be defended. Instead I have grouped the

20Hayward and Chabo (2014) claim to have found a consonant cluster with an implosive: /lât/.21I found this word as /hù?e/ also.
consonants into voiceless, voiced and glottalic consonants. The property *voiceless* could in many cases be exchanged with *aspirated*. When comparing the difference in pronunciation between the glottalized consonants and the corresponding voiceless consonants, the aspiration of the voiceless consonants seems like the most pertinent feature. Still, I will keep voiceless, since I am not sure if the voiceless sibilants /s/ and /ʃ/ are always aspirated.

The properties of voiceless, voiced and glottalic are what separates the phonemes /p b ɓ/ /t d ɗ/ and /k g k’/. These phonemes, as they are grouped, also have the same active articulator. The phonemes /t d ɗ/ and /k g k’/ also share the same manner of articulation, since they are all stops, but the different allophones of /p/ and /b/ makes it impossible to group all these consonants together as stops.

To distinguish the non-sibilant coronal phonemes, we need to include manner of articulation. /n/ differs from all the other coronals in being nasal, and the same can be said for /m/ and the other labials. The nasals are distinguished from each other by the active articulator. /r/ and /l/ are distinguished from all the other coronals by being liquids, and manner of articulation is phonologically relevant to separate /r/ from /l/. /w/ and /j/ are the only semivowels in the Bonke variety of Gamo. The active articulators is the only property that is needed to explain that these semivowels are distinct phonemes.

In this analysis, the passive articulator is not phonologically relevant for other consonants than the sibilants.²² The sibilants form a symmetric system where an alveolar sibilant and a palatal sibilant stand in opposition to each other. I argued that the voiced sibilants have affricate allophones. Therefore, being fricative does not characterize /s/, /ʃ/, /ʃ/ and /ʃ/ as a group, however I argue that to distinguish /s/ from /ts/, and /ʃ/ from the voiceless /ʃ/, manner of articulation is phonologically relevant. If we conclude that being affricates is a relevant property for /ts/ and /ʃ/, then we can easily compare these two to the two glottalic

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²²Further research might reveal that a differentiation between apical and laminal is enough to separate these phonemes, but this approach is not adopted in this thesis.
sibilants.

The phonologically relevant properties other than the ones listed in Table 4.24 are specified in Table 4.25. The two Tables should be read together, so that for example the phonologically distinctive relevant properties of /s/ are understood as voiceless coronal alveolar sibilant.

Table 4.25: *Additional phonologically relevant properties*

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>/w/</td>
<td>semivowel</td>
</tr>
<tr>
<td>/m/</td>
<td>nasal</td>
</tr>
<tr>
<td>/t/</td>
<td>stop</td>
</tr>
<tr>
<td>/d/</td>
<td>stop</td>
</tr>
<tr>
<td>/n/</td>
<td>nasal</td>
</tr>
<tr>
<td>/r/</td>
<td>flap</td>
</tr>
<tr>
<td>/s/</td>
<td>alveolar sibilant</td>
</tr>
<tr>
<td>/ʃ/</td>
<td>palatal sibilant</td>
</tr>
<tr>
<td>/tʃ/</td>
<td>alveolar affricate sibilant</td>
</tr>
<tr>
<td>/tʃʰ/</td>
<td>alveolar sibilant</td>
</tr>
<tr>
<td>/ʃʰ/</td>
<td>palatal affricate</td>
</tr>
<tr>
<td>/z/</td>
<td>alveolar sibilant</td>
</tr>
<tr>
<td>/ʒ/</td>
<td>palatal sibilant</td>
</tr>
<tr>
<td>/ʦ/</td>
<td>alveolar sibilant</td>
</tr>
<tr>
<td>/ʦʰ/</td>
<td>alveolar sibilant</td>
</tr>
<tr>
<td>/j/</td>
<td>semivowel</td>
</tr>
</tbody>
</table>

4.6 Consonant clusters

Looking at the data collected for this thesis, it is possible to state that Bonke consonant clusters are composed of two different consonants. The overwhelming majority of these clusters are found in word-medial position. In the collected data, three consonant clusters were found in word-initial position: /kr-/ , /dr-/ , and /br-/ . Two of these have not been mentioned in the literature before, and the last one is recorded for a new word. The structure of these consonant clusters is not like that of the majority, and will be discussed together with three other divergent word-medial clusters. No words ending in a consonant cluster were found.\(^{23}\) The majority of the different consonants that make up the consonant cluster are analyzed as belonging to different syllables. The first consonant in the cluster is in coda position, and the second consonant is in the onset position of the next syllable.

\(^{23}\)The word-final affricates are not regarded as consonant clusters.
Hayward and Chabo (2014) stated that the consonant sequences of Gamo follow the sonority hierarchy.\textsuperscript{24} If we compare the findings of Sottile (1999) and Hayward and Chabo (2014), we find that the structure of the consonant clusters is limited to the combinations listed in Table 4.26.\textsuperscript{25} A consonant cluster that follows the sonority hierarchy is one where the first member is more sonorous than the second. The hierarchy is stated in (50), where \textit{liquid} has the highest degree of sonority, and \textit{stop} the lowest.\textsuperscript{26}

\begin{table}[h]
\centering
\caption{Possible consonant combinations in word-medial position}
\begin{tabular}{lll}
  liquid + stop & nasal + stop & fricative + stop \\
  liquid + fricative & nasal + fricative & \\
  liquid + nasal & \\
\end{tabular}
\end{table}

(50) liquid $>$ nasal $>$ fricative $>$ affricate $>$ stop

The restrictions on consonant clusters formulated by Sottile (1999), repeated here in (51), are supported in the writings of Hayward and Chabo. We have already mentioned the phonetic lengthening of obstruents following nasals or /l/, which allows Hayward and Chabo to claim that consonant sequences are only composed of two consonants, none of which are phonologically geminated. Thus, the first two restrictions in (51) are supported by Hayward and Chabo. The last two points are not restrictions \textit{per se}, but they illustrate the possible combinations as well as the relative frequency of these combinations. Hayward and Chabo do not argue against this. Looking at the Bonke data, I do not fully agree with these restrictions.

(51) a. Consonant clusters do not contain more than two consonants
b. Consonant clusters do not contain geminated consonants
c. The majority of consonant clusters have the structure \textit{sonorant + consonant}
d. Consonant clusters can also have the structure \textit{sibilant + consonant}, but these are fewer in number

The overwhelming majority of the consonant clusters in my data conforms to the observations regarding structure and frequency, but there are a few exceptions. But before we look at the irregularities, we will consider the general picture. Table 4.27 illustrates all the

\textsuperscript{24}It is possible to ask whether the sonority hierarchy is relevant when discussing consonants that belong to different syllables. Still, the general pattern for consonant clusters do behave as if the sonority hierarchy is relevant.

\textsuperscript{25}Hayward and Chabo (2014, p. 36) mention a few exceptions to this rule, notably \textit{pt} in \textit{skrįpto} ‘pen’.

\textsuperscript{26}The use of the term \textit{stop} in relation to consonant clusters is not too problematic, since the allophone of \textit{/p/} and \textit{/b/} in this context have stop realizations.
consonant clusters in the Bonke data that conform to the sonority hierarchy in (50). We can observe that the majority of the different clusters have the structure sonorant (liquid, nasal) + stop. In this material, the fricatives only combine with stops. The affricates, which begin with a stop, make up the second biggest group of possible C₂s. The only consonant to precede a nasal is /r/. Hayward and Chabo suggest that this might be because the sonority of /r/ is greater than that of nasals. So far, the Bonke data fits the earlier descriptions of Gamo, but we will see that there are a few words that depart from this pattern.

Table 4.27: Consonant combinations in word-medial position respecting the sonority hierarchy

<table>
<thead>
<tr>
<th>C₁</th>
<th>stop</th>
<th>affricate</th>
<th>fricative</th>
<th>nasal</th>
</tr>
</thead>
<tbody>
<tr>
<td>r</td>
<td>rp, rt, rk</td>
<td>rts, rts'</td>
<td>rs, rf</td>
<td>rm</td>
</tr>
<tr>
<td></td>
<td>rd, rg</td>
<td>lts, lsf</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>rk'</td>
<td>ld₅</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>lb, lg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>lk', lʔ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>nt, nk</td>
<td>nts, ntf</td>
<td>ns</td>
<td>nz</td>
</tr>
<tr>
<td></td>
<td>nd, ng</td>
<td>nd₆, nd₇</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>nk', nʔ</td>
<td>nts', ntf'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>mp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mʔ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>s</td>
<td>sp, st, sk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>fk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>z</td>
<td>zg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ʒ</td>
<td>ʒʔ</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the Bonke data we find a few examples which do not conform to the sonority hierarchy, at least not in the same way as the majority of consonant clusters. We have already mentioned the three consonant clusters that were found in word-initial position. The structure of these clusters is stop + liquid. These examples are not actually examples of clusters that do not pattern according to the sonority hierarchy, but the direction is reversed compared to the majority of word-medial consonant clusters. Because /br-/, /kr-/, and /dr-/, are in the onset position, the consonant with the highest degree of sonority is closest to the syllable nucleus, the vowel, which is the syllable peak.

(52) a. /brádfə/ ‘finger’
   b. /krínno/ ‘to hit with the elbow’
c. /dríbe/ ‘double cockscomb’ (loan from Amharic)

But these examples are not the only divergent consonant clusters that we can find in the Bonke data. We find three other word-medial consonant clusters whose structure is unexpected. As we can see in (53), the structure of these clusters is the opposite of the majority of word-medial clusters, since a consonant with low sonority precedes a consonant with higher sonority. The structure stop + liquid is unexpected.

(53) a. /wódra/ ‘inside of thigh (also euphemism for the pubic area)’ [wódrä]  
   b. /liblíbo/, /lablábo/ ‘bat’ [liblübo], [läbläbo]  
   c. /liglíga/ ‘sprout (also used metaphorically for young humans and animals)’ [lïglïgä]

The words /liblíbo/, /lablábo/ ‘bat’ and /liglíga/ ‘sprout’ both have a structure that can make us wonder if these forms are the result of some kind of reduplication, but I failed to find any words beginning with lib-, lab- or lig- that could be potential sources for reduplication.

In other descriptions of Gamo, the word for ‘finger’ has been reported to have an /i/ after /b/, giving /bira/. In Wolaitta, the word for ‘finger’ also has this /i/: birá (Azeb Amha, 1996, p. 116). Most of my informants clearly pronounced this word with an initial consonant cluster. This leads me to propose that this cluster-initial pronunciation is a result of syncope of the vowel /i/ between /b/ and /r/. The data do not allow me to expand this explanation to the other divergent consonant clusters, but it might not be an inconceivable explanation for the existence of such consonant clusters.

As we have seen, Sottile and Hayward and Chabo argue that consonants in consonant clusters cannot be geminates. In my data, I have found that the duration of the second consonant in a cluster appears to be single in some words, and geminated in other words. This will be discussed in the next section.

### 4.7 Gemination

During the discussion of the different consonants in the Bonke variety of Gamo, we have seen that most consonants can geminate, but not all. The data do not contain examples of words with geminated /r/, /j/, /w/, /h/ or /ʔ/.

I argue that not all consonant following liquids and nasals are phonetically lengthened, as Hayward and Chabo (2014) claim for the variety of Gamo that they investigate. It seems like both simple and geminated consonant can occur as the second member or a consonant cluster. This is illustrated in Figure 4.1. The first affricate in this example has a duration of approximately 0.1 seconds, while the geminated affricate has a duration of approximately 0.15 seconds.

Another word is illustrated in Figure 4.2. Here, we observe that the sibilant after /r/ is longer that the sibilant in the same example in Figure 4.1. These examples are meant to
4.7. GEMINATION

Figure 4.1: *Spectrogram of the word /kursatsé/ *‘small, narrow basket’*

Illustrate that the second consonant in a consonant cluster can be geminated. Whether or not a given phoneme is found geminated or single in consonant clusters are indicated in the discussions under each phoneme.  

Figure 4.2: *Spectrogram of the word /dangárssi/ *‘elephant’*

Because of the limitation of the data, I cannot say much about the restriction on successive gemination. It seems like this restriction also is present in the Bonke variety, cf. (54) from /bábbo/ *‘to fear’.  

27Conclusions should not be drawn only by looking at these spectrograms. They are only illustrations of an observed phenomenon. Note that the length of the two words are different, but the spectrograms are of the same size. This makes the geminated /s/ in /dangárssi/ ‘elephant’ appear much longer than the geminated sibilant in /kursatsé/ ‘small, narrow basket’. 
(54) /Aidá / bab-étt-adus/
Aïda  fear-PASSIVE-PST.3FSG
‘Aïda was feared.’

4.8 Harmony

There are no exception in the Bonke data to the sibilant harmony in the roots. The word /f’ámésa/ ‘false banana type 3’ could be suspected to be an example, but it is derived from the word /f’ámmó/ ‘bitter’. I have recorded one exception to the glottal stop harmony: /físko/ ‘to sleep’.

4.9 Summary

This chapter started with a review of the literature. After the summary of earlier descriptions, I established the consonant system of the Bonke variety of Gamo. I discussed each of the 25 consonant phonemes, and explained how they are realized, and in what positions they are found. I have also discussed the possible consonant clusters, and said something about gemination. Now that the phoneme inventory of the Bonke variety is established, we can move on to the tonology.
5.1 Syllable structure in the Bonke variety of Gamo

I argue that all the syllables in the Bonke variety of Gamo have consonantal onsets. The nucleus of the syllable is vocalic. The vocalic nucleus can be filled by a short vowel, a long vowel, a short diphthong or a long diphthong. Sometimes there is a consonant in the coda position of the syllable. Some words end in a word-final consonant. These words are most often followed by a case marker or a postposition, as we saw in section 1.3.4. An example is -n, which can be loosely translated to ‘with’ or ‘to’. The syllable structure is illustrated in (55). The elements in parentheses are not obligatory to make a well-formed syllable in Bonke. Thus, Bonke syllables can be open or closed. The structure CV is the smallest syllable possible. In Table 5.1 the different syllable structures are illustrated.

\[(55)\quad CV(V)(V)(C)\]

I have indicated the boundary between syllables with a full stop (.). As can be seen from the examples in Table 5.1, geminated consonants are divided so that they belong to the coda of the first syllable, and the onset of the following syllable. The syllable structure CVC is not only found in cases where a geminated consonant or a consonant cluster is split into two syllables. As just mentioned, words can end in consonants, and in these cases we find that the last syllable of the word has the structure CVC or CVVC, and therefore can be closed syllables. For consonant clusters, the first consonant of the cluster belongs to the coda of the first syllable, and the second consonant belongs to the onset of the next syllable. In those cases where we have a consonant cluster with a geminated consonant, the geminated consonant is not divided. This division leads to syllables where a geminated consonant can be the onset of a syllable. Note that geminated onsets are not found word-initially. I have argued that consonant clusters can occur in the word-initial position.

Some words are only one syllable long in the Bonke variety of Gamo. The only one-syllabled words with CV structure in the Bonke data are the imperatives of verbs like /guussu/ ‘to say’, /muussu/ ‘to eat’ and /buussu/ ‘to go’. The other one-syllabled words have
Table 5.1: Syllable structure

<table>
<thead>
<tr>
<th>CV.CV</th>
<th>CVC.CV</th>
<th>CVC.CVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>/mí.no/</td>
<td>'strong'</td>
<td>han.nín ‘here’</td>
</tr>
<tr>
<td>/kút.to/</td>
<td>‘chicken’</td>
<td></td>
</tr>
<tr>
<td>/kál.ta/</td>
<td>(small) axe</td>
<td></td>
</tr>
<tr>
<td>CVV.CV</td>
<td>CVVC.CV</td>
<td>CVVC.CVC</td>
</tr>
<tr>
<td>/boó.ra/</td>
<td>‘ox’</td>
<td>/laáp.pun/ ‘seven’</td>
</tr>
<tr>
<td>/ʔái.pe/</td>
<td>‘eye’</td>
<td>/beft’.ts’en/ ‘with (big) axe’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/paán.ttsi/ ‘unmarried boy’</td>
</tr>
</tbody>
</table>

The syllable structure CVV.CVC is also found. A list over many of the one-syllabled words that occur in the Bonke data is given in Table 5.2.

Table 5.2: One-syllabled words

<table>
<thead>
<tr>
<th>CV</th>
<th>CVV</th>
<th>CVVV</th>
<th>CVVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>bá ‘go!’</td>
<td>hée ‘there (close to listener)’</td>
<td>naáí ‘child.NOM’</td>
<td>báís ‘go.PRS.1SG’</td>
</tr>
<tr>
<td>gá ‘say!’</td>
<td>hàá ‘here (close to speaker)’</td>
<td>tóóí ‘foot,leg.NOM’</td>
<td>bées ‘go.PRS.3MSG’</td>
</tr>
<tr>
<td>má ‘eat!’</td>
<td>naá ‘child, person’</td>
<td></td>
<td>báus ‘go.PRS.3FSG’</td>
</tr>
<tr>
<td></td>
<td>sóó ‘home’</td>
<td></td>
<td>bóos ‘go.PRS.1PL’</td>
</tr>
<tr>
<td></td>
<td>tóó ‘foot, leg’</td>
<td></td>
<td>jáís ‘come.PRS.1SG’</td>
</tr>
<tr>
<td></td>
<td>?ée ‘yes’</td>
<td></td>
<td>jáés ‘come.PRS.3MSG’</td>
</tr>
<tr>
<td></td>
<td>báí ‘are you going?’</td>
<td></td>
<td>jáus ‘come.PRS.3FSG’</td>
</tr>
<tr>
<td></td>
<td>wéí/wóí ‘or’</td>
<td></td>
<td>joos ‘come.PRS.1PL’</td>
</tr>
<tr>
<td></td>
<td>?ái ‘what’</td>
<td></td>
<td>máís ‘eat.PRS.1SG’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>máes ‘eat.PRS.3MSG’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>máus ‘eat.PRS.3FSG’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>máos ‘eat.PRS.1PL’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>néés ‘you.SG.DAT’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>táás ‘me.DAT’</td>
</tr>
</tbody>
</table>

I have listed two words under the heading CVVV in Table 5.2. These two words are the nominative form of words with a CVV syllable structure. In agreement with the analysis of diphthongs in section 4.4.6, the nominative suffix -i should be considered a vowel also in these examples. Measurements of these diphthongs showed that they were considerably...
5.2. RESTRICTIONS ON CONSONANTS

longer than long vowels in the same sentence. Both words are taken from proverbs, as shown in (56).

(56) a. /búkke gidááso tóóí ?epéés/
   go.PRS.NEG.1SG ? foot, leg.NOM
   ‘The foot takes you somewhere you do not want to go.’

b. /f’inf’á naáí mífé jeekkées/
   clever child.NOM eat.CVB cry.PRS.3MSG
   ‘A clever child cries when eating.’

5.1.1 Combination of syllables

As shown in Table 5.3, all the different syllable structures can be combined in the Bonke variety of Gamo. I have not included the long diphthongs in this chart, since the data only contain two one-syllabled words with this type of diphthong.

<table>
<thead>
<tr>
<th></th>
<th>CV</th>
<th>CVC</th>
<th>CVV</th>
<th>CVVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV</td>
<td>/ka.pó/ ‘bird’</td>
<td>/mí.dos/ ‘eat.PST.1PL’</td>
<td>/?u.ja.nee/ ‘do you want to drink?’</td>
<td>/ho.?ées/ ‘it is warm’</td>
</tr>
<tr>
<td>CVC</td>
<td>/móf.do/ ‘fat’</td>
<td>/han.nín/ ‘here’</td>
<td>/bee.ten.nee/ ‘are they leaving?’</td>
<td>/dos.sées/ ‘love.PRS.3MSG’</td>
</tr>
<tr>
<td>CVV</td>
<td>/boó.ra/ ‘ox’</td>
<td>/géé.dos.sa/ ‘younger’</td>
<td>/baa.nee/ ‘is it possible to go?’</td>
<td>/joo.tóos/ ‘tell.PRS.1PL’</td>
</tr>
<tr>
<td>CVVC</td>
<td>/bíín.ne/ ‘mosquito’</td>
<td>/laáp.pun/ ‘seven’</td>
<td>/gaam.mói/ ‘lion.NOM’</td>
<td>/siik’.k’éés/ ‘love.PRS.3MSG’</td>
</tr>
</tbody>
</table>

5.2 Restrictions on consonants

We saw in chapter 4 that not every consonant can occur in every position of the word. No words in the Bonke data start with a word-initial /r/. Words starting with /ts/ or /tf/ are very rare, but I argue that they exist. /r/ can occur in word-initial position if it is a member of a consonant cluster. Otherwise, all the consonants can occur in the word-initial position. All the consonants can occur in the onset position of a syllable that is not word-initial. In the coda position of a syllable that is not the last in the word, we find most of the consonants,
with the exception of the semivowels /w/ and /j/, and the two consonants that are only specified for laryngeal setting /h/, /ʔ/. Word-finally only the nasals /m/ and /n/, and the sibilants /s/, /ts/, /ʃ/, and /ʃ/ were found. Further research will show if these are the only consonants that can occur word-finally, or if other consonants should be added to the list.

5.2.1 Consonant clusters

Consonant clusters, or two different adjacent consonants, are found in word-initial position and in word-medial position. In the former position, the consonant cluster functions as the onset of the first syllable, and in the latter, the two consonants are not part of the same syllable, but function as the coda of the first syllable and onset in the next syllable. There are three word-initial consonant clusters in the Bonke data, and they all have the same structure: stop + /r/. In word-medial position, we find more types of consonant clusters.

5.2.2 Gemination

All the consonants can geminate, except for the semivowels /j/ and /w/, the consonants with unspecified active artiulator /h/ and /ʔ/, and the flap /r/.

5.3 Restrictions on vowels

It seems like all the short vowels can occur in every position of the word, also as terminal vowels. The vowels of the root will follow the vowel harmony. If the citation form of for example nouns and verbs has a long vowel, this is usually found in the first syllable of the word. Word-final long vowels are often connected to questions. We also find them in diverse verb forms.
Chapter 6

Tonology

6.1 Introduction

In this chapter I will discuss the tonology of the Bonke variety of Gamo. Before we reach the
analysis of the Bonke data, I will present the definition of tone language that I will follow
in this work. Then I will provide a summary of earlier accounts of the tones in Gamo. The
core part of this chapter is the description and analysis of the tones in Gamo. This analysis
departs from the one(s) found in the works of the Omotic expert Hayward.

The different tones and combinations of tones will be noted as shown in Table 6.1. Cited
examples will be noted as they are found in the original source.

Table 6.1: Tone notation

<table>
<thead>
<tr>
<th>Tone</th>
<th>Short vowel</th>
<th>Diphthong</th>
<th>Long vowel</th>
</tr>
</thead>
<tbody>
<tr>
<td>High tone (H)</td>
<td>ó</td>
<td>óí</td>
<td>óó</td>
</tr>
<tr>
<td>Low tone (L)</td>
<td>o</td>
<td>oi</td>
<td>oo</td>
</tr>
<tr>
<td>Falling tone (HL)</td>
<td>ó</td>
<td>óí</td>
<td>óo</td>
</tr>
<tr>
<td>Rising tone (LH)</td>
<td>ó</td>
<td>óí</td>
<td>óó</td>
</tr>
</tbody>
</table>

6.1.1 What is a tone language?

As a preliminary characterization of what constitutes a tone language, we might follow Yip
(2002, p. 1) and say that a tone language is a language where “[...] the pitch of a word
can change the meaning of a word”. The term pitch refers to the auditive perception of the
height of a part of a speech signal. It is the relative difference in pitch between different
parts of the speech signal that is linguistically relevant, and tonal contrasts are realized by
a relative difference in pitch. The perception of a given tone depends on its surroundings:
A high tone is perceived as having higher (or as high) pitch as its surroundings. A low tone
is perceived as having a lower pitch than its surroundings. This is what is meant by relative difference. Tones are not restricted to a particular space within a speaker’s pitch range. We cannot say that a high tone is always found within the range of x-y Hertz (Hz) in a given speaker’s pitch range.

Table 6.2 lists some minimal pairs in the Bonke variety of Gamo where a difference in pitch is what separates the meaning of the words. The examples are of words uttered in isolation. These examples illustrate that Bonke is a tone language, given the definition above, since a change in pitch is also a change in meaning. The word /gitá/ ‘big’ begins with a lower pitched syllable followed by a syllable with higher pitch. We observe the reversed pattern in the imperative /gíta/ ‘prepare a trap!’.

Table 6.2: Minimal pairs

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>/gitá/</td>
<td>‘big’</td>
</tr>
<tr>
<td>/gíta/</td>
<td>‘prepare a trap!’</td>
</tr>
<tr>
<td>/ʔajó/</td>
<td>‘meat’</td>
</tr>
<tr>
<td>/ʔajó/</td>
<td>‘to save’</td>
</tr>
<tr>
<td>/ʔawá/</td>
<td>‘sun’</td>
</tr>
<tr>
<td>/ʔáwa/</td>
<td>‘where’</td>
</tr>
<tr>
<td>/maró/</td>
<td>‘witch, wizard’</td>
</tr>
<tr>
<td>/máro/</td>
<td>‘to break up a fight’</td>
</tr>
</tbody>
</table>

Tone languages are not a homogeneous group. The number of tones varies, and so does the distribution of these tones, their restrictions and their interactions. Still, operating with a type of languages called tone languages would not make sense if there were nothing to unite these languages. Pike (1956, p. 3) proposed the following definition of tone language - a definition that excludes languages where pitch differences are used for intonation:

A tone language may be defined as a language having lexically significant, contrastive, but relative pitch on each syllable.

According to Welmers (1973), Pike’s definition is too strong because it specifies that every syllable is assigned contrastive pitch. In some tone languages, there are syllables that should be considered toneless, and in other tone languages one tone is assigned to several syllables. Under Pike’s definition, such languages would not meet the standard, and would not be recognized as tone languages. To meet these difficulties Welmers, proposed another definition:

A tone language is a language in which both pitch phonemes and segmental phonemes enter into the composition of at least some morphemes. (Welmers, 1959, (cited in Welmers, 1973, p. 8))
6.2. EARLIER DESCRIPTIONS

Hyman (2001b) proposes a definition which is related to Welmers’s, but one that is more adapted to generative phonology with its underlying representation and surface representation. Even though one can disagree on whether there are two such levels, it is possible to accept the definition. By adopting this definition, we can include languages like Somali where feminine and masculine gender is expressed by different locations of tone, but where the nouns do not have a high tone when they function as subjects. The definition of tone language that we shall adopt in this thesis is therefore that of Hyman (2001b, p 1368):

A language with tone is one in which an indication of pitch enters into the lexical realization of at least some morphemes.

An advantage to this definition is that we include the so called pitch accent languages and tonal accent languages. Accentual languages\(^1\) are discussed in section 6.9. We want to include those languages that, by some, are classified as accentual languages, since Gamo is one such language. Later in this chapter I will elaborate on this claim, but first we shall take a closer look at earlier descriptions of the tone system of Gamo.

6.2 Earlier descriptions

In this section, we shall take a closer look at what three different researchers have said about the function of pitch in Gamo. Hayward is the one who has written the most on this subject. Hompó (1990) and Theil (2013) make brief comments about the matter.

Hompó (1990, p. 366) reports to have found that tonal differences have grammatical function in two cases. The first case is in differentiating between degrees of definiteness.\(^2\) The second case is in the jussive form of verbs, where the first person singular form has a high tone on the last vowel, and the third person singular has a low tone on the last vowel.\(^3\)

Theil (2013) is an account of the tonology of Koorete. In the last section of this article, Theil compares Koorete to other related languages, including Gamo. The comparisons are based on his own data. According to Theil the tone bearing unit in Gamo is the syllable, and there are two distinctive tone levels (H and L). He writes that there seem to be at least four lexical tone melodies, that these melodies are associated from left to right, and that the grammatical word seems to be the domain of the lexical tone melodies. In addition, he mentions that clitics have their own lexical tone.

Hayward (1994) and Hayward and Chabo (2014) argue that the function of pitch in Gamo is best analyzed as a tonal accent language where some roots are accentuated and

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\(^1\)I will use the term accentual language to refer to both pitch accent languages and tonal accent languages.

\(^2\)Hompó operates with four degrees of definiteness.

\(^3\)This third person singular is probably also masculine, since the verb ends in -o. The jussive/imperative of the verb ‘to love’ in the Bonke data has different endings in the jussive/imperative for masculine and feminine subjects in the third person singular, -o and -u respectively: /siik’ó/ ‘let him love’, /siik’ú/ ‘let her love’. Note that the tone is high in these examples, unlike what Hompó reports.
others are unaccentuated. The analysis in Hayward and Chabo (2014) can be seen as an elaborated version of the analysis in Hayward (1994). The latter is more strict in the claims about where the high tone can be found. More details are specified in the appropriate parts of the discussion in the discussion of Bonke tones.

Hayward (1994) argue that the prosodic prominence is limited to a high pitch feature, called a high tone, and that this high tone is a ‘once-per-phrase element’. The arguments are based on how pitch behaves on nominals, but Hayward claims that the analysis is valid also for postpositional phrases and verb phrases. He observes that nominals uttered in isolation generally only have one high tone, and that this high tone appears on one of two possible locations. The high tone can occur on the ‘terminal vowel’ (TV) or on the last syllable in the root. According to Hayward, the citation form of a nominal is composed of a root and a suffixed vowel. This vowel is what he calls the ‘terminal vowel’, and is separated from the root by a hyphen in (57). Words with a high tone on the terminal vowel in citation form are described as ‘unaccentuated’, while words with high tone on the last syllable of the root are called ‘accentuated’.

(57) Examples from Hayward (1994, p. 482)
   a. ?íz-a ‘him’
   b. támm-a ‘ten’
   c. godar-é ‘hyaena’
   d. mol-é ‘fish’

Words in the nominative have the high tone in the same position as they would have it in the citation form. This is also true for the definite forms of nominals, regardless of whether they have the short or the long definite suffixes (short form: -i, -a; long form: -zi, -za). In those cases where the high tone is located on the TV and the nominative -i, or the short definite suffixes are added to the noun, Hayward reports a falling pitch on the last syllable. Hayward claims that words ending in long vowels or diphthongs never have level high pitch or rising pitch. He explains this by “[...] a general constraint in Gamo that disallows a High Tone on the second mora of a long vowel in word-final position.” (p. 490). In other words, the high tone will be restricted to the first vowel mora in word-final position.

The plural forms of some nominals exhibit a different behavior. If the high tone is located on the TV in citation form, this location will be altered, so that the high tone shifts to the plural suffix. The plural forms of the noun duuná ‘mouth’ are duunatí and duunatá.

Hayward argues that the domain of the high tone is the phonological phrase, and point out that this means that he does not consider the high tone to be a component of words or morphemes. He observes that in an extended nominal phrase (NP) there is only one

4 The term ‘nominal’ is employed as a convenient label for nouns, pronouns, various sets of determiners, numerals and other quantifiers, and adjectives, i.e., all single-word items of the NP.” Hayward (1994, p. 482).
occurrence of high tone, and this tone is located at the first, or leftmost, word. The phrases in (58) illustrate this. Gamo is a headfinal language, so the first word in an extended NP is a modifying element.

(58) Examples from Hayward (1994, p. 486) (original transcription is kept)

a. namʔí toho
   two feet (cf. namʔí, tóho)

b. ?ǐnte boora
   your (pl.) ox (cf. ?ǐnte, bóóra)

c. pirád’d’o k’epé
   a butterfly’s wing (cf. pirád’d’o, k’epé)

It is this behavior of the high tone that leads Hayward to the conclusion that Gamo is a tonal accent language, i.e. a language where tone and accent interact:

That it is accentual is evidenced by the fact that prosodic prominence - in this case, the higher pitch feature - has a culminative function; it must occur in every word uttered in isolation, but never more than once; it must appear in each phrase, but only on the first word. Such syntagmatic behaviour of a prominence feature is absolutely typical of accentual systems in general. (Hayward, 1994, p. 487)

According to Hayward (1994), the most economic analysis involves dividing words into two groups: words with accented roots and words with unaccented roots. The association of the high tone is introduced after the words are organized into phrases. The high tone is associated with the accentuated syllable in the first word in the phrase, see (59). Recall that a word uttered in isolation constitutes its own phonological phrase. For the unaccented roots, the high tone is, by a default rule, associated with the last syllable in the first word in the phonological phrase, see (60). Example (59) and (60) are taken from Hayward (1994, p. 491) with minor adjustments. To solve the problem with the definite forms, the definite suffix is regarded as a clitic, and will therefore have the status of a separate word constituent with regard to high tone association.

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5In Hayward (1990, Note 17, p. 348) the choice of the term ‘tonal accent’ is defended in the following way: “The name ‘tonal accent’ seems preferable to ‘pitch accent’ for it recognizes what is shared by systems of this type with tone languages; ‘pitch’ is really too neutral, since it is appropriate to use the term when speaking of any auditory perception of the fundamental frequency.”

6Hayward uses the symbol <R> instead of the <x> in this representation. The <R> is only associated to vowels. Also, the whole figure is enclosed in square brackets followed by Φ to symbolize that the word constitutes a phonological phrase.
Hayward and Chabo (2014) continue and elaborate on the analysis in Hayward (1994). They argue that there is only one significant pitch element in Gamo - the high tone. This high tone is associated with a mora in the tone phrase, as opposed to the syllable in the phonological phrase in Hayward (1994). The tone phrase can be bigger than the phonological word, and does often coincide with syntactic phrases, but not always. The verb and the object of a verb phrase (VP) make up two tone phrases. Hayward and Chabo regard the absence of a high tone as an absence, not as a low tone. Some words have high tone on more than one mora, and this is, in most cases, attributed to an automatic process of rightward tone spreading (see below and section 6.4.2). A few words are regarded as having lexical high tone, since the occurrence of H on several morae cannot be explained by tone spreading. Still, Hayward and Chabo maintain that the best analysis for Gamo is a tonal accent analysis:

Like some other languages of the Horn, Gamo is best described as a ‘tonal-accent language’, in which a very simple tonal melody is mapped onto a string of tone-bearing elements (syllables / morae) belonging to a particular structure (the tone phrase), aided sometimes by an accentual diacritic. In the theoretical framework underlying our discussion, accent is viewed as an abstract diacritic which signals potential for association of the mora to which it is assigned with the single high tone allocated to every tone phrase. Accent is an ‘abstract diacritic’ in the sense that is has no phonetic properties of its own, and its signal is only ‘potential’, as in certain situations association with H does not take place. (Hayward and Chabo, 2014, p. 55)

Hayward and Chabo claim that the default situation for nouns and adjectives is that H is found on the ultima stem syllable. Exceptions to this patterns are marked by accents in their analysis. The default situation for verbs is to have post-thematic H. Again, exceptions are marked with accents. The association of H follows these steps:

1. H is associated to the first accentuated mora in the first word of the tone phrase.

2. If there are no accents:

   (a) *Nouns and adjectives:* H is associated to the ultima stem syllable.

   (b) *Verbs:* H is associated to the first post-thematic syllable.
6.2. EARLIER DESCRIPTIONS

In addition to this, Hayward and Chabo observe that, as a main rule, ‘passive’ stems are accentuated, while ‘causative’ stems are unaccentuated, regardless of whether the verb roots are accentuated or unaccentuated. The ‘verbal noun’, ending in -o, always has the high tone on the root.

According to Hayward and Chabo (2014, pp. 62-64), the high tone can spread one or two morae to the right. This process is subject to two conditions:

1. The high tone can only spread within the phrasal word to which it is assigned. It can cross a syllable boundary inside of the phrasal word.

2. The high tone cannot spread onto a word final mora, unless the tone phrase contains more words (or if the high tone is located on an open final syllable, in which case it can spread to the nominative marker -i in one-word tone phrases.).

The authors explain that this spreading process “[...] accounts for the uniform pitch level within a stem syllable containing a long vowel or vowel sequence with which H has been associated; ie. we do not encounter any significant falling (or rising) pitch within any stem syllable containing a long vowel or vowel sequence” (Hayward and Chabo, 2014, p. 62).

The examples in Table 6.3 and 6.4 are taken from Hayward and Chabo (2014, pp- 62-63), and they are not changed. The tone marking is only illustrative for these examples, according to the authors. These examples illustrate the two conditions, with the exception of the content between parentheses. In Table 6.3 we can see that the high tone on the suffix spreads to the following mora, if this mora is not the last vocalic mora in the word. If the following mora is the last vocalic mora, there is a fall in pitch. In Table 6.4 we see that H can spread all the way to the last mora of the first word in the tone phrase when another word is following.

<table>
<thead>
<tr>
<th>Table 6.3: Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accentuated</strong></td>
</tr>
<tr>
<td><strong>affirmative imperfect</strong></td>
</tr>
<tr>
<td><strong>górą́p- ‘rub, massage’</strong></td>
</tr>
<tr>
<td>1Sg górą́páís</td>
</tr>
<tr>
<td>2Sg górą́páásà</td>
</tr>
<tr>
<td>3M górą́péès</td>
</tr>
<tr>
<td>3F górą́páùs</td>
</tr>
<tr>
<td>1Pl górą́póòs</td>
</tr>
<tr>
<td>2Pl górą́péétà</td>
</tr>
<tr>
<td>3Pl górą́péétès</td>
</tr>
</tbody>
</table>
Table 6.4: Tone phrases with more words

<table>
<thead>
<tr>
<th>Gamo</th>
<th>Translation</th>
<th>Noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>dèmmáís śǐn</td>
<td>‘I used to find’</td>
<td></td>
</tr>
<tr>
<td>dèmmídés śǐn</td>
<td>‘he had found’</td>
<td></td>
</tr>
<tr>
<td>bàlúk’-ó àìp’e</td>
<td>‘mule’s eyes’</td>
<td>bàlúk’-ó ‘mule’</td>
</tr>
<tr>
<td>bàlúk’-ó àìp’e</td>
<td>‘mule’s eyes’</td>
<td>bàlúk’-ó ‘mule’</td>
</tr>
<tr>
<td>bàzz-ó bààn-à</td>
<td>‘desert dust’</td>
<td>bàzz-ó ‘desert’</td>
</tr>
<tr>
<td>dàngárs-á-z-á göm-à</td>
<td>‘the elephant’s tail’</td>
<td></td>
</tr>
<tr>
<td>ààw-á-zá čàìmm-à</td>
<td>‘father’s shoe’</td>
<td>ààwá-z-à</td>
</tr>
</tbody>
</table>

The parenthesis in the second condition needs further explanation. According to Hayward and Chabo the nominative suffix -i is not accentuated. When a one-word subject phrase contains an unaccentuated noun like àpíl-á-ì ‘clothes + nominative’ or gád-é-zì ‘the land + nominative’ H spreads to the next vocalic mora to the right, but not to the last one. However, if the noun is accentuated, the H spreads to the nominative suffix as well: bàdàl-áí ‘maize + nominative’, or àbb-áí ‘lake + nominative’. This spreading does not cross syllable boundaries.

The next section treats the tones in the Bonke variety of Gamo. Points from this review of the literature will be taken up when it is relevant for the discussion.

6.3 Tones in the Bonke variety of Gamo

In this and the following sections we will demonstrate how the tones work in Bonke. We could assume that the analysis of Gamo in Hayward (1994) and Hayward and Chabo (2014) can be applied to the Bonke variety as well. But, as we shall see, tones in Bonke behave in a way that is not accounted for under the tonal accent analysis proposed by Hayward and Chabo. I therefore propose a somewhat different approach that does not include accents. I will argue that the Bonke variety should be analyzed as a tone language, not as a tonal accent language.

6.3.1 The number of tones

I will argue that the Bonke variety of Gamo has two distinctive tones: H(igh) and L(ow). These tones are level tones. H and L can be combined on one tone bearing unit to create a contour tone, and we can find both falling and rising contour tones in Bonke. A rising tone will be analyzed as the sequence LH, and a falling tone will be analyzed as the sequence HL. There are no examples of more than two tones combined on one tone bearing unit. Hayward and Chabo claim that there are no significant falling or rising tones in Gamo, but it seems
like there are such contour tones in the Bonke variety. The contour tones are not restricted to long vowels.

The tones are not restricted to particular vowels or specific syllable structures. The consonant in the onset does not put restrictions on which tone the syllable can be associated with. This is exemplified by H and L on all the short vowels, both in open and closed syllables in Table 6.5, but all the other examples in this chapter support this claim.

### Table 6.5: Tone, vowel quality and syllable structure

<table>
<thead>
<tr>
<th></th>
<th>H</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>/káwo/ 'dinner'</td>
<td>/kawó/ 'king'</td>
</tr>
<tr>
<td></td>
<td>/méhe/ 'domestic animal'</td>
<td>/kepé/ 'wing'</td>
</tr>
<tr>
<td></td>
<td>/ʔfra/ 'rain'</td>
<td>/ts'iló/ 'eagle, volture'</td>
</tr>
<tr>
<td></td>
<td>/ʔóto/ 'pot for cooking'</td>
<td>/molé/ 'fish'</td>
</tr>
<tr>
<td></td>
<td>/púndo/ 'flower 2'</td>
<td>/wulá/ 'doorway'</td>
</tr>
<tr>
<td>Closed</td>
<td>/kálta/ 'axe'</td>
<td>/bangá/ 'barley'</td>
</tr>
<tr>
<td></td>
<td>/pénto/ 'to boil'</td>
<td>/pentísso/ 'to make boil'</td>
</tr>
<tr>
<td></td>
<td>/gílk'a/ 'skinny'</td>
<td>/ʔistá/ 'one'</td>
</tr>
<tr>
<td></td>
<td>/ʔórde/ 'thick (humans)'</td>
<td>/dongé/ 'bow'</td>
</tr>
<tr>
<td></td>
<td>/súmtsú/ 'name'</td>
<td>/gulbáte/ 'knee'</td>
</tr>
</tbody>
</table>

6.3.2 **The tone bearing unit**

What the tone bearing unit (TBU) is, is not straightforward. The alternatives are the vocalic mora or the syllable. Hayward and Chabo (2014) argue that the TBU is the mora. I will in the following show that this analysis may not be accurate for the Bonke variety of Gamo, and propose that the TBU could in fact be the syllable.

I propose that the tone bearing unit in the Bonke variety is the syllable. The justification for this claim is the fact that we find level tones (H, L) and contour tones (HL, LH) on both short and long vowels. If contour tones were only found on long vowels, we could assume that the TBU was the (vocalic) mora. As we saw in section 3.2.2 in the chapter on vowels, short and long vowels contrast in Bonke. The possible tones on short and long vowels are illustrated in Table 6.6.

A contour tone is analyzed as a combination of two level tones on the same tone bearing unit. It is the presence of such contour tones on short vowels that is the strongest argument against the tonal accent analysis. In Hayward and Chabo (2014)’s analysis, the high tone
Table 6.6: Tone on short and long vowels

<table>
<thead>
<tr>
<th>short vowel</th>
<th>long vowel</th>
</tr>
</thead>
<tbody>
<tr>
<td>L /tamá/ ‘fire’</td>
<td>/faarâ/ ‘cloud’</td>
</tr>
<tr>
<td>H /gîta/ ‘big’</td>
<td>/tééra/ ‘ripe’</td>
</tr>
<tr>
<td>LH /milf’ó7</td>
<td>/faáñji/ ‘roasted cereal’</td>
</tr>
<tr>
<td>HL /moîdô/ ‘lip’</td>
<td>/haasa?áis/ ‘speak.PRS.1SG’</td>
</tr>
</tbody>
</table>

is associated to a mora. The Bonke data contains some examples where a contour tone is found on a syllable with a short vowel which in effect only has one mora. Thus, to account for contour tones by assigning the high tone to one mora and letting the other mora have a default low pitch does not work in these cases.

An example of such a word with a word-final falling contour tone is /moîdô/ ‘lip’. A spectrogram of this word is presented in Figure 6.1. This word, along with the other words with a contour tone on a mono-moraic syllable, cause problems for the analysis proposed in Hayward and Chabo (2014), as well as the one in Hayward (1994).

Figure 6.1: Spectrogram of the word /moîdô/ ‘lip’

According to Hayward and Chabo the high tone is associated to the first accent in the tone phrase. A word uttered in isolation constitutes its own tone phrase. If there are no accents, the high tone is assigned to a default position. For nouns and adjectives, the default position is the last vowel of the stem, as explained in section 6.2 above. If we apply this analysis to the Bonke data the last vowel in /moîdô/ ‘lip’ bears the high tone, and would be analyzed as being accentuated in the tonal accent analysis. This is illustrated in (61), where H is linked to the accent on the last vowel. I have already argued that the word /moîdô/ has a high falling pitch on the last syllable. In the analysis represented in (61), this cannot
be accounted for, for two reasons. First, the high tone is viewed as a prominence feature, and something that is marked as prominent cannot also be marked as non-prominent at the same time. Secondly, Hayward and Chabo does not recognize the low tone. An absence of H is analyzed as an absence, not the presence of L. If we adopt Hayward and Chabo’s analysis, we can explain why we find H on the last vowel, but we cannot explain the falling tone.\footnote{Another possibility, which will not be discussed further, could be to expand the possible tones that the accent could be associated to.}

In the analysis I propose in this thesis, the TBU is the syllable, and the tones are not linked to accents but are associated to the TBU. This allows us to analyze the word /moi\textsuperscript{o}ô/ ‘lip’ as in (62), and account for the contour tone.

\begin{align*}
(61) \text{Based on Hayward and Chabo} & \quad (62) \text{Analysis proposed in this thesis} \\
\begin{array}{c|c|c}
H & L & \text{HL} \\
\hline
\sigma & \sigma \\
\end{array} \\
\begin{array}{c|c|c}
\text{m o i d o} & \text{c v v c v} & \text{c v v c v} \\
\end{array}
\end{align*}

A possible objection to the tone pattern HL on the final syllable of a word uttered in isolation is that the high tone is automatically lowered in utterance final position. This might be the case, but then we are forced to explain why some word final high tones are lowered when the word is uttered in isolation while others are not. Compare the above spectrogram of /moi\textsuperscript{o}ô/ ‘lip’ with that of /ts’a\textsuperscript{b}ô/ ‘root, race’ in Figure 6.2. In both of these words, the last vowel is /o/, and the onset syllable is an implosive. There does not seem to be any plausible phonetic explanation as to why we find a falling contour tone on the last syllable of /moi\textsuperscript{o}ô/ ‘lip’, but not in /ts’a\textsuperscript{b}ô/. According to Wright and Shryock (1993) implosives do not have the same effect on the the fundamental frequency as unvoiced aspirated stops, i.e. implosives do not rise the F\textsubscript{0}. However, the effect of implosives on F\textsubscript{0} may vary between languages (see Hyman and Schuh, 1974). My conclusion for the Bonke variety is that the high falling pitch on words like /moi\textsuperscript{o}ô/ is the result of the association of two tones onto one TBU.

Words with a falling contour tone on the last syllable are less frequent in the Bonke data than words with level tones in the same position.

### 6.3.3 The tone analysis

We have seen that the tonal accent analysis proposed by Hayward (1994) and Hayward and Chabo (2014) does not explain the contour tones that are found in the Bonke variety of Gamo. In this thesis I will instead analyze the Bonke variety as a tone language where there are two tone levels, H and L, and the TBU is the syllable. The Bonke variety of Gamo is a simple tone system, and the notion of tonal accent is not necessary to explain this system.
For the purpose of the analysis, I will illustrate the tones by using the multi-tiered representation known from the Autosegmental Phonology (Goldsmith, 1976, 1990) (see also Odden (2005) and Yip (2002) for comprehensive summaries). An obvious advantage of using this as a model of the representation of tones is that the tones are placed on a separate tier. Autosegments on different tiers are connected by association lines. Since I analyze the syllable as the tone bearing unit, the tones will be linked to the syllables, not directly to the segments. The autosegmental representations have their limitations, but they are a useful tool in the description of the tonology of a language (Hyman, 2011, 2014). It is because of this usefulness that the tones are represented the way they are in this thesis.

6.4 Tone on words and phrases

If Hayward (1994) and Hayward and Chabo (2014)’s observations are representative for the Bonke variety of Gamo, we would expect to find only one occurrence of a high tone in a word uttered in isolation, as well as in an extended phrase. By extended phrase I mean a noun preceded by one or more modifiers. A modifier could for example be an adjective or a pronoun. For words uttered in isolation, this is most often the case in the Bonke variety of Gamo, though not always. Hayward and Chabo (2014) note that there are a few exceptions to their rule. They claim that some of the words where more than one high tone can be found, are words with lexical tone, since none of the tone spreading rules they operate with can explain why these words have succeeding syllables with high tone. These words are mostly names, but they also mention ebéló ‘so-and-so’ and issínó ‘one’. This last word is also found in the Bonke data, with the same tone pattern.
6.4. TONE ON WORDS AND PHRASES

6.4.1 Tone on words uttered in isolation

Most of the words that were uttered in isolation do in fact have one syllable whose pitch is higher than the other syllable(s) of the word. This higher pitch is taken to be the manifestation of high tone. Examples of tone on short vowels are given in Table 6.7. The examples herein also show that the high tone can occur on all the short vowels, no matter if the syllable it occurs on is the first, the last or the middle syllable of the word.

<table>
<thead>
<tr>
<th>Table 6.7: High tone on short vowels</th>
</tr>
</thead>
<tbody>
<tr>
<td>First syllable</td>
</tr>
<tr>
<td><code>/?ábbo/</code> `elder’</td>
</tr>
<tr>
<td><code>/?ého/</code> `to bring’</td>
</tr>
<tr>
<td><code>/gílk’a/</code> `skinny’</td>
</tr>
<tr>
<td><code>/gójó/</code> `to farm’</td>
</tr>
<tr>
<td><code>/kúfe/</code> `arm’</td>
</tr>
<tr>
<td><code>/?átʧáro/</code> `spider’</td>
</tr>
<tr>
<td><code>/púluntsa/</code> `white hair’</td>
</tr>
<tr>
<td><code>/sibbuntsata/</code> `eyebrows, eyelashes’</td>
</tr>
<tr>
<td>Word-medial syllable</td>
</tr>
<tr>
<td><code>/?aráʧâ/o</code> `termite’</td>
</tr>
<tr>
<td><code>/?idémo/</code> `to carry; to hug’</td>
</tr>
<tr>
<td><code>/apíla/</code> `clothing’</td>
</tr>
<tr>
<td><code>/?éesóto/</code> `to hurry’</td>
</tr>
<tr>
<td><code>/?ahúmo/</code> `dream’</td>
</tr>
<tr>
<td>Final syllable</td>
</tr>
<tr>
<td><code>/?aziná/</code> `husband’</td>
</tr>
<tr>
<td><code>/?asé/</code> `man, human being’</td>
</tr>
<tr>
<td><code>/keettsá/</code> `house.NOM’</td>
</tr>
<tr>
<td><code>/?aajó/</code> `mother’</td>
</tr>
<tr>
<td><code>/síik’k’ú/</code> `let her love!’</td>
</tr>
</tbody>
</table>

Long vowels are most common in the first syllable of words, or in the suffixes of verbs. The Bonke data do not contain words that illustrate the high tone on long vowels in all positions of the word uttered in isolation, and I will therefore only illustrate that the long vowels can have both high or low tone in the first syllable of the word, see Table 6.8. Note that the high tone in these examples have an even pitch contour throughout the duration of the long vowel. Later, we will see that long vowels can have contour tones, that is, a combination of H and L. The examples in Table 6.8 demonstrate that high tone can occur on all the long vowels. The association between tone and tone bearing unit is shown in (63).
Table 6.8: High and low tone on long vowels

<table>
<thead>
<tr>
<th></th>
<th>High tone</th>
<th>Low tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>aa</td>
<td>/káála/ ‘word’</td>
<td>/kaará/ ‘ceiling’</td>
</tr>
<tr>
<td>ee</td>
<td>/ʔééssi/ ‘honey’</td>
<td>/meegó/ ‘cold’</td>
</tr>
<tr>
<td>ii</td>
<td>/síík’o/ ‘love’</td>
<td>/miíffé ‘thing, money’</td>
</tr>
<tr>
<td>oo</td>
<td>/jóóre/ ‘river’</td>
<td>/ts’oosé/ ‘God’</td>
</tr>
<tr>
<td>uu</td>
<td>/ts’úúge/ ‘to burn’</td>
<td>/suulé/ ‘shin’</td>
</tr>
</tbody>
</table>

In addition to having level tones, long vowels can have both rising and falling tones. I have not found any falling tones on long vowels in the stem, but long vowels with falling tone are common in verb suffixes. Some examples of rising and falling tones are given in Table 6.9, and illustrated in (64). That both rising and falling tones are found in the Bonke data makes it difficult to adopt the tonal accent analysis proposed in Hayward and Chabo (2014) for the Bonke variety of Gamo. Remember that Hayward and Chabo claim not to have found any contour tones, and argue that the level pitch they do observe is due to tone spreading from the first to the second mora in a long vowel. If H is associated to the first mora in a long vowel in the Bonke variety, how could rising contour tones be explained? I argue that the tonal accent analysis cannot explain these patterns, and that the analysis presented in this thesis can.

The tone on diphthongs is illustrated in Table 6.10. Diphthongs in the end of words are often caused by adding the nominative suffix -i to the terminal vowel, and the citation form of words usually ends in a single vowel. Therefore the examples are only of words with diphthongs in the first syllable of the word. /ai/, /ei/ and /oi/ are found with both high and low tone. The diphthongs /ui/ and /au/ are rare in the data set, and this is probably why we do not find examples of (even) high tone syllables with these diphthongs as the nucleus of the syllable. The one word which contains /ui/ is /nuíssa/ ‘our (for us)’, and here we hear
6.4. TONE ON WORDS AND PHRASES

Table 6.9: Contour tones on long vowels

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LH</td>
<td></td>
</tr>
<tr>
<td>/laâppuna/</td>
<td>‘seven’</td>
</tr>
<tr>
<td>/k’aâttsi/</td>
<td>‘short’</td>
</tr>
<tr>
<td>/waâssô/</td>
<td>‘to shout, to cry’</td>
</tr>
<tr>
<td>/leé?o/</td>
<td>‘thin (only humans)’</td>
</tr>
<tr>
<td>/miízi/</td>
<td>‘cow’</td>
</tr>
<tr>
<td>/woónno/</td>
<td>‘Colobus monkey’</td>
</tr>
<tr>
<td>/ʔoîní/</td>
<td>‘who.NOM’</td>
</tr>
<tr>
<td>/duússu/</td>
<td>‘to exist’</td>
</tr>
<tr>
<td>/buússu/</td>
<td>‘to go’</td>
</tr>
<tr>
<td>HL</td>
<td></td>
</tr>
<tr>
<td>/dâmm-ées/</td>
<td>‘suck, breastfeed-PRS.3MSG</td>
</tr>
<tr>
<td>/dâmm-óos/</td>
<td>‘suck, breastfeed-PRS.1PL</td>
</tr>
<tr>
<td>/katts-ées/</td>
<td>‘cook-PRS.3MSG</td>
</tr>
<tr>
<td>/katts-óos/</td>
<td>‘cook-PRS.1PL</td>
</tr>
</tbody>
</table>

a rising tone. This can also be seen in Figure 6.3, which is a spectrogram from Praat. In addition to illustrating the word /nuíssa/, there is an alternative version of the same word with a long vowel instead of the diphthong: /nuússu/ ‘for us (our)’.\(^9\) The long diphthongs /aai/ and /ooi/ only occur in two words in the Bonke data, and consequently we cannot say much about the behavior of these diphthongs, and they are not included in this discussion.

Table 6.10: High and low tone on diphthongs

<table>
<thead>
<tr>
<th></th>
<th>High tone</th>
<th>Low tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>ai</td>
<td>/ʔáípe/</td>
<td>‘eye’</td>
</tr>
<tr>
<td></td>
<td>/ʔaidé/</td>
<td>‘when’</td>
</tr>
<tr>
<td>ei</td>
<td>/ts’êtio/</td>
<td>‘to call’</td>
</tr>
<tr>
<td></td>
<td>/deifía/</td>
<td>‘goat’</td>
</tr>
<tr>
<td>oi</td>
<td>/ʔótikka/</td>
<td>‘grab!’</td>
</tr>
<tr>
<td></td>
<td>/goiná/</td>
<td>‘tail’</td>
</tr>
</tbody>
</table>

The examples above all illustrate words where the high tone is on the ultima or penultima syllable of the word. Hayward (1994) claims that the high tone on nominals can only occur on the terminal vowel or on the last vowel of the root. This claim is modified in Hayward and Chabo (2014); high tone can occur on syllables that precede the last vowel of the root. Some examples of Bonke words of this type are listed in (65).

(65) High tone on the first syllable of trisyllabic words

\(^9\)The difference in translation between /nuíssa/ and /nuússu/ is due to the fact that these words were provided by two different informants. I have, as a rule, given the original translations of words.
Figure 6.3: Spectrogram of the words /nuissä/ and /nuissu/ ‘for us, our’

The examples provided above illustrate that tones are not restricted to particular vowels. High tone can occur on syllables with vowels of any quality and quantity, as well as on diphthongs. The present data suggest that all positions of the word are possible locations for high tone. The same is true for low tones.

But it is not the case that all words uttered in isolation have one, and only one, H. The words in (66) illustrate words with high tone on two succeeding syllables. Hayward
and Chabo (2014) point out that the word /ʔissínó/ ‘one’ cannot be explained by the tone spreading process they postulate, and they conclude that Gamo has a few words with lexical tone, including this one. The structure of /ʔissínó/ is presented in (67). The other words can be analyzed in the same fashion. The existence of words with more than one H is not a problem in a tone analysis where accents are not a part of the explanation for the occurrence of H.

\[(66)\]

**High tone on more than one syllable**

a. /ʔimáttsi/ ‘guest’

b. /ʔissínó/ ‘one’

c. /ʔiʃáʃá/ ‘five’

In Table 6.11 all the possible combinations of tone on three-syllabled words are exemplified. Note that the only combination that was not accounted for was with two non-adjacent Hs.\(^\text{10}\)

<table>
<thead>
<tr>
<th>LLL</th>
<th>(tá) /gawara/(^\text{11}) ‘(my) cat’</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLL</td>
<td>/ʔátʃaro/ ‘spider’</td>
</tr>
<tr>
<td>LHL</td>
<td>/goʃʃánʃa/ ‘farmer’</td>
</tr>
<tr>
<td>LLH</td>
<td>/godaré/ ‘hyena’</td>
</tr>
<tr>
<td>LLH</td>
<td>/metterʃʃa/ ‘lower lip’</td>
</tr>
<tr>
<td>HHL</td>
<td>/ʔimáttsi/ ‘guest’</td>
</tr>
<tr>
<td>LHH</td>
<td>/ʔiʃáʃá/ ‘five’</td>
</tr>
<tr>
<td>HHH</td>
<td>/béétémné/ ‘are they leaving?’</td>
</tr>
</tbody>
</table>

Alongside words with more than one occurrence of high tone, there are some words that do not have any high tone when they are uttered in isolation. Examples of such words are listed in (68), and the analysis of the word /deemo/ ‘forehead’ is represented in (69). The tonal accent analysis has problems explaining these words. The reason for this is that when under this analysis every word uttered in isolation will receive H, either by the default rule or by association to an accent. In the tonal accent analysis proposed by Hayward and Chabo (2014), all tonal phrases must have one high tone. A word uttered in isolation is a tone phrase. Thus, the high tone is mandatory. Words with only low tones are a violation of this.

\(^{10}\)This phenomenon is discussed in Hayward (2005).

\(^{11}\)I did not find any examples of three-syllabled words with only L uttered in isolation, but modified heads have only low tone, cf. section 6.4.3.
6.4.2 Tone on extended phrases

According to Hayward (1994) and Hayward and Chabo (2014) the noun in an extended phrase will not have any high tones. The only word in an extended phrase to have high tone is the first, or leftmost, word. With regard to the Bonke data, the first part of this claim seems to be true. Nouns in an extended phrase do not have high tones. If the noun is only preceded by one other word in the phrase, the first word will have high tone(s). Later, we will see that the second part of the claim is not true for the Bonke variety.

When a noun is preceded by a pronoun, only the pronoun has high tone. Before I discuss the phrases, I will make a brief comment about the pronouns. In Table 6.12 the pronouns are listed. Note that the short nominative pronouns for the second and third person singular and plural are identical to the genitive pronouns. It may be the case that these short pronouns and genitive pronouns should rather be listed together, but in the data they can have two different functions. The short forms can function as the subject of a verb, both transitive and intransitive. The short forms also occur as the possessor in a phrase that expresses possession. It was this difference in function that led me to place the short forms in two separate columns. The third person pronouns, both singular and plural, do not have an analogous short version of the pronoun, but I have placed them in the same column because they all express possession when they occur before nouns. Hayward and Chabo (2014, p. 100) call the third person pronouns for ‘obliques’, and they analyze the short forms as determiners. I have not carried out a grammatical analysis of the Bonke variety, so I will not enter into a discussion of whether the short forms are pronouns or determiners. Hompó (1990, p. 371) combines the short forms and Hayward and Chabo’s obliques and calls them “short form or genitive”. We shall continue to call the same forms genitive, because they mark the possessor in a phrase internal possessive relation, cf. the definition of genitive in Dixon (2010a).\footnote{Genitive: marker of an intra-NP possessive relation, which is added to the possessor item.” Dixon (2010a, p. 337).}

An interesting aspect of the Bonke variety of Gamo is that the pronouns for the third person plural are not the same as the ones we find in the literature on Gamo. Hompó (1990) and Hayward and Chabo (2014) give the following forms (note that Hompó does not mark tone): īsti (nominative), īsta (accusative), īsta (genitive). I have added the case \footnote{Alternative pronunciations of the second person plural pronouns are /ʔínte/ (nom. long), /ʔínte/ (nom. short), /ʔíntena/ (acc.), and /ʔínte/ (gen.).}
Table 6.12: Pronouns in the Bonke variety of Gamo

<table>
<thead>
<tr>
<th>Person</th>
<th>Nominative long</th>
<th>Nominative short</th>
<th>Accusative</th>
<th>Genitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>taní</td>
<td>tá</td>
<td>tana</td>
<td>tá</td>
</tr>
<tr>
<td>2</td>
<td>není</td>
<td>né</td>
<td>nena</td>
<td>né</td>
</tr>
<tr>
<td>SG</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3M</td>
<td>?ízi</td>
<td>?íza</td>
<td>?ízá</td>
<td></td>
</tr>
<tr>
<td>3F</td>
<td>?íza</td>
<td>?ízo</td>
<td>?ízá</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>muní</td>
<td>nú</td>
<td>nuna</td>
<td>nú</td>
</tr>
<tr>
<td>PL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>?ízeti</td>
<td>?ízeta</td>
<td>?ízéta</td>
<td></td>
</tr>
</tbody>
</table>

specifications in parentheses, and they follow the same pattern as in Table 6.12.

In Table 6.13 different nouns with a preceding pronoun are listed. The pronouns are translated to ‘my’, ‘your.SG’, ‘his’, ‘her’, ‘our’, ‘your.PL’, and ‘their’, so that the first line in the table is translated as ‘my foot, leg’, ‘my donkey’, ‘my Colobus guereza’, ‘my cat’ and ‘my egg’. As can be seen, none of the nouns have high tone, even though they have a high tone when they are uttered in isolation. The phrase /tá gawar a/ is illustrated in (70). From the high tone there will be a gradual decrease in pitch throughout the rest of the phrase. This means that the first syllable in /gawara/ ‘cat’ (in the phrase /tá gawara/) will have higher pitch than the last syllable, even though they are all analyzed as syllables associated with an L tone. This drop in pitch can also be seen in the spectrogram on Figure 6.4.

(70)

This decrease in pitch, which we will analyze as down drifted, is discussed more in section 6.7. We will see that not only low tones are affected by this process.

The same pattern, where the noun is without high tone, is also observed in phrases with one adjective and a noun, see Table 6.14. Adjectives that have H on a syllable in the stem (i.e., not on the last syllable of the word) when they are uttered in isolation can have more than one syllable associated with H in a phrase. This is exemplified by the last three phrases in Table 6.14. Adjectives that have H on the terminal vowel, that is, the last syllable in the word, will not undergo any changes in the tone association when they occur in phrases.

14Down drift is sometimes referred to as automatic downstep
Figure 6.4: Spectrogram of the phrase /tá gáwará/ ‘my cat’

Example 6.4: Spectrogram of the phrase /tá gáwará/ ‘my cat’

Table 6.13: Tone in phrases composed of pronoun + noun

<table>
<thead>
<tr>
<th></th>
<th>‘foot, leg’</th>
<th>‘donkey’</th>
<th>‘Colobus guereza’</th>
<th>‘cat’</th>
<th>‘egg’</th>
</tr>
</thead>
<tbody>
<tr>
<td>/tóó/</td>
<td>tá too</td>
<td>tá hare</td>
<td>tá woonno</td>
<td>tá gawara</td>
<td>tá ɓuufulle</td>
</tr>
<tr>
<td>/hare/</td>
<td>nê too</td>
<td>nê hare</td>
<td>nê woonno</td>
<td>nê gawara</td>
<td>nê ɓuufulle</td>
</tr>
<tr>
<td>/ɓuufülle/</td>
<td>nú too</td>
<td>nú hare</td>
<td>nú woonno</td>
<td>nú gawara</td>
<td>nú ɓuufulle</td>
</tr>
</tbody>
</table>

The compound nouns exemplified in Table 6.15 show the same tonal pattern as the phrases in Table 6.14. The second noun, i.e. the head noun, does not have any H tone. If the first noun has H tone on the last syllable when uttered in isolation, this is the only H tone that we find in this construction. If, however, the first noun, when uttered in isolation, has an H tone on a non-final syllable, we will find two syllables with high tone on the compound noun. This is illustrated in Table 6.15, where the last three examples show a noun with H on two succeeding syllables.

To explain the last examples where the adjective has more than one syllable associated to H, Hayward and Chabo (2014) propose a process of tone spreading. I agree with Hayward and Chabo that this is tone spreading, as represented in (71). That I agree that this is tone spreading from the first to the second syllable of /húʔé/, does not entail that I agree with the tonal accent analysis. As I have already mentioned, the tonal accent analysis cannot
6.4. **TONE ON WORDS AND PHRASES**

### Table 6.14: Tone on phrases composed of adjective + noun

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Adjective</th>
<th>Noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>/?adussá ?azína/</td>
<td>/?adussé/</td>
<td>/?azína/</td>
</tr>
<tr>
<td>/gáfé brádé/</td>
<td>/gáfé/</td>
<td>/brádé/</td>
</tr>
<tr>
<td>/kaaló ?ifá/</td>
<td>/kaaló/</td>
<td>/?ifá/</td>
</tr>
<tr>
<td>/gílk’á gawara/</td>
<td>/gílk’a/</td>
<td>/gawara/</td>
</tr>
<tr>
<td>/ló?o para/</td>
<td>/ló?o/</td>
<td>/para/</td>
</tr>
<tr>
<td>/mínó mitts/</td>
<td>/mínó/</td>
<td>/mittsi/</td>
</tr>
</tbody>
</table>

### Table 6.15: Tone on compound nouns

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Noun</th>
<th>Noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>/gaammó goopare/</td>
<td>/gaammó/</td>
<td>/gopáre/</td>
</tr>
<tr>
<td>/kapó k’epé/</td>
<td>/kapó/</td>
<td>/k’epé/</td>
</tr>
<tr>
<td>/dorssá ?ité/</td>
<td>/dorssá/</td>
<td>/?ité/</td>
</tr>
<tr>
<td>/mízí hu?e/</td>
<td>/mízí/</td>
<td>/hú?e/</td>
</tr>
<tr>
<td>/mízí ?ísike/</td>
<td>/mízí/</td>
<td>/?ísike/</td>
</tr>
</tbody>
</table>

account for the contour tones on syllables with short vowels. In the next section I will offer a different explanation for the non-occurrence of H on the head noun.

(71) /hú?é ?ísike/ ‘head hair’

Another possible explanation for the pattern I discussed above is that there is a construction specific H that needs to be present on the last syllable of the modifying word in an extended phrase. There are a few reasons why this does not seem to be the correct analysis. First of all, the pronoun /?ízétá/ ‘their’ does not have H on the last syllable of the word when it occurs as the possessor in a phrase expressing possession, as seen in Table 6.13. Secondly, when the adjective is trisyllabic with H on the first syllable, we do not find H on the last syllable of the adjective, like in (72). It does look like the spreading is restricted to, or at least most common, when the penultima syllable in the adjective has H.
a. /géédossa naʔa/ ‘younger child’

b. /wúrissetsa mitso/ ‘last (youngest) sister’

In the next section we discuss the non-occurrence of H on the head noun in the type of phrases we have just discussed.

6.4.3 Toneless NP heads

We need to account for the fact that the head in an NP never has any high tones when it is preceded by one or more modifiers. The head of the NP is the noun. Gamo is a head-final language, and the head noun is thus the rightmost word in these phrases. Recall that the analysis in Hayward and Chabo (2014) explains this by allowing only the first word in the phrase to have H, either by default association or by association of H to an accentuated vowel. This H can spread if it occurs on a non-final mora. In this thesis I will adopt a different approach. I will argue that the head nouns undergo H deletion.

I have illustrated two of the phrases in Table 6.14; one phrase where the adjective has H on the last syllable, and one phrase where the adjective have H on the first syllable. These examples are representative for NPs with one modifier, as well as for compound nouns like those in Table 6.15. (73) is an example of a phrase with an adjective and a noun. We can observe two changes in the phrase relative to when words are uttered in isolation. The first change is a change in the final vowel of the adjective from /e/ to /a/. The second change is that the noun only has L tone. In example (74) the noun behaves in the same manner as in the first phrase. The difference is on the adjective: H has spread to the final syllable of the adjective. So far, Hayward and Chabo’s analysis meets no challenges.

However, in phrases where the head noun is preceded by more than one modifier, problems arise for the tonal accent analysis. As can be seen from the phrases in (75), both the modifiers have their original high tone. Another observable difference is that H does not
6.4. TONE ON WORDS AND PHRASES

spread. Phrases like these challenge the tonal accent analysis proposed by Hayward and Chabo. It can no longer be the case that H is uniquely assigned to the first word of the tone phrase, unless these phrases constitute two distinct tone phrases. This tonal behavior, where the modifying elements have H but the noun does not, is also observed in Wolaitta, a closely related language (Azeb Amha, 1996).

(75)  

a. /namú́ maśarā́ gawara-ta/  

two colorful cat-PL  

‘Two colorful cats.’

b. /heeddū́ gafḗ ?uzunts’e/  

three small fly  

‘Three small flies.’

c. /tāmmú gitá́ darffo-ta/  

ten big male.sheep-PL  

‘Ten big male sheep.’

d. /tāmmú gafḗ k’aare-ta/  

ten small grivet monkey-PL  

‘Ten small grivet monkeys.’

e. /tā́ kóóro naa/  

my oldest son  

‘My oldest son.’

f. /tāás geédossa ?ifa/  

my younger brother  

‘My younger brother.’

The examples in (75) suggest that the non-occurrence of H on the noun is not linked to a restriction in the Bonke variety of Gamo that specifies that there can only be one H in a tonal phrase. A different analysis, one that is promoted here, is that the head noun undergoes tone reduction when it is modified. Tonal reduction on head nouns is not unheard of (cf. Hyman, 2009). Yri (2013) draws attention to a phenomenon in Sidaamú ḥafó where the morphology seems to be sensitive to whether the head of a phrase is modified or unmodified. The part of the morphology which is sensitive to this is the case marking and the choice of copula. Sidaamú ḥafó is also spoken in the southwestern part of Ethiopia, but it is classified as Cushitic. In the case of the Bonke variety of Gamo, I argue that the heads will have different phonetic realizations whether they are modified or not.

However, there are some phrases where it could look like the above mentioned restriction is a reality. In the phrases in (76) only the leftmost word has H, and the two following words have L on all the syllables. Still, I argue that the tone pattern of these phrases support the hypothesis of tone deletion on modified head nouns in NPs.

(76)  

a. /tā́ goto soo/ ‘My neighbour’s home’

b. /tā́ ?ifa soo/ ‘My brother’s home’

c. /tā́ mifti soo/ ‘My sister’s home’

d. /tā́ ?ifa keettsa/ ‘My son’s house’

If we take a closer look at the structure of the phrases, we will see that they are not the same.
The first phrase in (75a) has two adjectives, /nam?ú/ and /masará/, that modify the head of the NP. There is only one noun in this phrase. In (75f), the adjective /géédossa/ modifies the noun /qífa/ and these two words constitute an NP which is modified by the pronoun /táás/. Again, there is only one noun that functions as the head for the whole phrase. In the third phrase in (76), there are two nouns, /gota/ and /soo/. The last noun, /soo/, is the head of the phrase as a whole. But the other noun, /gota/, is the head of an NP that modifies /soo/. This NP also has a modifier, namely the pronoun /táás/. A possible explanation for why only the first word in this phrase has H is that the other words are modified heads of NPs, and can thus not be associated to any H. We have already seen that compound nouns have H on the first noun, so it does not seem reasonable to propose an explanation where nouns never have H in NPs except if they are the only word in the phrase. The hypothesis presented here should be tested further to see if it is the modified/unmodified status of the heads that is decisive, or if another explanation is to be preferred. It could be that the possessive relation between the two nouns in (76) is more important. To solve this problem, more research is needed.

6.5 Tone on verbs

We do not find H on all inflected verb stems in the Bonke variety of Gamo. This is consistent with the findings of Hayward and Chabo. Note that the citation form of the verbs always has H on the stem. In this thesis the citation form of verbs ending in -o are translated into infinitives. This is done because these forms were translated into English infinitives by the informants themselves. Hayward and Chabo call these forms verbal nouns. In Table 6.16 and 6.17 the inflected forms of two different verbs are illustrated: /haasá?o/ ‘to speak’ does not have H on the stem, only on the inflectional suffix. The verb /bóngoto/ ‘to lie on the back’ has H on the stem, but also on the next two syllables. This is attributed to tone spreading in Hayward and Chabo (2014). Here, the tone spreading is retained in the analysis. But before the analysis is presented, we will have a look at the verb inflections.

The suffixes have the same form regardless of whether or not the verb stem has H. Three of these suffixes are bisyllabic, and the remaining four are monosyllabic. The monosyllabic ones are closed, while the bisyllabic ones end in an open syllable. There seem to be two general patterns in the present/imperative declarative suffix. After the verb stem there is always a long vowel or a diphthong. This pattern could be argued to support the diphthong analysis presented in Chapter 3. If the last vowel in /-ais/ and /-aus/ were analyzed as glides, the pattern of bimoraic nuclei would not surface. Another regularity is that the suffixes always have the tone pattern HL. When the suffix is monosyllabic, we observe a falling pitch on the long vowel or diphthong. However, when the suffix is bisyllabic, H and L are associated to one syllable each. This is illustrated in (77).

15The suffixes can be argued to have internal structure, but this is not relevant for this purpose.
6.5. TONE ON VERBS

Table 6.16: Inflected verbs: present/imperfective

<table>
<thead>
<tr>
<th>/haasaʔo/ ‘to speak’ present or imperfective</th>
<th>/bóngoto/ ‘to lie on the back’ present or imperfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG  tání haasaʔ-áis</td>
<td>1SG  tání bóngót-áis</td>
</tr>
<tr>
<td>2SG  néní haasaʔ-áása</td>
<td>2SG  néní bóngót-áása</td>
</tr>
<tr>
<td>3MSG ?fízí haasaʔ-ées</td>
<td>3MSG ?fízí bóngót-ées</td>
</tr>
<tr>
<td>3FSG ?fízá haasaʔ-áus</td>
<td>3FSG ?fízá bóngót-áus</td>
</tr>
<tr>
<td>1PL  núní haasaʔ-ós</td>
<td>1PL  núní bóngót-ós</td>
</tr>
<tr>
<td>2PL  ?intení haasaʔ-ééta</td>
<td>2PL  ?intení bóngótt-ééta</td>
</tr>
<tr>
<td>3PL  ?ízeti haasaʔ-ééttes</td>
<td>3PL  ?ízeti bóngótt-ééttes</td>
</tr>
</tbody>
</table>

As already mentioned, Hayward and Chabo explain the tones on the suffixes in (77) by tone spreading. In their analysis the high tone spreads rightward, but cannot spread onto the last mora if this is word-final, and this results in a falling pitch on the monosyllabic suffixes, as well as the level high tone on the first syllable and low pitch on the last syllable of the bisyllabic suffixes. Recall that the high tone is associated to the first post-thematic vowel by a rule of default association. Now, let us turn to the verb with H on the stem. When we look at the inflection of /bóngoto/ ‘to lie on the back’ we see that we have H on three succeeding syllables. This is also a result of tone spreading in Hayward and Chabo’s tonal accent analysis. In their terms, /bóngoto/ is accentuated on the first syllable, and from this position H spreads all the way to the last mora of the verb. I propose a different analysis where the first syllable of the verb stem and the suffix have H. The intermediary syllable will be raised because it occurs between two high tones. This process is illustrated in (78) and (79). The first example is of a form with a monosyllabic suffix, and the second of a form with a bisyllabic suffix. The proposed analysis is the same for both types. The first stage shows the two high tones on the verb stem and the suffix respectively. The second stage is meant to illustrate that the tone on the intermediate syllable is heightened. The last stage shows the tone pattern that we actually observe.
(78) /bóngótáis/ ‘lie on back.PRS.1SG’

\[
\begin{array}{cccc}
\text{H} & \text{L} & \text{H} & \text{L} \\
\sigma & \sigma & \sigma & \sigma \\
\text{bóngótáis} & \text{bóngótáis} & \text{bóngótáis}
\end{array}
\]

(79) /bóngótáása/ ‘lie on back.PRS.2SG’

\[
\begin{array}{cccc}
\text{H} & \text{L} & \text{H} & \text{L} \\
\sigma & \sigma & \sigma & \sigma \\
\text{bóngótás} & \text{bóngótás} & \text{bóngótás}
\end{array}
\]

The same analysis can be applied to the same verbs when they are inflected in the past/perfect. These suffixes also have the HL pattern, but here all the suffixes are made up of more than one syllable, so that there are no falling tones. An L that occurs between the H of the stem and the H of the suffix will be raised to H. This is illustrated in Table 6.17.

<table>
<thead>
<tr>
<th>/haasáʔo/ ‘to speak’</th>
<th>/bóngoto/ ‘to lie on the back’</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>past or perfect</strong></td>
<td><strong>past or perfect</strong></td>
</tr>
<tr>
<td>1SG  táni haasaʔ-ádis</td>
<td>1SG  táni bóngót-ádis</td>
</tr>
<tr>
<td>2SG  není haasaʔ-ádasa</td>
<td>2SG  není bóngót-ádasa</td>
</tr>
<tr>
<td>3MSG ?izí haasaʔ-ídes</td>
<td>3MSG ?izí bóngót-ídes</td>
</tr>
<tr>
<td>3FSG ?izá haasaʔ-ádus</td>
<td>3FSG ?izá bóngót-ádus</td>
</tr>
<tr>
<td>1PL  núni haasaʔ-ídeta</td>
<td>1PL  núni bóngót-ídeta</td>
</tr>
<tr>
<td>2PL  ?íntení haasaʔ-ídeta</td>
<td>2PL  ?íntení bóngót-ídeta</td>
</tr>
<tr>
<td>3PL  ?ízeti haasaʔ-ída</td>
<td>3PL  ?ízeti bóngót-ída</td>
</tr>
</tbody>
</table>

In Table 6.18 some other verbs with the same behavior are listed. Here, the first person singular form is given to show whether the verb stem has a high tone or not. The choice of the first person singular is not significant. Any of the other forms of the verb could be used to illustrate the same point. If the verb only has H on the suffix, the stem is without H, and the tone pattern is the same as for /haasáʔo/. Conversely, verbs with H on the stem as well as on the suffix in the first person singular form pattern like /bóngoto/. The verbs with the citation form -uússu have roots with only one consonant, and H is consequently located at the suffix, since there is no preceding syllable that could serve as the TBU. The choice of the first person singular is not significant. Any of the other forms of the verb could be used
to illustrate the same point. More complex verb forms were not systematically investigated
due to the difficulty of eliciting such forms.¹⁶

<table>
<thead>
<tr>
<th>Citation form</th>
<th>1SG</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>/tání gamó</td>
<td>/táni'is/</td>
<td>‘I am Gamo.’</td>
</tr>
</tbody>
</table>

¹⁶Had Hayward and Chabo (2014) been accessible to me before I finished my fieldwork, I would have tried
to test more complex verb forms.
b. /tání gamó-kko/
   I Gamo-PRED/COP/FOC
   ‘I am Gamo.’

Even though non-verbal predication is possible, the great majority of the sentences in
the Bonke data have verbal predicates. As for the tones in these sentences, it seems like
the tone on the sentence as a whole is more or less equal to the tone on the different words
and phrases that constitute the sentence. NPs will to a great extent behave as described
in section 6.4.2, that is, with tone reduction on the head noun. An exception is presented
below in the section on downrift. A selection of sentences is presented in (81). H is marked
on every syllable where it occurs. Phrases that consist of more than one word are enclosed
in square brackets.

(81) a. /?ōto-n katt-áis/
    pot-INS cook-PRS.1SG
    ‘I cook in a pot.’

b. /náá-zí [dorssá ?ite] be?-ídes/
    boy/child-DEF.NOM sheep skin see-.PST.3MSG
    ‘The boy/child saw sheep skin.’

c. /?ízá [bé ?aajo] ts’éig-ádus/
    she.NOM her mother call-PST.3FSG
    ‘She called her (own) mother.’

d. /haissí [nú so-kko]/
    this.M.NOM our home-PRED/COP/FOC
    ‘This is our home.’

e. /gawará-i máátsi ?új-ídes/
    cat.NOM milk drink-PST.3MSG
    ‘The (a) cat drank milk.’

    big cat-NOM small mouse grab-PST.3MSG
    ‘The (a) big cat caught the small mouse.’

In all of the sentences presented above, we can see that the predicate and all the arguments
have H. The only exception is in phrases with more than one word. I have argued that this
is because H does not associate to a modified head of a phrase. The difference between tone
on phrases and in sentences can also be illustrated as in (82) and (83). Note that we do not observe tone spreading in either of these phrases, which suggests that the tone spreading is optional.

(82) Sentence:  
/muúze-ti kats’á-kkø/  
banana-PL.NOM ripe-PRED/COP/FOC  
‘The bananas are ripe.’

(83) Phrase:  
/káts’a muuze/  
ripe banana  
‘Ripe banana.’

6.7 Downdrift

In sentences like those in (81) the high tones at the beginning of the sentence are higher than the ones occurring later in the utterance. This is a case of downdrift where the pitch of the sentence is automatically lowered towards the end of the utterance. Declarative sentences usually end in a very low pitch, sometimes accompanied by creaky or breathy voice on the final vowel. In the Bonke data these two phonation types are not found in any other position than utterance-finally. In the phrase /ʔátʃaro keettsı/ ‘spider web, lit. spider house’ we observe this, see Figure 6.5. The last /i/ is almost not audible.

Figure 6.5: Spectrogram of the phrase /ʔátʃaro keettsı/ ‘Spider web, lit. spider house’

In Figure 6.6 the downdrift on the short sentence /ʔóton katsáiʃ/ ‘I cook in a pot’ is illustrated with a spectrogram. This sentence has two high tones, as marked in the transcription. The pitch of the contour tone (HL) on the last syllable of the verb is lower than the L on the last syllable of /ʔóton/, but it is audibly higher than the preceding syllable. If there were no high tones after the first one, we would expect the last syllable to be much lower than it is.
6.8 Intonation

There is an alternative pronunciation of the last sentence in (81), where the subject NP behaves in an unpredicted way with respect to tone. The sentence with the alternative pronunciation is found in (84). As we can see, the subject NP /gitá gawaraí/ had H on both the adjective and the head noun. The last syllable of the noun has a rising pitch, which I have represented with an accent on the last vowel. The high pitch on the head noun is here attributed to a case of phrase-final rising intonation that signals non-finality - the sentence is not complete, and more will follow. This type of intonation is very striking in slow, foreigner directed speech,\(^{17}\) and in non-final elements in a list.

(84) /gitá gawara-í guütsá ðef’ere ðoikk-ides/

big cat-NOM small mouse grab-PST.3MSG

‘The (a) big cat caught the small mouse.’

6.9 Tonal accent language?

Hayward (1994) and Hayward and Chabo (2014) claim that Gamo is best analyzed as a tonal accent language. This is because of the alleged syntagmatic behavior of the high tone in the tone phrase. I hope to have shown above that at least the Bonke variety of Gamo is better analyzed as a tone language, and that it is possible to explain the behavior of the

\(^{17}\)By slow, foreigner-directed speech I mean the slow and highly articulated way the informants sometimes spoke to me. A sentence uttered in this fashion would have longer pauses between phrases, and sometimes between words in the same phrase.
tones without resorting to accents. In this section I will summarize the arguments against a tonal accent analysis of the Bonke variety of Gamo, and link them up to the discussion of tonal/pitch accent languages in general.

In the following we shall enter into the discussion of what tonal accent (or pitch accent) languages are. For convenience I will refer to tonal accent/pitch accent languages as accentual languages. Accentual systems can be defined as systems where a tone system has one or more properties that are typical for stress systems.\textsuperscript{18} Examples of such properties can be that the tones have a culmination function, that they are obligatory, that there are restrictions on which positions the tones can have, or that tone and stress interact (Downing, 2010). Tone can also be seen as paradigmatic, whereas accent (and stress) is syntagmatic (Hyman, 1978). Yip (2002) argues that the accentual languages are just a subtype of tone languages. She characterizes accentual languages in the following way:

\begin{quote}
Accentual languages typically have a lexical contrast between tone and no tone, with each morpheme having a maximum of one tone or tonal complex whose location must be lexically specified, and even morphologically complex words often allowing only one tone to surface. Yip (2002, p. 258)
\end{quote}

This type of definition of accentual systems is often accompanied by a three-way classification of the prosodic types possible for the languages of the world. A language could have a stress system, a tone system, or an accentual system. However, whether accentual languages should be recognized as a third prosodic type in addition to stress and tone is also challenged. Yip (2002, p. 4) claims that “There is no absolute division between accent languages and tone languages, just a continuum from ‘accent’ to ‘tone’ as the number and denseness of tones increase, and they become freer to move around”. She views accentual languages as a subtype of tone languages, and she regards the term accentual as a convenient descriptive term for languages where tone is subject to restrictions.

A different objection can be found in Hyman (2009). According to him, the languages that are called pitch/tonal accent languages do not make up a coherent class of languages, and should therefore not be considered a distinct prosodic type. In addition, he argues that all of the proposed defining criteria for pitch/tonal accent systems are found in true tone languages. One of the tones can be obligatory in a true tone language. Furthermore, a tone language may have a restriction on one of the tones, so that there can be no more than one

\textsuperscript{18}The definition for stress language below is taken from Hyman (2006, p. 231).

A language with stress accent is one in which there is an indication of word-level metrical structure meeting the following two criteria:

(a) **Obligatoriness**: every lexical word has \textit{at least} one syllable marked for the highest degree of metrical prominence (primary stress);

(b) **Culminativity**: every lexical word has \textit{at most} one syllable marked for the highest degree of metrical prominence.
such tone in a given domain. This means that tones can be culminate in tone languages as well. Another criteria is privativity, and Hyman argues that privativity cannot be a decisive criteria for positing a class of pitch accent languages. Finally, he shows that tones in a tone language may be influenced by metrical structure.

Hyman (2001b, 2009) claims that the accentual languages do not form a distinct prosodic type because it is not possible to find an independent definition of pitch accent, and there is no prototype of this proposed prosodic type, as opposed to tone and stress. He argues that it is better to classify languages along a continuum with two prototypes of prosodic types in each extremity: a prototypical tone system in one end, and a prototypical stress system in the other end. The accentual languages are, according to Hyman, languages that mix the properties of stress and tone systems. Hyman (2009) argues that a tonal analysis is always possible for languages that are analyzed as accentual languages. Another possible objection to operating with a class of accentual languages is that accent cannot be measures, in contrast to stress and tone (Gussenhoven, 2006). This leaves accent as an analytical notion. We can thus conclude that there is no need to analyze the Bonke variety of Gamo, and by extension Gamo, as a tonal accent language. A tone analysis suffices.

There are also language-internal reasons as to why we should not analyze the Bonke variety as a tonal accent language. These are summarized here. The occurrence of contour tones on short vowels is very problematic for the tonal accent analysis, regardless of whether it is the syllable or the mora that is the tone bearing unit. If the mora is the TBU, it is hard to explain how an accentuated mora can have a contour tone. The accentuated mora should only attract H, and when H is associated to the accentuated mora there is no more room on this TBU. It is difficult to support an analysis where the accentuated mora is associated to H but still has room for an L. The occurrence of both falling and rising contour tones on long vowels is also problematic in the tonal accent analysis proposed by Hayward and Chabo (2014). In this analysis, the first of the two morae is accentuated. To explain the rising tones, we would have to posit a rule that shifts the tone from the first to the second mora in some long vowels. An analysis where there are no accents and tone is associated “directly” to the TBU, seems therefore to be a more economical analysis.

6.10 Summary

I have argued that the Bonke variety of Gamo should be analyzed as a tone language where both high and low tone are specified. The tone bearing unit is the syllable. The justification for this claim is that syllables with both short and long vowels may have the same number of tones, including contour tones. In a sentence the predicate and the arguments will have high tone, but the head in a noun phrase does not have H. It seems like there is a correlation between whether or not the heads are modified and the high tone. The proposed explanation for the difference in tone between head noun is that modified heads do not have H.
My claim is that the tonal accent analysis proposed by Hayward and Chabo (2014) cannot explain the behavior of the tones in the Bonke variety. The problems for this analysis is listed below:

- Contour tones
- Only low tones on words uttered in isolation
- High tone on two modifying elements before the head

Hayward and Chabo operate with a not insignificant number of exceptional tone patterns, notably for the negative declinations of the verb. These exceptions could maybe be accounted for under a tonal analysis.
Chapter 7

Summary

This thesis is a work of descriptive linguistics, based on the cumulative theory Basic linguistics.

The data were collected during two periods of fieldwork in Ethiopia, as described in an earlier chapter. In the preceding chapters I have presented my description of some of the aspects of the phonology of the Bonke variety of Gamo, regarding the vowels, the consonants, the phonotactics, and the tonology. My goal was to establish the phoneme inventory of the Bonke variety of Gamo, and to see if this variety of Gamo was a tone language.

The Bonke variety of Gamo has five short and five long vowels, in addition to diphthongs. Vowel quality and vowel quality are distinctive. These findings are in accordance with the findings from research on another variety of Gamo. I have argued that the consonant inventory of the Bonke variety consists of 25 phonemes, and I have explained what the phonologically relevant properties for each phoneme are. I have not divided the consonants into obstruents and sonorants. Out of the 25 consonants there are eight sibilants. The analysis of the consonant system is in some respects different to earlier descriptions of Gamo. This is explained in the chapter on consonants. In my account of the consonant clusters, I have reported word-initial consonant clusters that were not mentioned in the literature before. Gemination is also mentioned.

The tonology of the Bonke variety of Gamo was discussed in length, and I argue that the tonal accent analysis proposed for the Chencha variety cannot explain how the tones behave in my material. The phenomenon of no high tones on head nouns was discussed, and I proposed that the explanation might be that modified and unmodified nouns are realized in different way phonetically.

The biggest problem relating to this work is that there are no texts in the data. The thesis and the analyses, especially on the matter of tonology, may have looked different if the data did not consist of only short utterances.

I hope that this thesis, including the word list, will be of interest for future research on Gamo and other Ometo languages. I also hope that it can inspire future Master students to go out and do linguistic fieldwork.
7.1 Further research

Many questions posed in this thesis remain unanswered. The present thesis does not and cannot provide an exhaustive description of the phonology of the Bonke variety of Gamo. To come closer to this goal, more research is needed.

- There is probably more variation within the Bonke area that what the data here reflect. A comparative study of the speech within this area could shed light on this, as well as on whether an internal classification within Gamo is favorable.

- The long diphthongs are worth looking into to see whether or not they can occur in other words.

- Acoustic analyses could help deciding that the articulatory difference is between the sibilants.

- The tone analysis presented in this chapter needs to be tested on more morphologically complex words, both nouns and verb, to see whether it still stands.

- More complex words also deserve to be checked systematically, so that it can be determined if the restriction on sequential geminated consonants also function in the Bonke variety of Gamo.

- The difference between the phonetic realization between modified and unmodified heads deserve to be investigated further. If this can be connected to other phenomena that make the same differentiation in other languages in the area, this would probably be of great interest beyond the field of Ethiopian language studies.
Bibliography


— (2014). “Writing both difference and similarity: towards a more unifying and adequate orthography for the newly written languages of Ethiopia: the case of Wolaitta, Gamo, Gofa, and Dawuro”. In: Journal of Languages and Culture 5.3, pp. 44–53.


## Appendix A

### List of words

<table>
<thead>
<tr>
<th>English</th>
<th>Bonke</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;strong man&quot; a name for strong men</td>
<td>gaâmâmo</td>
</tr>
<tr>
<td>Adam's health (feradâm, bot. rula chalepénis)</td>
<td>tshálâta</td>
</tr>
<tr>
<td>adult</td>
<td>dôdôza</td>
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<tr>
<td>adult</td>
<td>dônza</td>
</tr>
<tr>
<td>after, behind</td>
<td>gujé</td>
</tr>
<tr>
<td>alcoholic person</td>
<td>ñôffámâtja</td>
</tr>
<tr>
<td>all</td>
<td>wûri</td>
</tr>
<tr>
<td>all 2</td>
<td>ñuhbó</td>
</tr>
<tr>
<td>alone</td>
<td>kôbâ</td>
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<tr>
<td>alternative name for lunch or breakfast (depending on the place)</td>
<td>láâteâta</td>
</tr>
<tr>
<td>anger</td>
<td>hânkô</td>
</tr>
<tr>
<td>animal (koined: méhe + doñâ + ñësí)</td>
<td>médôsisa</td>
</tr>
<tr>
<td>ankle</td>
<td>kintçipille</td>
</tr>
<tr>
<td>ant</td>
<td>ñôntçipille</td>
</tr>
<tr>
<td>apple</td>
<td>ñippele</td>
</tr>
<tr>
<td>area (where groups of families live)</td>
<td>hêêra</td>
</tr>
<tr>
<td>arm (including hand)</td>
<td>kûfe</td>
</tr>
<tr>
<td>ampit</td>
<td>jufjôô</td>
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<tr>
<td>arrow</td>
<td>donge toora</td>
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<tr>
<td>ash 1</td>
<td>nûkô</td>
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<tr>
<td>ash 2</td>
<td>bidîntesâí</td>
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<td>autumn</td>
<td>ñassúnn</td>
</tr>
<tr>
<td>axe (big)</td>
<td>bêitéše</td>
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<td>axe (small)</td>
<td>kàlla</td>
</tr>
<tr>
<td>baboon</td>
<td>gelefjô</td>
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<tr>
<td>buck</td>
<td>boltà</td>
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<td>English</td>
<td>Swahili</td>
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<td>------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>back of neck</td>
<td>ganna</td>
</tr>
<tr>
<td>back of shin</td>
<td>k'ipa</td>
</tr>
<tr>
<td>back; bridge</td>
<td>zokko</td>
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<tr>
<td>bad</td>
<td>?ita</td>
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<tr>
<td>bad</td>
<td>dodza</td>
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<tr>
<td>bad skin (dialect)</td>
<td>gogá</td>
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<td>bad smell</td>
<td>t'sinko</td>
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<tr>
<td>bad thing</td>
<td>zéelko</td>
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<tr>
<td>bag</td>
<td>korodejó</td>
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<tr>
<td>bald</td>
<td>bozá</td>
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<tr>
<td>bamboo stick used in game played on horse back</td>
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<td>bamboo tree</td>
<td>woifíié</td>
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<td>banana</td>
<td>muúze</td>
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<td>barley general name</td>
<td>bungá</td>
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<td>bungé zerets</td>
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<td>barley type 1</td>
<td>muúme</td>
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<td>barley type 2</td>
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<td>barley type 4</td>
<td>bafkalá</td>
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<td>basket / bag with handle</td>
<td>?itzakké</td>
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<td>basket for carrying manure</td>
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<td>basket general name</td>
<td>daarifó</td>
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<td>basket with lid</td>
<td>jere</td>
</tr>
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<td>bat</td>
<td>lablábo</td>
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<tr>
<td>bat</td>
<td>libiibo</td>
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<td>bat; disease caused by bats</td>
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<td>English</td>
<td>Zulu</td>
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<td>baaldla</td>
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<td>baalda</td>
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<td>beard</td>
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<tr>
<td>beautiful</td>
<td>malá lo)o</td>
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<td>become skinny,PST.3MSG</td>
<td>glik'ides</td>
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<td>bee,PL</td>
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<td>beehive (man made)</td>
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<td>beeswax, honey with larvae</td>
<td>maré</td>
</tr>
<tr>
<td>before old age</td>
<td>káíma</td>
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<td>behaviour when grieving</td>
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<td>big basket for carrying things on the shoulders</td>
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<td>bird nest (lit. bird house)</td>
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<td>bone; muscle</td>
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<td>dantesi</td>
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<tr>
<td>brother</td>
<td>ṣajá</td>
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<tr>
<td>brown (lit., looks like coffee)</td>
<td>tukké mala</td>
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<td>build (a house)!</td>
<td>këéts'a</td>
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<tr>
<td>build a house!</td>
<td>keetsé</td>
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<td>burn!</td>
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<td>butterfly, PL, NOM</td>
<td>pîripîttåtî</td>
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<td>by foot</td>
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<td>cabbage (smooth to eat)</td>
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<td>chair leg</td>
<td>ñëûdë too</td>
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<td>charcoal-like, burned</td>
<td>mitföö</td>
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<td>cheek</td>
<td>fàkëllë</td>
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<td>tûra</td>
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<td>chewing</td>
<td>tîfûùmma</td>
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<td>chicken (general name)</td>
<td>kàttëo</td>
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<td>chicken (lit. chicken child)</td>
<td>kàttëo nàa</td>
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<td>chicken, poussin</td>
<td>tìnìfûûtë</td>
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<td>child (past 3-4 years old)</td>
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<td>child, son, daughter</td>
<td>nàa</td>
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<td>child, son, daughter</td>
<td>nàlà</td>
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<tr>
<td>chin</td>
<td>bàëntà</td>
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<td>clan</td>
<td>këëmme</td>
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<tr>
<td>English</td>
<td>Afar</td>
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<td>--------------------------------</td>
<td>----------------------------------------</td>
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<td>clay (lit. potter's soil)</td>
<td>maná biitta</td>
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<td>clean, clear</td>
<td>géjja</td>
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<td>clever</td>
<td>tʃɪnʃa</td>
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<td>clothing, clothes</td>
<td>majó</td>
</tr>
<tr>
<td>cloud</td>
<td>ʃaara</td>
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<td>coal</td>
<td>ts'ɪteʃıntešu</td>
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<td>coffe cup</td>
<td>tukkɛ sine</td>
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<td>coffee</td>
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<td>cold</td>
<td>meegó</td>
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<td>collect (v)</td>
<td>sjɪʃa</td>
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<td>Colobus guereza</td>
<td>woómo</td>
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<td>color, image of something</td>
<td>médu</td>
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<td>colorful (or combination of black and white)</td>
<td>meraa</td>
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<tr>
<td>comfortable, suitable</td>
<td>ʔindzé</td>
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<tr>
<td>cooked, ripe, ready to be eaten</td>
<td>katsa</td>
</tr>
<tr>
<td>cooked (person, food)</td>
<td>ʔıtsa</td>
</tr>
<tr>
<td>cough</td>
<td>k'upɛ</td>
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<tr>
<td>cow</td>
<td>mizi</td>
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<tr>
<td>cow dung hole (lit. road) in wall of house</td>
<td>ʔofa ʔoʃe</td>
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<td>cow, PL</td>
<td>mizata</td>
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<tr>
<td>cracking insect, walking insect</td>
<td>moʃoró</td>
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<tr>
<td>crazy</td>
<td>gǝgʃʃu</td>
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<tr>
<td>crazy</td>
<td>gǝʃʃa</td>
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<tr>
<td>crocodile</td>
<td>hailafọ</td>
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<td>cross-eyed</td>
<td>K'áira</td>
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<td>crow, NOM</td>
<td>kuróf</td>
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<tr>
<td>cup</td>
<td>sine</td>
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</table>
cutting fermented false banana leaves with a bamboo knife

tfóddá

cutting process using a blunt knife
tfóófe

dance (v)
durá

dance (with stick)
máguutsu
dúma
dawning
géjídes
day
gakíssá
gakíssí
day after tomorrow (dialect)
guttá peífsa
day after tomorrow (dialect)
guttá peífi
death
húlk'o
different
dummá
difficult, bad
hándzo
dinner
ka'ó
dinner
kávo
dinner.DEFF.ACC
káwojo
dinner.DEFF.NOM
káwoja
dinner.DEF.M.ACC
káwoza
dinner.DEF.M.NOM
káwozi
dinner.PL.ACC
káwota
dinner.PL.NOM
káwotí
dirt
kita
dirty
?qán'kča'já
dirty
kita
disease
?ádžádíže
dog
kaná
dog fur
kaná ʔêsike
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<th>Munu</th>
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<td>domestic animal</td>
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<td>domestic animal.PL</td>
<td>méhe'ta</td>
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<td>donkey</td>
<td>haré</td>
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<td>door</td>
<td>ṭibittsé</td>
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<td>doorway</td>
<td>wulá</td>
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<td>daggála</td>
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<td>double cockscomb</td>
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<td>dough</td>
<td>gaabila</td>
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<td>dove</td>
<td>ḫaraabóó</td>
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<td>down</td>
<td>dúge</td>
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<td>dream</td>
<td>ṭuhúmo</td>
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<td>drink from barley flower</td>
<td>mutilla</td>
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<td>drizzle, light rain</td>
<td>putussá</td>
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<td>dust</td>
<td>gudullá</td>
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<tr>
<td>each other</td>
<td>beggéédon</td>
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<td>eagle (or volture)</td>
<td>tsʼólo</td>
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<tr>
<td>ear, leaf</td>
<td>haitsésé</td>
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<td>earth</td>
<td>saátá</td>
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<tr>
<td>egg</td>
<td>ɓuuɓille</td>
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<td>egg</td>
<td>ɓuuɓille</td>
</tr>
<tr>
<td>eight</td>
<td>ḩospuna</td>
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<td>eight</td>
<td>hóspuna</td>
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<td>elbow</td>
<td>kúje kuuffá</td>
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<td>elder</td>
<td>ḫábbo</td>
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<td>elder</td>
<td>buirá</td>
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<td>elephant</td>
<td>dungáássi</td>
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<td>enough</td>
<td>gideess</td>
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enough
enter.PRS2SG
evening
evening
evil-eyed person
excuse me (from your heart)!
explosion
eye
eye
brow, eyelash
eyebrows, eyelashes
eyes
face, front
face, front, before
false human general name
false human general name
false human product
false human type 1
false human type 1
false human type 1
false human type 1
false human type 2
false human type 3; make bitter
false human type 4
false human type 5
false human type 6
far
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<td>famer</td>
<td>ɡəʃɑntʃa</td>
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<td>faming</td>
<td>ɡəʃé</td>
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<tr>
<td>faming tool</td>
<td>họsé mantʃo</td>
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<tr>
<td>faming tool</td>
<td>mantʃo</td>
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<td>fat (adj.)</td>
<td>ɱóddo</td>
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<td>fat on meat</td>
<td>ɱóddɛ</td>
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<td>father</td>
<td>ŋəraώá</td>
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<tr>
<td>fear</td>
<td>bəbó</td>
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<td>fear 2</td>
<td>jɛfi</td>
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<td>feather</td>
<td>bɔɪile</td>
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<td>feather (for head dress)</td>
<td>ɡəɪnʃe</td>
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<tr>
<td>feel, legs</td>
<td>tóʊta</td>
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<tr>
<td>feet, legs</td>
<td>tɔbɔtâ</td>
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<tr>
<td>female infant</td>
<td>ɡəʃɹəno</td>
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<tr>
<td>fever</td>
<td>hərɛ mantʃa</td>
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<td>fever</td>
<td>mantʃa</td>
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<td>few, some 1</td>
<td>ʌŋuŋâ</td>
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<tr>
<td>few, some 2; little</td>
<td>ɡaʃé</td>
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<tr>
<td>few, some 3; little</td>
<td>gʊtɪtsu</td>
</tr>
<tr>
<td>finger</td>
<td>bɾɪddle</td>
</tr>
<tr>
<td>fire</td>
<td>təmâi</td>
</tr>
<tr>
<td>firewood</td>
<td>ŋəɛɛtsə mûttsa</td>
</tr>
<tr>
<td>firewood</td>
<td>ŋəɛɛtsə mûttsi</td>
</tr>
<tr>
<td>firewood</td>
<td>ŋəɛɛtsə mûtts</td>
</tr>
<tr>
<td>firewood</td>
<td>təmâi mûttsi</td>
</tr>
<tr>
<td>firewood</td>
<td>təmâi mûtts</td>
</tr>
<tr>
<td>English</td>
<td>Wolof</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>fish</td>
<td>molié</td>
</tr>
<tr>
<td>five</td>
<td>7ufufá</td>
</tr>
<tr>
<td>flower</td>
<td>púdo</td>
</tr>
<tr>
<td>flower</td>
<td>tũüßja</td>
</tr>
<tr>
<td>fly (insect)</td>
<td>7uzúntsé</td>
</tr>
<tr>
<td>fly (insect)</td>
<td>7udüntsé</td>
</tr>
<tr>
<td>foal (horse and donkey)</td>
<td>guttó</td>
</tr>
<tr>
<td>foam</td>
<td>goppontó</td>
</tr>
<tr>
<td>food</td>
<td>kántsí</td>
</tr>
<tr>
<td>food container</td>
<td>kántsí koottsé</td>
</tr>
<tr>
<td>food wrapping made from false banana leaf</td>
<td>koolé jërtfa</td>
</tr>
<tr>
<td>foolish, easy to cheat</td>
<td>7ëéga</td>
</tr>
<tr>
<td>foot</td>
<td>nüké</td>
</tr>
<tr>
<td>foot, leg</td>
<td>tobó</td>
</tr>
<tr>
<td>foot, leg</td>
<td>tóó</td>
</tr>
<tr>
<td>for her (dat.)</td>
<td>7izzís</td>
</tr>
<tr>
<td>for him (dat.)</td>
<td>7izzís</td>
</tr>
<tr>
<td>for me (táássa táássa is said in sympathy)</td>
<td>taássa</td>
</tr>
<tr>
<td>for them (dat.)</td>
<td>7izzésas</td>
</tr>
<tr>
<td>for us</td>
<td>nuńssé</td>
</tr>
<tr>
<td>for you (dat.)</td>
<td>néés</td>
</tr>
<tr>
<td>force</td>
<td>wulcó</td>
</tr>
<tr>
<td>forceful</td>
<td>wulkökiuma</td>
</tr>
<tr>
<td>forearm + hand</td>
<td>wáda</td>
</tr>
<tr>
<td>forehead</td>
<td>deemo</td>
</tr>
<tr>
<td>forehead</td>
<td>lýbëbe</td>
</tr>
<tr>
<td>forehead</td>
<td>lýbëbo</td>
</tr>
</tbody>
</table>
forehead  
side
forrest  
woía
forrest cat  
woía gawara
four  
ʔoikká
fresh cheese  
píla
friend  
lágge
frog general name  
ʔoolkarisi
frog type (big and ugly)  
foédde
from you  
néépe
fruit  
ʔaipá ʔaipé
full (not hungry)  
kało
fur, hair of body  
ʔásíke
fur, hair of body  
ʔásíke
future  
síntsé bága
Gamo  
gamó
Gamo language  
gamótso
Gamo word, language  
gamótso  k’ala
gazelle (lit. forest goat)  
woía ʔeiffé
gimmer, ewe lamb  
ʔuzzó
gimmer, ewe lamb  
ʔuddzó
groat  
ʔeiffá
groat  
ʔeiffé
groat fur  
ʔeiffá ʔitsíke
groat skin  
ʔeiffá ʔite
God  
st’ossé
good  
lóó
<table>
<thead>
<tr>
<th>English</th>
<th>Tlingit</th>
</tr>
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<tbody>
<tr>
<td>grab!</td>
<td>ñóotka</td>
</tr>
<tr>
<td>grandparent</td>
<td>máázi</td>
</tr>
<tr>
<td>grass</td>
<td>maatá</td>
</tr>
<tr>
<td>great grandparent</td>
<td>máže</td>
</tr>
<tr>
<td>great great grandparent</td>
<td>makakúłle</td>
</tr>
<tr>
<td>great great great grandparent</td>
<td>kóotfa</td>
</tr>
<tr>
<td>great-great-great-grandparent</td>
<td>?ankopíre</td>
</tr>
<tr>
<td>green</td>
<td>?ilílo</td>
</tr>
<tr>
<td>grey</td>
<td>bólla</td>
</tr>
<tr>
<td>Grivet monkey</td>
<td>k̤a:né</td>
</tr>
<tr>
<td>group</td>
<td>t̤sug̤í</td>
</tr>
<tr>
<td>growing old (eg, for ox)</td>
<td>b̤í̤ntsso</td>
</tr>
<tr>
<td>guest</td>
<td>?ímátesí</td>
</tr>
<tr>
<td>hair</td>
<td>bínána</td>
</tr>
<tr>
<td>hairy potato</td>
<td>?unúùkko</td>
</tr>
<tr>
<td>happiness</td>
<td>?upáássi</td>
</tr>
<tr>
<td>he.ACC</td>
<td>?ízi</td>
</tr>
<tr>
<td>he.NOM</td>
<td>?ízi</td>
</tr>
<tr>
<td>head</td>
<td>hú?e</td>
</tr>
<tr>
<td>head</td>
<td>hú?e</td>
</tr>
<tr>
<td>head hair</td>
<td>hú?e ?ísike</td>
</tr>
<tr>
<td>head louse</td>
<td>hú?e t̤'uurtse</td>
</tr>
<tr>
<td>heart</td>
<td>wooziná</td>
</tr>
<tr>
<td>heart massage</td>
<td>hóde</td>
</tr>
<tr>
<td>heavy</td>
<td>deetsṳ́</td>
</tr>
<tr>
<td>heavy, thick (inanimates)</td>
<td>duntse</td>
</tr>
<tr>
<td>English</td>
<td>Maa</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>heifer</td>
<td>ṛīssa</td>
</tr>
<tr>
<td>heifer</td>
<td>ṛīssu</td>
</tr>
<tr>
<td>her</td>
<td>ṛizūssa</td>
</tr>
<tr>
<td>here</td>
<td>hāā</td>
</tr>
<tr>
<td>here</td>
<td>hannūn</td>
</tr>
<tr>
<td>his</td>
<td>ṛizūssa</td>
</tr>
<tr>
<td>his</td>
<td>ṛizūssa</td>
</tr>
<tr>
<td>hole in skin</td>
<td>ṛollā gaba</td>
</tr>
<tr>
<td>home</td>
<td>sóō</td>
</tr>
<tr>
<td>honey</td>
<td>ṛéessi</td>
</tr>
<tr>
<td>honey with beeswax</td>
<td>ṛéessa mare</td>
</tr>
<tr>
<td>horn</td>
<td>karfē</td>
</tr>
<tr>
<td>horse</td>
<td>purā</td>
</tr>
<tr>
<td>hour</td>
<td>sāitte</td>
</tr>
<tr>
<td>house</td>
<td>keettsē</td>
</tr>
<tr>
<td>house animals</td>
<td>sóō mehe</td>
</tr>
<tr>
<td>house for domestic animals</td>
<td>méhe keettsa</td>
</tr>
<tr>
<td>house,ACC</td>
<td>keettsá</td>
</tr>
<tr>
<td>house,NOM</td>
<td>keettsí</td>
</tr>
<tr>
<td>how is work?</td>
<td>ṛai ṛootsai</td>
</tr>
<tr>
<td>hundred</td>
<td>tsvéétu</td>
</tr>
<tr>
<td>hunger</td>
<td>gipu</td>
</tr>
<tr>
<td>hunter</td>
<td>junkắntfa</td>
</tr>
<tr>
<td>hunting</td>
<td>junká</td>
</tr>
<tr>
<td>husband</td>
<td>ṛoziná</td>
</tr>
<tr>
<td>hyena</td>
<td>goduré</td>
</tr>
<tr>
<td>hyena.PL-ACC</td>
<td>goduretā</td>
</tr>
</tbody>
</table>
hyena.PL.NOM            godaretú
L.ACC                  tara
L.NOM                  tani
L.nom / my.gen          tá
idea                   k'ọpa
indexfinger             maláta
                      braide
infant                 duđa naa
injera                  sóllo
inside of thigh; the pubic area        wódra
intestinal worm         kantsi
                      guts'une
jaw                     gápọ
kind 2                 ọ'sîke
kind, nice             k'ọja
king                    kawó
king's wife; what one calls a respected woman when she has died        mifó
king.DEF.F.ACC            kawójọ
king.DEF.F.NOM            kawójà
king.DEF.M.ACC            kawóza
king.DEF.M.NOM            kawózi
king.PL.ACC              kawotá
king.PL.NOM              kawotí
kitten                  gawari naa
knee                    gulfúte
knee                    tóó kuöffa
knife                   maffá
knowledge, someone wise  ọ'era
<table>
<thead>
<tr>
<th>English</th>
<th>Kinyarwanda</th>
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<tbody>
<tr>
<td>lake</td>
<td>нятие</td>
</tr>
<tr>
<td>lamb, kid</td>
<td>лакк’кά</td>
</tr>
<tr>
<td>later</td>
<td>гамино</td>
</tr>
<tr>
<td>later</td>
<td>гак’аппе</td>
</tr>
<tr>
<td>laugh</td>
<td>мутт’ва</td>
</tr>
<tr>
<td>laughter</td>
<td>мутф’о</td>
</tr>
<tr>
<td>lazy, do not like to work</td>
<td>бөцва</td>
</tr>
<tr>
<td>leaf</td>
<td>бонф’о</td>
</tr>
<tr>
<td>leaf (lit. tree ear)</td>
<td>митс’ва хатс</td>
</tr>
<tr>
<td>leaf coffee</td>
<td>харитс’е тукке</td>
</tr>
<tr>
<td>leaf coffee</td>
<td>харитс’е тукке</td>
</tr>
<tr>
<td>left (hand)</td>
<td>хадерс’си</td>
</tr>
<tr>
<td>let her love!</td>
<td>сиик’к’а</td>
</tr>
<tr>
<td>let him lay it out to dry in the sun!</td>
<td>миф’о</td>
</tr>
<tr>
<td>let him love!</td>
<td>сиик’к’о</td>
</tr>
<tr>
<td>let it be burned, leave it be as it is (it is burned)</td>
<td>миф’о</td>
</tr>
<tr>
<td>let it drizzle!</td>
<td>пусо</td>
</tr>
<tr>
<td>let’s stay, let it be, let it stay</td>
<td>гум’о</td>
</tr>
<tr>
<td>lie on back</td>
<td>бонг’ота</td>
</tr>
<tr>
<td>lie on back</td>
<td>бонг’оатидис</td>
</tr>
<tr>
<td>lie on the back!</td>
<td>бонг’оа</td>
</tr>
<tr>
<td>light (opposite of dark)</td>
<td>пуш’оо</td>
</tr>
<tr>
<td>light (weight)</td>
<td>хе’ео</td>
</tr>
<tr>
<td>lightning</td>
<td>векуниси</td>
</tr>
<tr>
<td>lion</td>
<td>гамм’о</td>
</tr>
<tr>
<td>lion fur</td>
<td>гамм’о</td>
</tr>
<tr>
<td></td>
<td>гопура</td>
</tr>
</tbody>
</table>
lion fur
lip
lip (both)
liver
load carried by horse, mule or donkey
local nonalcoholic beer
long grass
look at
louse
love
lower lip
lower lip
lunch
lung
malaria
male sheep
male sheep meat
man, human being
man, human being
man, male, husband
mama-food (made from scraps)
many, much 2
many, much, very
mark, birthmark
mature cereal
maybe; or
maybe; or
meat  
medicine for condition caused by evil-eyed person, also known as Adams Health  
medicine plant (for cattle or for people)  
medicine plant (for cattle)  
medicine plant (for cattle)  
menstruation (lit. dirty body)  
mid day  
midday  
middle finger  
midnight  
milk  
milk (converb)  
mix of mature and not mature barley  
mixture of barley powder and false banana  
moon  
morning  
morning  
morning sun  
mortar  
mosquito  
mosquito bite  
mother  
mountain  
mountain, gathering place
mourning dance  bōéffu
mouse  ŋẽfẽńe
mouse fur  ŋẽfẽńe  ǹtsike
mouth  dùůna
mud  ṼünkA
mule  bakũlũ
my  tāissa
nail  tšůgũńtsa
nail; claw  tšůgũńtsu
name  sũntsu
name  sũntsu
narrow road, path  lóońůča
nationality  zangára
navel  gůlůá
nearest  mělů
neighbour  důɔtsu
night  ǹomásssi
no  ǹakkáře
nose  sůčě
not sharp, blunt  ǳůlůʊma
now  hãhã
okay  Ṽeró
okay?  Ṽeró
old  gafã
old; wise  ʃʰíma
on (prep)  bollá
one ̍assínó
one (short) ̍isti
orange (color) burukááne
outside mala
orphan jiŋó
our nuíssa
outside karé
owl gattó
ox bóóra
ox meat bóóra ̄ajfo
pea ̄atáá
pen pééni
pencil ̄irsíise
penis wontʃápa
pestle ̄ululá mitsi
pestle ̄ululá mitsa
pestle tʃunf'á mitsi
pestle tʃunf'á mitsa
pilar tuiíssu
pinky finger gafé bradde
place bessá
pot for cooking ̄áto
potato general name donó
potato type (lit. foreigner potato) purúndʒa
dono
potato type 1 (lit. doctor potato) həakúme
dono
potato type 3 gíde dono
potter, the one who curries leather (lower east)  maná
powder mixed with water or milk  múlla
powder, flour  chille
prepare a trap!  ghá
prepare food!  káttis kattsá
properly, good  kotetsa
pubic hair  tshàrìa
puppy  butalé
pure honey  tìhìlo
quick  télésso
rain  tìna
rain,NOM  tìni
rainbow  zuullà
red  zola
red/brown for sheep and goats  tòòpììa
rib  gaillé
right (right hand side)  gòfìnìfì
ring finger  kàlahàtìa
bracéfe
ripe  tèéra
river  foóra
road  gògè
roast meat  tshàrùììa
roasted  uùììfì
roasted cereal  fuùììfì
roasted coffee bean  tùkkìe fuùììfì
root, race  tshaòò
<table>
<thead>
<tr>
<th>English</th>
<th>Wolof</th>
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<tbody>
<tr>
<td>rope</td>
<td>wodañá</td>
</tr>
<tr>
<td>rope made from false banana leaves</td>
<td>súúíssu</td>
</tr>
<tr>
<td>rope made from false banana leaves</td>
<td>súúíssa</td>
</tr>
<tr>
<td>running</td>
<td>worré</td>
</tr>
<tr>
<td>sadness</td>
<td>kájo</td>
</tr>
<tr>
<td>saliva</td>
<td>tʃúttufu</td>
</tr>
<tr>
<td>salt</td>
<td>mattséni</td>
</tr>
<tr>
<td>sand</td>
<td>ñáññe</td>
</tr>
<tr>
<td>saw dust, dust from clothes</td>
<td>kuúíssu</td>
</tr>
<tr>
<td>scar</td>
<td>pëge</td>
</tr>
<tr>
<td>seed</td>
<td>zërëtsi</td>
</tr>
<tr>
<td>seed</td>
<td>zërëtts</td>
</tr>
<tr>
<td>seed from tree used as a toy</td>
<td>tëgo</td>
</tr>
<tr>
<td>seven</td>
<td>laàppuña</td>
</tr>
<tr>
<td>sharing</td>
<td>kottsé</td>
</tr>
<tr>
<td>sharing cow</td>
<td>kottsé miïza</td>
</tr>
<tr>
<td>sharing domestic animal</td>
<td>kottsé méhe</td>
</tr>
<tr>
<td>sharing land</td>
<td>kottsé gadde</td>
</tr>
<tr>
<td>she:ACC</td>
<td>ñízo</td>
</tr>
<tr>
<td>she:NOM</td>
<td>ñízu</td>
</tr>
<tr>
<td>sheep (pl)</td>
<td>dórssáta</td>
</tr>
<tr>
<td>sheep (pl)</td>
<td>dorssáta</td>
</tr>
<tr>
<td>sheep general name</td>
<td>dorssé</td>
</tr>
<tr>
<td>sheep meat</td>
<td>dorssá ñafo</td>
</tr>
<tr>
<td>sheep skin</td>
<td>dorssá ñite</td>
</tr>
<tr>
<td>shin</td>
<td>suuté</td>
</tr>
<tr>
<td>shoe</td>
<td>tʃáámmå</td>
</tr>
</tbody>
</table>
short
short
short
shorts (man skirt)
shoulder
shoulder
shoulder
show me!
side, waist
sideways
single (for things)
single cockscomb
sister
sister
sister
sitting on the foot
six
skin of cow
skin of goat
skin of person
skin of sheep
skinny
sky
slow 1
slow 2
small

Káinttsi
Káintsá
Káintse
Kóontsá
Hufé
Húffé
Hufí
Bessá
Dabbí
Gedétsá
Páko
Lobé
Míntjó
Míntjó
Míntjó
Icó bolla
Utetsí
Usáppuna
Gálbí
T'áká
Gogá
Iató
Gildea
Saló
Lódda
Léppa
Gúítsa
small antelope
small jar
small narrow basket
small sharp wood for farming
small, narrow
smoke
snake
sneeze
soft
sole of the foot
someone who has a lot of beard
son, child
song, music
spear
spear with two pointy ends, double spear
spider
spider
spider web
spider web (lit., spider house)
spinning (making thread)
spit, saliva
spoiled potato, false banana, root vegetable
spoiled potato, not suitable for eating
spring
sprout; young humans and animals
spur (on chicken leg)
genésse
ts‘ááro
kuqesé
kore
muq‘a
q‘uwa
fósóófu
dísfé
lúko
q‘atsá too
buurtjáma
faaó
jééttsa
toorá
kátjá toora
q ‘attfaro
faaáfé
q ‘attfaro
kéettsi
faq‘é kéettsa
líkátła
q ‘uwa
díyá a
béldge
q ‘ópinttsi
líigá
tsóhé
spur (on chicken leg)  tsoké
star  ts’ooljinté
stomach  gandže
stomach  kantsá
storage container  koottse
story, tale  haisu?è
straight (direction)  gède
stranger  mó:o
string, tiny rope  sükčetse
strong  mino
strong  te:á?o
strong, dangerous wind  goté
suck (what the mana do when you are sick)  múntsé
sugar cane  fonkorá
sugar, sweet  sukáro
summer  bóne
sun  ?awá
sun  ?arffe
sweat  pogo:lo
sweet  malbo
sweet potato  matsántsá
sweet potato  sukkáre dono
tail  goiná
talk (v)  haisa?à
talking behind someone’s back  zígínsa
tall, long  ?adussé
tear  ?apintsá
teeth

ten

termite

termite

terrace for farming

testicle

testicle

that.F.NOM

that.F.NOM

that.M.ACC

that.M.NOM

the child

the day after tomorrow

the day before yesterday

the horse.DEF

their

there (close to listener)

there (far from speaker and listener)

these.ACC

these.NOM

they.ACC

they.NOM

they.NOM

thick (humans)

thief

thigh

thin (inanimates)
thin (only humans)  keko
thing, money, issue  miiffé
thirst  sáámo
this (near)  haissá
this.F:ACC  hannó
this.F:NOM  hanná
this.M:ACC  haissá
this.M:NOM  haissá
thorn  ?agántsus
those.ACC  heitá
those.NOM  heití
thread; young (human)  kaffína
three  heedleá
throat  póórhozo
thunder  dadá
tiger  maahé
to add, to include  gáájío
to answer; to bring animals back to the group  zááro
to arrive  gákó
to ask  ?o'ño

to be broken  mékó

to be hungry  gápo

to be pregnant  kánsaito

to be sick  hángo

to believe  ?ámmanó

to bite  sááso

to bleed  súúito
to bless someone, to ask for additional at the market | रिद्जो
---|---
to boil | पेंन्टो
to borrow or lend money | ताल्रो
to borrow/lend things, materials | गार्त्सो

to break (trans.) | मेंस्सो
to break up a fight | त्फ़िनमित्तेस
to break up a fight, to settle a quarrel | मारो
to bring | रेहो
to build | केलो
to burn | रेफ्सो
to burn | त्सुीआगे
to burn, to put in flames | त्सुआ्स्सु
to bury | मोगो
to buy | फाम्मो
to call | त्सेगो
to carry children on the shoulders (men only) | गुन्नाको
to carry on the head | तोको
to carry on the side | दाब्बाको
to carry things on the shoulder with stick with rope | केल्लेरो
to carry under the arm | सुब्बाको
to carry under the arm, to hide food under the arm | लोक्कोरो
to carry, to hold in arms | रिदेमो
to catch, to hold in the hand | रियिंसु
to change | लामो
to chew | रिफ्सो
to chop, to cut | क्लाम्सो
to clean | कुस्फो
<table>
<thead>
<tr>
<th>English</th>
<th>L dign</th>
</tr>
</thead>
<tbody>
<tr>
<td>to close, to shut</td>
<td>gáldo</td>
</tr>
<tr>
<td>to comb</td>
<td>práto</td>
</tr>
<tr>
<td>to come</td>
<td>jússu</td>
</tr>
<tr>
<td>to come</td>
<td>jússu</td>
</tr>
<tr>
<td>to comfort crying child</td>
<td>lélléssu</td>
</tr>
<tr>
<td>to cook in pot with lid</td>
<td>dóóso</td>
</tr>
<tr>
<td>to cook soft things in pan</td>
<td>hallkóko</td>
</tr>
<tr>
<td>to cough</td>
<td>k'íipo</td>
</tr>
<tr>
<td>to count</td>
<td>tábo</td>
</tr>
<tr>
<td>to cry (with tears), to weep</td>
<td>jééko</td>
</tr>
<tr>
<td>to cry (with tears), to weep</td>
<td>jéého</td>
</tr>
<tr>
<td>to cry, to shout</td>
<td>wáiíssu</td>
</tr>
<tr>
<td>to cure</td>
<td>prábo</td>
</tr>
<tr>
<td>to curse (ex. May God kill you)</td>
<td>máafo</td>
</tr>
<tr>
<td>to curse, to insult</td>
<td>jñ'ájo</td>
</tr>
<tr>
<td>to cut</td>
<td>jíína</td>
</tr>
<tr>
<td>to cut</td>
<td>k'íássíso</td>
</tr>
<tr>
<td>to cut hair</td>
<td>sáínts'ó</td>
</tr>
<tr>
<td>to dance (stomping with feet)</td>
<td>dúiro</td>
</tr>
<tr>
<td>to dance (with stick)</td>
<td>mágülo</td>
</tr>
<tr>
<td>to dance for mourning</td>
<td>bóójo</td>
</tr>
<tr>
<td>to die</td>
<td>háák'o</td>
</tr>
<tr>
<td>to dig</td>
<td>bóóko</td>
</tr>
<tr>
<td>to divide</td>
<td>jáák'o</td>
</tr>
<tr>
<td>to divide into equal parts</td>
<td>háák'o</td>
</tr>
<tr>
<td>to drag</td>
<td>góófo</td>
</tr>
<tr>
<td>to drink</td>
<td>jújó</td>
</tr>
</tbody>
</table>
to drizzle  pu̱sso

to drop  hālo

to dry clothes in the sun by laying them on the ground  māဖ o

to eat  mu-dessu

to eat  mu-dessa

to enter; to marry (for women)  gē-lo

to exist, to live  da-un-su

to exist, to live  daun-sa

to exist, to live  daun-sa

to exit, to go out  kézo

to explode  daun-k'o

to expose to the sun  maဖ o

to farm  gó-p

to fear  ba-bbo

to feel ache  kō-te-o

to feel pain  sá-k'o

to find  dē-mo

to follow  kā-alō

to give  āl-o

to give birth  jā-lo

to go  bu-sso

to go  bu-ssa

to go  bu-sa

to go bald  bo-rā-lo

to hang clothes to dry on rope  kā-alō

to hear  sī-ro

to hit with fist, to throw a stone at somebody  ᥍ř-fō
<table>
<thead>
<tr>
<th>English</th>
<th>Quechua</th>
</tr>
</thead>
<tbody>
<tr>
<td>to hit with the elbow</td>
<td>krúño</td>
</tr>
<tr>
<td>to hit with whip or stick</td>
<td>fof'ó</td>
</tr>
<tr>
<td>to hit, to kick, to swim</td>
<td>wáfo</td>
</tr>
<tr>
<td>to hug</td>
<td>ñadémo</td>
</tr>
<tr>
<td>to hunt</td>
<td>junt'ño</td>
</tr>
<tr>
<td>to hurry 1</td>
<td>ñelléssó</td>
</tr>
<tr>
<td>to hurry 2</td>
<td>ñeesóto</td>
</tr>
<tr>
<td>to inherit</td>
<td>lááto</td>
</tr>
<tr>
<td>to jump</td>
<td>gúpo</td>
</tr>
<tr>
<td>to kick with the front of the foot; to kick someone's ass</td>
<td>lipitoso</td>
</tr>
<tr>
<td>to kick with the sole of the foot</td>
<td>k'áko</td>
</tr>
<tr>
<td>to kill</td>
<td>wófo</td>
</tr>
<tr>
<td>to kiss</td>
<td>jééro</td>
</tr>
<tr>
<td>to laugh</td>
<td>munt'ño</td>
</tr>
<tr>
<td>to leave somewhere, something behind</td>
<td>ñágo</td>
</tr>
<tr>
<td>to lick; to taste</td>
<td>lááto</td>
</tr>
<tr>
<td>to lie face down</td>
<td>zak'illo</td>
</tr>
<tr>
<td>to lie for a long time</td>
<td>zínbo</td>
</tr>
<tr>
<td>to lie on the back</td>
<td>bóngoto</td>
</tr>
<tr>
<td>to like</td>
<td>dósso</td>
</tr>
<tr>
<td>to listen</td>
<td>ñezgo</td>
</tr>
<tr>
<td>to live, to be alive</td>
<td>déño</td>
</tr>
<tr>
<td>to load horse, mule or donkey</td>
<td>tʃ'aíño</td>
</tr>
<tr>
<td>to look at</td>
<td>tʃ'elélo</td>
</tr>
<tr>
<td>to look like</td>
<td>meáto</td>
</tr>
<tr>
<td>to love</td>
<td>súk'bo</td>
</tr>
<tr>
<td>to make boil</td>
<td>pentúsó</td>
</tr>
<tr>
<td>English</td>
<td>Abyb</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>to make it drizzle</td>
<td>puusso</td>
</tr>
<tr>
<td>to marry (only men); to have sexual intercourse</td>
<td>máf'ó</td>
</tr>
<tr>
<td>to meet</td>
<td>gáágo</td>
</tr>
<tr>
<td>to miss (someone)</td>
<td>dáájo</td>
</tr>
<tr>
<td>to mix</td>
<td>wakáko</td>
</tr>
<tr>
<td>to move the body; movement</td>
<td>k'ááte'o</td>
</tr>
<tr>
<td>to need</td>
<td>k'áák'kóto</td>
</tr>
<tr>
<td>to open</td>
<td>dóájo</td>
</tr>
<tr>
<td>to paint</td>
<td>góópa</td>
</tr>
<tr>
<td>to pay</td>
<td>tf'ígo</td>
</tr>
<tr>
<td>to pick up a handful of several dry things</td>
<td>k'úúf'o</td>
</tr>
<tr>
<td>to pick up with two hands</td>
<td>kúúf'ético</td>
</tr>
<tr>
<td>to pierce</td>
<td>tf'íído</td>
</tr>
<tr>
<td>to plant</td>
<td>tóko</td>
</tr>
<tr>
<td>to play</td>
<td>k'áázo</td>
</tr>
<tr>
<td>to pour (liquids)</td>
<td>tógo</td>
</tr>
<tr>
<td>to pour (non-liquids)</td>
<td>k'óko</td>
</tr>
<tr>
<td>to prepare food, to cook</td>
<td>k'ááso</td>
</tr>
<tr>
<td>to pull</td>
<td>dóápo</td>
</tr>
<tr>
<td>to push</td>
<td>síígo</td>
</tr>
<tr>
<td>to rain</td>
<td>bíko</td>
</tr>
<tr>
<td>to roast; to fry</td>
<td>fáiíjo</td>
</tr>
<tr>
<td>to rub small amount of butter on the body</td>
<td>tóóo</td>
</tr>
<tr>
<td>to rub, to massage, to rub butter on the skin</td>
<td>góópo</td>
</tr>
<tr>
<td>to run</td>
<td>wóiíó</td>
</tr>
<tr>
<td>to save</td>
<td>hóiíó</td>
</tr>
<tr>
<td>to save money or crops</td>
<td>gíggga</td>
</tr>
</tbody>
</table>
to say  guissa
  to say  guissu
  to scoop up with one hand  zoliéto
  to search for, to look for  kójo
  to see  wóf'ó
  to sell  báló
  to send, to release; to leave  jédo
  to sew  siko
  to share (out)  gífo
  to shave  méédó
  to shiver  kalkóro
  to sing  jés'o
  to sit  ¿uto
  to sit on the foot  tóó bollà ¿uto
  to slap, to hit with open fist  bákó
  to sleep  dásó
  to smell  sángo
  to sneeze  dísó
  to sow  zéro
  to speak, to talk  káraño
  to spit  t'íto
  to split (wood) into smaller pieces  kéro
  to spread, to sow by throwing a handful of the seeds  dáríff'ó
  to squeeze  gímbó
  to stand  ¿ék'o
  to stand up, to get up, to wake up  děndo
  to stay  gímbó
<table>
<thead>
<tr>
<th>English</th>
<th>Wolof</th>
</tr>
</thead>
<tbody>
<tr>
<td>to steal</td>
<td>kaisóto</td>
</tr>
<tr>
<td>to steal</td>
<td>wuałó</td>
</tr>
<tr>
<td>to stroke cow on hind leg to calm her when milking</td>
<td>k'asfinfo</td>
</tr>
<tr>
<td>to suck (ex. fruit, straw)</td>
<td>ts'antso</td>
</tr>
<tr>
<td>to suck, to breastfeed</td>
<td>dánó</td>
</tr>
<tr>
<td>to sweep, to stroke animal to calm it</td>
<td>póto</td>
</tr>
<tr>
<td>to take</td>
<td>ñëko</td>
</tr>
<tr>
<td>to take a few steps</td>
<td>tänge</td>
</tr>
<tr>
<td>to take a nap, to lie for a short time</td>
<td>gëddo</td>
</tr>
<tr>
<td>to take water to a smaller container</td>
<td>dunúko</td>
</tr>
<tr>
<td>to tell</td>
<td>jćóto</td>
</tr>
<tr>
<td>to thank, to bless somebody or God</td>
<td>galáto</td>
</tr>
<tr>
<td>to think</td>
<td>k'ëppo</td>
</tr>
<tr>
<td>to think</td>
<td>k'ëpo</td>
</tr>
<tr>
<td>to throw a spear</td>
<td>ts'éngó</td>
</tr>
<tr>
<td>to throw a stick so that it rotates in the air</td>
<td>hárò</td>
</tr>
<tr>
<td>to throw with a sling</td>
<td>daikó</td>
</tr>
<tr>
<td>to tie</td>
<td>k'áišo</td>
</tr>
<tr>
<td>to vomit</td>
<td>tj'oójo</td>
</tr>
<tr>
<td>to walk for a long time, to journey by foot</td>
<td>hámáño</td>
</tr>
<tr>
<td>to want</td>
<td>kóffa</td>
</tr>
<tr>
<td>to want (clearly, but strangely -u)</td>
<td>kóffu</td>
</tr>
<tr>
<td>to wash</td>
<td>mëtfó</td>
</tr>
<tr>
<td>to wear scarf as belt (women)</td>
<td>mántsó</td>
</tr>
<tr>
<td>to whistle</td>
<td>wàñko</td>
</tr>
<tr>
<td>to wind (to blow)</td>
<td>tj'árkō</td>
</tr>
<tr>
<td>to work</td>
<td>ñóóttso</td>
</tr>
</tbody>
</table>
to yawn

today

today

toe

toes

together
	tomorrow

tongue

tongue

took, grabbed

toothpick

traditional cup made from clay

traditional shorts (man skirts)

tree root

tree, wood

tree, wood

tree, wood

tribe

trying

two

type of highland tree

type of priest who purifies people or places

udder full of milk

udder full of milk

under

unmarried boy

unmarried girl

líájo

hátfi

hátfai

tóó bracde

tóó bracdeeta

ʔassípppe

wontó

ʔintšáassa

ʔintšáassí

ʔókkídës

pílíkkë

kóndza

piiddzó

mittsí tsíbíøo

mittsi

mittsa

mitts

záre

mëla

numǎa

tsantsé

máltka

wóndza

wónza

garsse

púinttsi

gëdáøo
<table>
<thead>
<tr>
<th>English</th>
<th>Lao</th>
</tr>
</thead>
<tbody>
<tr>
<td>up</td>
<td>pide</td>
</tr>
<tr>
<td>upper arm</td>
<td>khesé</td>
</tr>
<tr>
<td>upwards</td>
<td>pudetsiá</td>
</tr>
<tr>
<td>vagina</td>
<td>dampó</td>
</tr>
<tr>
<td>very big basket</td>
<td>kmina</td>
</tr>
<tr>
<td>very good</td>
<td>dárod korbo</td>
</tr>
<tr>
<td>wall</td>
<td>gabbára</td>
</tr>
<tr>
<td>warm, hot</td>
<td>horo</td>
</tr>
<tr>
<td>warthog</td>
<td>gaiffo</td>
</tr>
<tr>
<td>warthog</td>
<td>gcdunsa</td>
</tr>
<tr>
<td>water</td>
<td>hattse</td>
</tr>
<tr>
<td>waterfall</td>
<td>pésí</td>
</tr>
<tr>
<td>we.ACC</td>
<td>mana</td>
</tr>
<tr>
<td>we.NOM</td>
<td>mâni</td>
</tr>
<tr>
<td>weak, lazy</td>
<td>lâípa</td>
</tr>
<tr>
<td>weak, tired</td>
<td>deapûna</td>
</tr>
<tr>
<td>wedding</td>
<td>sárge</td>
</tr>
<tr>
<td>well (for water)</td>
<td>âollá</td>
</tr>
<tr>
<td>wet</td>
<td>t'oiba</td>
</tr>
<tr>
<td>what 1</td>
<td>ñaf</td>
</tr>
<tr>
<td>what 2</td>
<td>ñażi</td>
</tr>
<tr>
<td>what def f</td>
<td>ñätzaja</td>
</tr>
<tr>
<td>what def in nom</td>
<td>ñätzazi</td>
</tr>
<tr>
<td>what happened?</td>
<td>wâinadi</td>
</tr>
<tr>
<td>what pl</td>
<td>ñätzati</td>
</tr>
<tr>
<td>what you say when you want the children to go away and stop running around the adults</td>
<td>pîlāa</td>
</tr>
</tbody>
</table>
wheat seed
gisteráipe
wheat seed
gister zemrets
wheel used as toy
?edačzó
when
?aidé
when the father dies and the mother marries his brother
lááíta
where
?awa
which, wizard
maró
white
bóótesu
white
bóótesa
white cotton clothing, clothes
?papta
white hair
pííntsa
who (ACC)
?óná
who (nom)
?óní
who many
?ááppún
why 1
?ááíí
why 2
?áazííí
wide
dálga
wide land
dálga gadle
wife
mattfó
wild animal
doža
wind
tparkko
wing
Kepé
wing.DEFF.ACC
Kepijo
wing.DEFF.NOM
Kepíja
wing.DEFF.M.ACC
Kepéza
wing.DEFF.M.NOM
Kepézi
wing.PL.ACC
Kepetá
<table>
<thead>
<tr>
<th>English</th>
<th>Xylophone</th>
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<tbody>
<tr>
<td>wing.PL.NOM</td>
<td>kepérí</td>
</tr>
<tr>
<td>winter</td>
<td>bulgó</td>
</tr>
<tr>
<td>wise</td>
<td>tPáča</td>
</tr>
<tr>
<td>wise, knowledgable</td>
<td>Áxarntfa</td>
</tr>
<tr>
<td>with axe</td>
<td>běktéra</td>
</tr>
<tr>
<td>with axe</td>
<td>běktěn</td>
</tr>
<tr>
<td>witness</td>
<td>márkka</td>
</tr>
<tr>
<td>wolf</td>
<td>Ánilikana</td>
</tr>
<tr>
<td>wolf (lit. forest dog)</td>
<td>wójí kanà</td>
</tr>
<tr>
<td>woman</td>
<td>Ándó</td>
</tr>
<tr>
<td>woman.DEF</td>
<td>Ándítí</td>
</tr>
<tr>
<td>woman.PL.NOM</td>
<td>Ándéti</td>
</tr>
<tr>
<td>word</td>
<td>káila</td>
</tr>
<tr>
<td>work</td>
<td>Áóótsó</td>
</tr>
<tr>
<td>work properly, work good</td>
<td>Loétsí</td>
</tr>
<tr>
<td>worm</td>
<td>gusỳune</td>
</tr>
<tr>
<td>wrong</td>
<td>wordó</td>
</tr>
<tr>
<td>wrong thing</td>
<td>défa</td>
</tr>
<tr>
<td>year</td>
<td>Látsí</td>
</tr>
<tr>
<td>yellow</td>
<td>galáló</td>
</tr>
<tr>
<td>yes</td>
<td>Áéé</td>
</tr>
<tr>
<td>yesterday; tomorrow (?)</td>
<td>k'ámma</td>
</tr>
<tr>
<td>you.PL (short pron)</td>
<td>Áínte</td>
</tr>
<tr>
<td>you.PL (short pron)</td>
<td>Áinté</td>
</tr>
<tr>
<td>you.PL (short pron)</td>
<td>hínnte</td>
</tr>
<tr>
<td>you.PL.ACC</td>
<td>híntena</td>
</tr>
<tr>
<td>you.PL_ACC (long pron)</td>
<td>Ži tiena</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>you.PL NOM</td>
<td>híteni</td>
</tr>
<tr>
<td>you.PL NOM</td>
<td>híteni</td>
</tr>
<tr>
<td>you.PL NOM (long pron)</td>
<td>Ži tieni</td>
</tr>
<tr>
<td>you.SG_ACC</td>
<td>nena</td>
</tr>
<tr>
<td>you.SG NOM</td>
<td>něni</td>
</tr>
<tr>
<td>young (human or domestic animal)</td>
<td>wodělla</td>
</tr>
<tr>
<td>young ox</td>
<td>wopáňo</td>
</tr>
<tr>
<td>young stallion</td>
<td>wotára</td>
</tr>
<tr>
<td>younger</td>
<td>kaaló</td>
</tr>
<tr>
<td>your.PL</td>
<td>hintěssa</td>
</tr>
<tr>
<td>your.SG</td>
<td>neíssa</td>
</tr>
</tbody>
</table>