Issues in Borna Phonology

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MA thesis in linguistics

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Acknowledgements

presented parts of my findings, and I received many useful comments there as well. Professor Kjell Magne Yri helped me check some of my data for potential loan words from Semitic and Cushitic languages.

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1 Introduction

Borna is the language traditionally and still predominantly spoken by the *Bora* people, most of whom live just north of the River Abbay (Blue Nile), in the Metekel zone of the Benishangul-Gumuz Region in western Ethiopia.

1.1 The 2007 Census data

According to the most recent Ethiopian census (PHCE 2007: 73)[1] the Bora[2] ethnic population is 62,298. Among these, almost all (60,587 or ca. 97%) are reported to live in the Benishangul-Gumuz Region (PHCE 2007: 81), and the majority (51,913 or ca. 83%) live in rural areas (PHCE 2007: 73). The number of Borna speakers given in the census is 37,459 (PHCE 2007: 92). Borna is thus the mother tongue of about 60 percent of the Bora, if we assume the census data to be correct.

1.1.1 Reservations

There are both practical and theoretical problems associated with censuses. When trying to count the number of speakers of a country's languages, another set of problems is added, related to how one defines a language (or a dialect), degrees of multilingualism, the relative prestige of various languages and other similar issues. Some error margin must therefore be assumed here, both for the number of Bora and, in particular, for the number of Borna speakers; an exact number of speakers of a language is normally impossible to give[3].

The sociolinguistic situation in Borna speaking areas is not entirely clear. In absolute terms, the number of speakers in the most recent census is much larger than the number of about twenty thousand[4] quoted by, among others, SIL's sociolinguistic survey from 2002 (Wedekind and Lemma 2002: 3), but the survey also notes that the use of Oromo and Amharic is more common in the younger generations than in the older. Furthermore, all

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[1] Population and Housing Census of Ethiopia. Numbers for mother tongue speakers of various languages are not included in the *Summary and Statistical Report of the 2007 Population and Housing Census*, but can be found in the full data material published online. The page numbers I refer to are those of the full data material. For URLs, see list of references.

[2] Bora and Borna are referred to by the Amharic names *Shinasha* (the people) and *Shinashigna* (the language) in this source. See section 1.6 for a discussion of the naming issues.

[3] Except in extreme cases with very few speakers.

[4] Which is based on the 1984 census (Wedekind and Lemma 2002: 3).

Borna speakers asked in that survey replied that the use of Borna is decreasing rather than increasing. The recent introduction of Borna in the first years of primary schools (Tsehay Mengesha: personal communication) might have had an effect in slowing down or reversing this trend, but nothing can be said for certain about this. The exact number of Borna speakers is, however, not crucially important for the purposes of this thesis, and I am content with assuming that 37,459 is, at the very least, a correct indication of the order of magnitude of this number.

1.2 Ethnographical comments

The comments made here are mainly based on conversations with my informants and other Bora I met during my stays in Ethiopia. There is little disagreement on these points, and my information confirms what has been written by, inter alia, Ashenafi and Wedekind (1990, 1994). For an interesting discussion of many aspects of Borna folk history and oral traditions, see Tsega (2005).

1.2.1 Occupation

The main occupation of the Bora rural majority (cf. 1.1) is farming, often combined with some trade. Those of the Bora who live in urban areas, and in particular those who live in major cities like Addis Ababa, naturally have other, and more varied occupations.

1.2.2 Ethnic identity and religion

The ethnic identity is strong among the Bora, in the sense that they find it important to be identified as Bora, and not anything else. This is the case even among those who no longer speak Borna in daily life, and who, as such, have been assimilated into Oromo or Amharic societies in the linguistic sense. Their old link with the Kafa people is also something some Bora like to emphasize, even though the two peoples have been geographically separated for several hundred years. The Bora are, according to my main informant, not involved in any ethnic conflicts, and enjoy relatively good relations with all their neighboring peoples, who are mainly Amhara, Oromo, Gumuz and Agaw. At present, the Bora are almost exclusively Ethiopian Orthodox Christians.

1.3 Borna and Omotic

Borna is widely considered to be an *Omotic* language (Bender and Fleming 1976; Hayward 1990; Theil 2012), but the internal classification of Omotic, Borna's place in the family and Omotic's possible place in a larger family/phylum are all issues on which no consensus has been reached at the present time. Hayward (2003: 242) presents what he at the time considered the 'generally accepted internal subgrouping of Omotic'. When centered on Borna, it can be summarized in this way: *North Omotic*, *South Omotic* and *Mao* are the family's three branches, and North Omotic is divided into the *Dizoid* and *Ta-Ne* languages. The Ta-Ne group, named after the first and second person singular pronouns in these languages (in Borna: *tà:* and *nè:*), has two subgroups: *Gonga* and *Gimojan*. Borna belongs to the first of these, together with *Kafa*, *Mocha* and *Anfillo*. Theil (2012: 371-376 and personal communication) criticizes the methods used in earlier historical-comparative studies of Omotic languages, and claims that neither the *Aroid*[5] nor the Dizoid languages have been shown to be related to the other Omotic languages, and should therefore be considered independent language families.

1.3.1 Some comments

I do not have sufficient knowledge of the various Omotic (and possibly, non-Omotic) languages in question to give an independent, first hand evaluation of this issue. It should however be noted that the question is not only one of data, but also one of method: Theil (2012) shows convincingly that Aroid, Dizoid and the other Omotic languages cannot be shown to be related by strictly applying *the comparative method*. Arriving at the earlier, more wide-ranging proposals of genetic affiliation depends on using other, less generally accepted methods of historical linguistics. I will return to this topic shortly.

1.4 Omotic and Afroasiatic

Omotic, in turn, is usually seen as a part of the Afroasiatic language phylum, either as a subgroup of Cushitic (e.g. Greenberg 1963) or as a separate branch (e.g. Bender and Fleming 1976). Theil (2012: 376-382 and personal communication), on the other hand, claims that no convincing arguments have been presented for including Omotic in Cushitic, and in fact not

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[5] Aroid refers to what Hayward (2003) calls South Omotic, and Dizoid is one of the two main branches of Hayward's North Omotic.

even for the inclusion of Omotic as a branch of Afroasiatic at all. There seems to be two main reasons for the fact that there is still no consensus on neither the internal nor the external classification of Omotic.

1.4.1 Lack of data

The first and most obvious reason is the lack of data available on Omotic languages. In order to undertake meaningful comparative and historical studies, fairly comprehensive lexical material, as well as phonological and morphological analyses of the languages in question are needed. Compared to the situation in Europe, North America and parts of Asia, there have been and still are relatively few such studies on African languages, and until very recently, Omotic has been one of the least known and poorest documented families even in the African context. Consequently, the work that has been done by Ethiopian and foreign linguists in the region has, naturally, been mostly descriptive in nature. It has often been directed towards the need to make orthographies, dictionaries and school materials, or, in the case of SIL and other Christian organizations, for the purposes of missionary work and Bible translation. Until the amount of descriptive studies increases to a certain level, comparative and historical studies will necessarily come second.

1.4.2 Theoretical disagreement

The other reason, mentioned in paragraph 1.3.1, is that the views on some central issues in historical linguistics vary considerably among those few scholars who *have* undertaken comparative and historical studies of Omotic languages. Broadly, the question might be stated as follows: *What are the proper methods of historical linguistics?*, or, more specifically: *What constitutes evidence for considering languages to be genetically related?*

1.4.3 Mass comparison and the comparative method

In his classification of African languages, Joseph Greenberg (1963) introduced and applied a method known as *mass comparison*, in which a relatively small number of words are compared across a large number of languages, and languages are assumed to be related if a certain amount of the words are similar. A variant of this method was used in the most comprehensive attempts to establish the relationship between Omotic and Cushitic/Afroasiatic, namely those of Harold C. Fleming (Fleming 1969; Fleming 1974). The

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merit of this method is that it allows for large scale comparisons and hypothesizing about genetic relationships between many languages, without having to undertake the detailed lexicographical, phonological and morphological analyses of each individual language needed in order to apply the comparative method. There are, however, some obvious and serious problems associated with the method of mass comparison. Campbell (2004: 348) summarizes the main issue as follows[6]:

"This approach stops where others begin, at the assembling of lexical similarities. These inspectional resemblances must be investigated to determine why they are similar, whether the similarity is due to inheritance from a common ancestor (the result of a distant genetic relationship) or to borrowing, accident, onomatopoeia, sound symbolism, nursery formation (...). Since multilateral comparison does not do this, its results are controversial and rejected by most mainstream historical linguists."

The crucial next step, which is the core of the comparative method, is to determine whether the similarities found can be analyzed as the results of *systematic (usually phonological) correspondences*, and thus as signs of systematic phonological developments in several languages from a single common ancestor language. This is what Theil (2012: and personal communication) shows that has not been done, neither when grouping Aroid and Dizoid as Omotic nor when grouping Omotic as Afroasiatic.

1.5 Conclusion on Borna's genetic affiliation

The present MA thesis does not give any new data or analyses contributing to solving the questions just mentioned. It is mainly a synchronic study, although some speculations on the internal history of Borna are included. Very little is said about the relationship between Borna and other languages, with some comparisons with Kafa as the main exception. These two languages are very closely related, even to the extent of some degree of mutual intelligibility[7]. Beyond this, nothing in this thesis depends on any particular stance on Borna's genetic affiliation, the internal grouping of Omotic, or on Omotic's possible relation to Afro-asiatic. I will therefore leave this topic with the short discussion of the different views given in the previous paragraphs.

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[6] These are to a large extent the same reasons for rejecting this method as those given by Theil (2012).

[7] As reported by my informants.

1.6 Naming issues

Several different names have been used, and are still in use for Borna and the Bora. In short, the situation is that there are three names, or roots, that have been used, in a number of spelling and translation variants. They are Bora/Borna, Shinasha and Gonga. The most thorough discussion of the historical usage of various names for Borna, the Bora and Gonga is found in Grottanelli (1941). An updated, but shorter overview, not just of Borna but of the very large number of names used for various Omotic languages in general, is given by Hayward (1990: xxi-xxvi). He gives *Shinasha* as the *base reference name* for Borna; alternative names include *Bworo*, *Scinascia*, *Sinasha* and *Šinaša* (but not *Borna*). Some of the very oldest sources use *Gonga* as a name for a single language rather than for a group of closely related languages, as is common today. I will not repeat the work of Grottanelli and Hayward, nor will I go into the history of the name Shinasha, which is also discussed by Grottanelli. What I hope to do in the next paragraphs, is to clarify the situation in a brief manner, as well as argue why I use the names Borna and Bora in this thesis.

1.6.1 Bora and Borna

In Borna, the Bora's ethnic endonym is **bòra**, and the name of their language is **bòrna**. The name of the language is derived by means of the ending **–n**, which is added to the root **bòr-**. This is the normal process for deriving names of languages from names of peoples in Borna; compare **dòmà** *Amhara* – **dòmna** *Amharic*.

1.6.2 –a or –o?

The reason why many authors use a form for Bora/Borna ending in **–o** instead of **–a** is likely that the **–o** is the form used for subjects of both transitive and intransitive verbs, as well as for objects of transitive verbs (cf. 7.3.1 for a description of Borna morphosyntactic alignment). It is thus by far the most frequently occurring form of the word. However, the citation form, which grammatically can be identified with the predicative form, has the ending **–a**. The correct form to use when simply giving the name of the language, in Borna, is thus **bòrna**, with an **–a**.

1.6.3 Shinasha

Both the Bora people and the Borna language are often referred to as *Shinasha*[8], both by speakers of the neighboring languages and by speakers of the regionally and nationally dominant languages Amharic and Oromo. This is also the name used in official documents (e.g. PHCE 2007), and it is the most commonly used name in the linguistic literature on the language.

1.6.4 Borna or Shinasha?

Since no one uses the name Gonga for the single language any more, the only real issue today is whether to use *Borna* or *Shinasha*. The main argument in favor of the latter is tradition and ease of reference; as Grottanelli (1941: 238) wrote 70 years ago, the name *Buoro* was totally unknown outside of philology. My personal experience, for what it's worth, suggests that this has not changed. The ethnic group Shinasha was familiar to most people I mentioned it to in Addis Ababa, but except for the Omotic scholars at Addis Ababa University, no one had ever heard of the *Bora* or *Borna.* Furthermore, unlike the situation in many other cases where the self-designation differs from the name used by neighboring groups, none of the Borna speakers I have met consider the usage of *Shinasha* as derogatory or offensive in any way. The term is seen as neutral. *Borna* and *Bora* are, however, their preferred name for their language and people. I consider this to be the weightiest argument, and will therefore use these terms throughout this study, except, of course, in quotations from sources with other usages.

1.7 Dialects

Borna is usually considered to have two dialects or dialect clusters: The highland (or **gàjíbòra**, from **gàja** *highland* and **bòra** *Bora*) dialect and the lowland (or **tàríbòra**, from **tàra** *farmland/lowland*) dialect[9] (Zelealem 2002: 2; Wedekind and Lemma 2002: 3-4). To claim that any language has a certain number of dialects is difficult, since all speakers have their own idiolect, and even that may change over time and from situation to situation. Furthermore, within what is called one dialect of a language there may often be minor

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[8] There are several similar and derived names, cf. Grottanelli (1941) for a summary of these various names and spellings.

[9] For information on the formation of nominal compounds with –í in Borna, see 7.4.1.

differences that divide this dialect into smaller sub-dialects, and counting dialects must thus always involve some more or less arbitrary decisions. The scientific value of such an exercise is perhaps not the greatest. That being said, it should be noted that the difference between the highland and lowland dialect clusters is reported by my informants to be quite fundamental, and it is, as far as I have been told, much greater than the differences within either dialect cluster. Still, both my informants and all the quoted sources report that there are no significant problems of mutual intelligibility between speakers of the highland and lowland varieties of Borna.

1.7.1 Validity limitations of this study

Even though the differences between the two dialects are reported to be few and of little functional significance, the findings reported in this study should not necessarily be taken as valid for all dialects of Borna. First, according to Zelealem (2002: 3), the differences that *do* exist between the dialects are mainly phonological, which is precisely the topic of this study. Furthermore, a clear distinction must in any case be kept between the functional load of, for instance, a particular phonological opposition, and the role of the opposition in the phonological system of the language. Correspondingly, when dealing with two or several dialects, we can not readily assume that a high or even practically complete degree of mutual intelligibility entails that the phonological systems in question must be very similar from a structural point of view. We know, for instance, that speakers of various Norwegian dialects usually experience no problems of mutual intelligibility, even though the phonological differences between the dialects are in many cases quite dramatic from a taxonomic point of view (presence/absence of whole consonant groups, presence/absence of phonologically distinctive tone, etc.). In addition to this issue, which in principle can be stated in terms of phonology alone, mutual intelligibility of course depends crucially on the social context in which the language(s) are spoken: A high degree of interaction between the speakers of two dialects can compensate for larger linguistic differences[10]. Finally, another factor is relevant in this particular case: The sets of languages spoken around and among the highland and the lowland Bora are not identical, as illustrated by Wedekind and Lemma (2002: 4) in a sketch

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[10] One might argue that this statement is, in a sense, almost meaningless, since *mutual intelligibility* is a concept that depends on the concepts of *dialect* (or *language,* in its socio-political sense) and *understanding*, neither of which can be accurately defined: If all speakers of English for some reason were to learn Borna, and vice versa, would we then call the two languages mutually intelligible? Probably not, but what if the languages were English and, for example, Dutch? As usual, however, the terms have well understood and useful non-technical meanings, and I do not see any problems with continuing using them in such contexts.

map. Recent language contact and bilingualism may therefore have influenced the two dialect clusters in different ways, complementing or skewing the possible dialect divergence due to the physical isolation of the two groups. Some of the phenomena discussed in this thesis could possibly even be the result of such contact. For all the reasons mentioned, I will only claim that my findings are valid for the dialect I have studied personally, namely lowland Borna.

1.8 Objective of the study, mode of description and theoretical framework

The objective of this study is to give a description of the word level phonology of Borna. Consonants, vowels and tones will be discussed, and some difficult issues will be analyzed in detail. These include the phonological status of the central vowels, the analysis of some vocalic and consonantal sound combinations and the question of whether Borna has two or three distinctive tone levels. The general framework for the description and analysis in this thesis will be traditional functional/structuralist phonology. In particular, the phonological system developed by Nikolai S. Trubetzkoy will be frequently referred to. In addition to being the most important theoretical discussion of phonology within European structuralism, I also found his *Principles of Phonology* (Trubetzkoy 1969) to be tremendously useful as a hand book on how to do phonological analysis from scratch. The main objective of this study is, however, descriptive rather than theoretical, and I will include some discussions that are foreign to structuralist phonology at some points.

1.9 Outline of the thesis

Chapter 1 is this introduction.

Chapter 2 describes the data collection process and introduces the Borna speakers I worked with in Addis Ababa and the Metekel zone.

Chapter 3 gives a brief, chronological overview of earlier research on Borna. Details of particular analyses are not included in this overview, but are rather included in the discussion of the topics themselves.

Chapter 4 deals with the consonant phonology. The various consonants are discussed on their own, and there are some general parts, on issues such as root alternations, gemination and semi vowels.

Chapter 5 contains discussions of some further issues connected to the consonant phonology.

Chapter 6 deals with the vowel phonology, and is divided into parts on what I call *ordinary vowels* and *central vowels*.

Chapter 7 deals with Borna tonology, with special emphasis on the question of how many distinctive tone levels there are in the language.

Chapter 8 is a summary of the thesis.

2 Informants and data collection

This study is based on data collected during three stays in Ethiopia between 2010 and 2013.

2.1 Main informants

My main informants have been Tsehay Mengesha, Mengesha Gochero and Asafa Balda. Tsehay Mengesha and Asafa Balda are both around 30 years old, while Mengesha Gochero, Tsehay's father, is around 50. Mengesha lives in Lagabuna, a village in the Dibati *wäräda*[11] of Benishangul Gumuz' Metekel zone. This is also where Tsehay grew up. Asafa Balda is from the nearby town of Bulen. Both the younger men have left Metekel for studies in larger cities, and I interviewed both of them in Addis Ababa. I interviewed and made recordings with Mengesha at his home during my trip to the Benishangul-Gumuz Regional State in February 2010. The trip from Addis Ababa to the village of Lagabuna takes two days, involves several bus rides, and at the end, getting off the bus at a certain, unmarked point, and then walking for some distance along an unmarked path. To get to Bulen from Lagabuna is another several hours' walk through uninhabited and very remote areas. It is perhaps needless to say that it would have been close to impossible for me to make this trip on my own, and, although already mentioned in the preface, I must repeat how grateful and indebted I am to Tsehay Mengesha for all the help he has given me, including accompanying me on this trip. It would have been possible to conduct this study by only interviewing him and Asafa in Addis Ababa, but the data I collected in Lagabuna and Bulen has helped me tremendously in getting a better picture of the Borna language and Bora culture. Mengesha Gochero provided me with a very large number of words connected with the traditional Bora way of life; words for all sorts of indigenous farming equipment, Bora houses and building techniques, names for the local flora and fauna.

2.2 Additional informants

The following three women also participated in less formal and less extensive interviews and conversations: Mengesha's mother-in-law Ebate Hora (also a native of Lagabuna), Tsehay's great-grandmother Edele Jowetso Kuku and her daughter-in-law Kalale Eyasu, who both live

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[11] The *wäräda* is a lower level administrative unit in the Ethiopian federal system, and it can be , roughly translated as *county*.

in Bulen town, in Bulen *wäräda*, also in the Metekel Zone. Edele was very old at the time of our conversation, probably more than a hundred years, and has now sadly passed away. Her age made phonological inquiries rather unsuitable, but she recounted many things of great historical and ethnographical interest in our conversation, with Tsehay acting as interpreter. Her life spanned the time from Emperor Menelik II, through Haile Selassie, the Italian occupation and the Derg, through to the current times, and both Tsehay and I are very grateful for being able to talk to her and record her stories and thoughts of the Bora past. Finally, several other Borna speakers provided me with information, pronunciations and comments in less formal settings. Phonological differences found between the various speakers will be commented upon in the parts of the study dealing with the relevant issues.

2.3 Data collection

In the following paragraphs, I will give some comments and information on the data collection process. I will also, very briefly, defend simple elicitation as an acceptable method of data collection when researching word level phonology.

2.3.1 Initial comments

The process of sharpening my ears and becoming attentive to fine details of a phonological system that was quite different from what I had studied earlier, took some time. The main focus in any phonological study is the description and analysis of the phonology in question, and little attention is normally spent on the process that comes before[12] all of that, namely the hearing and transcribing the sounds pronounced by the informants. This is certainly how it must be. No one, when reading a phonological description, cares much about the researcher's problems with hearing this or that contrast; it is the end result that is of interest. I too will only mention such issues at some very few points in this thesis, but this is certainly not meant to indicate that I did not have any problems of this kind. Hearing and repeating the various consonants, vowels and tonal patterns in a way that my informants considered correct often took very much repetition, and was sometimes a frustrating, but also rewarding experience. Having patient and understanding informants was very helpful in this regard.

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[12] *Before* is the correct term only in the logical sense (and perhaps not even there); In practice, refining one's hearing and transcriptions is of course a process that goes on in parallel with the analysis.

2.3.2 Elicitation

The use of elicitation through a common language, different from the language being studied, has some potential drawbacks, connected with the possibility of the researcher influencing the language of the informants, and thus obtaining unreliable or even false results. My impression is that such issues can mostly be avoided by using some common sense, at least when investigating the word level phonology. Having a good and friendly relationship with your informants is also essential; if any misunderstandings occur, they can normally be resolved quite easily when the researcher and the informant are really cooperating on the work, and are not afraid to engage in discussions with each other. During my work, I had countless such discussions on various topics with my two English speaking main informants, and in particular with Tsehay Mengesha. If I, for example, asked for the Borna word for something that is not normally used in the Bora culture, he would simply tell me so. Of course, such elicitation is only useful for lexical items and short phrases; investigating more complex sentences and longer discourses requires a very different and deeper knowledge of the language in question.

The phonology of simple lexical items on the one hand, and discourse analysis on the other, might be said to make up the two extremities, when considering how easily accessible the various parts of a language are to a researcher who does not speak the language himself. Somewhat less accessible than morphologically simple words are such things as complex verb forms and simple phrases. In this connection, R. M. W. Dixon suggests, rather harshly, that elicitation of verbal paradigms, for example, should "play *no role whatsoever* in linguistic fieldwork" (Dixon 2010: 323; his italicization). I cannot agree with this, and I even feel that this attitude entails somewhat of an underestimation of both researchers and informants. Again, I am of the opinion that if one uses some common sense, discusses the issues with the informants, and of course cross checks the information gathered from all possible sources, elicitation is a very useful tool also when dealing with inflected forms of verbs and nouns.

2.3.3 First trip – spring 2010

When I first decided to study Borna phonology and write an MA thesis on it, I knew nothing of the language. I also did not speak any Amharic. For these reasons, it was extremely helpful that I came in contact with Tsehay Mengesha, who spoke English. Doing phonological fieldwork without a common language to begin with would have required a wholly different

approach, and much more time in Ethiopia than what I had available. There are no courses in field methods at the University in Oslo, so when I first started interviewing Tsehay, it was an interesting process of learning by doing. Although reading earlier studies on Borna had given me some clues as to which areas of the phonology would be particularly challenging, I set out to do as complete a phonological description as possible; trying to "solve" only the difficult problems in the language would of course be impossible without doing an analysis of the whole system. So, joined by my advisor Rolf Theil the first couple of sessions, we started from scratch, with asking for the words of body parts and other common words. Gradually, I went on to ask about various phrases that I felt certain that would exist in the language, such as how to say not only 'nose', but 'my nose', and so on. This process went on for several more sessions until Tsehay and I went on the trip to the Metekel zone, with the goal of having some general feeling of the sounds of the language, as well as some basic language skills before going to meet more speakers.

2.3.4 Trip to Metekel zone

In Lagabuna, I did similar interviews to the ones I had done in Addis Ababa, but with more speakers, and in particular with Tsehay Mengesha. Especially useful for getting to know more words was a very simple, but efficient procedure we would do several times. He would take me around the village or around the various houses, point out things and tell me their names in Borna. I would often ask him to repeat them many times, and would also repeat the words myself, until I felt certain I had the right pronunciation, which I would then write down. In addition to helping me build up a larger lexicon, this had some additional advantages. First, I got to know many words that I would never have come to know through normal interviews and conversations. The word for the plug used to connect one part of a plough to another, or the word for a particular building technique used when mending roofs, or the word for the process of filtering the Bora millet beer, to mention some examples, will come up in conversations very seldom, but they were all, of course, native Borna words, and from the phonological point of view just as valuable to record as common words such as *water*, *hand* or *man*. The second advantage was that, even though I spoke little Borna at the time, very little interference from me, or translations from Tsehay, were needed. This made sure that the words, phrases and in particular the pronunciations recorded were uninfluenced by my suggestions, and also by Tsehay's pronunciation. In result, I obtained data that was as "clean"

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and easy to use as data collected by common elicitation, but without having to worry about any of the potential problems of such elicitation (cf. 2.3.2).

Mengesha also provided me with some words that are no longer common or even known among younger speakers, such as an old numbering system.

In addition to the mentioned historical and ethnographical information, the interviews made with the women in Bulen added further to my lexicon. In particular, I learned many new words for cooking processes and foodstuffs there.

Our original plan was to stay in Metekel for some weeks. Unfortunately, I became quite ill, and we were only able to be there for one and a half week. Still, it was very useful, both for the phonology research, and for getting to know more Borna speakers and experiencing the culture and way of life of the majority of Boras, namely those who live in rural Metekel.

2.3.5 Back in Addis Ababa

The rest of the first trip, some three months, was spent in Addis Ababa. I took some Amharic courses at the Addis Ababa University, as well as continuing interview sessions with Tsehay. We gradually progressed to recording and transcribing longer phrases and full paradigms of verbs.

2.4 Second trip – 2011

In 2011 I was able to go for another trip to Ethiopia, this time much shorter, about three weeks. This time it was not possible to go to the Benishangul-Gumuz region, and Tsehay was not in Addis Ababa at the exact time of my visit, but I was lucky that Asafa Balda, Tsehay's relative and also a native speaker of Borna, was in the capitol at that time. We worked together in several sessions during these weeks. I asked him about many of the same things that I had asked Tsehay and Mengesha, in order to see if there were any systematic dialectal differences. There were very few such differences, but the ones I did notices will be discussed at the relevant points in the thesis. We also did some work that I had not done with Tsehay, in particular on the root alternations of verbs.

2.5 Third trip – 2013

I was on a leave from my MA studies for the academic year 2011-2012. In February/March 2013 I went for a final trip to Addis Ababa, for about 3-4 weeks. This time I worked with Tsehay again, and we sat together more or less every day, working mainly on checking problematic issues I had discovered while analyzing and writing in Oslo.

3 Previous research on Borna

As mentioned in the introduction, Omotic as a whole continues to be a relatively poorly known and little studied language family. This pertains to Borna as well, but some linguistic and language related studies have been published during the twentieth century, and the SIL has quite recently surveyed the sociolinguistic situation in Bora areas (Zelealem 2002; Wedekind and Lemma 2002). In this chapter, I will give a brief, chronological overview of the earlier research on Borna. Details of the various researchers' studies will not be given here, but rather discussed in the chapters dealing with the relevant topics. Studies dealing mostly with historical and comparative Omotic issues will also not be discussed here; This includes the important articles by Hayward (1988) and Bender and Fleming (1976), which will be referred to at other points in this thesis.

3.1 Pre-nineteenth century

3.1.1 Hiob Ludolf

The earliest written documentation of the Borna language dates from the mid-nineteenth century (Beke 1845). It is unclear what was known about the language by outsiders prior to that time. Hiob Ludolf, whose main source of information was the Amhara Ethiopian monk Gregory[13], notes in his *History of Ethiopia* (Ludolf 1682) that "The Language of Gonga is the same with that of Enarea [*sic.*] but different from all the other speeches of Ethiopia" (p. 79-80). Ludolf provides no word lists or any other documentation of the language, and it must be noted that the name Gonga has historically been used to refer not only to Omotic speaking groups living by the Abbay river, but also to other peoples and languages, much as the term is used in the modern linguistic sense, cf. Taddese Habte Addo (2001: 2). Grottanelli (1941: 236) notes that in the writings of Portuguese and Italian missionaries, as well as in the chronicle of Susenyos, it included the Kafa of Ennarea. The question is what we should make of Ludolf's comment that it is "the same as" the language of Ennarea. If it is literally the same, then it is not Borna. If "the same as" is taken to mean "similar to", then a dialect closer

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[13] See Ludolf (1682): Preface; "To the Corteous Reader" (this page is not numbered, but it is the second page of the book; in the online edition (see list of references for URL) it can be found on the right hand side of the second image), as well as Jürgen Tubach's biographical entry on Ludolf in Verlag Traugott Bautz' online *Biografisch-Bibliografische Kirchenlexikon* (see list of references for URL).

to Borna might be what he was referring to. This seems to be the view of Charles Beke, who assumed, apparently without discussion, that the Gonga in Ludolf's text and what he himself calls Gonga are one and the same, and distinct from Kafa (cf. Beke (1845: 93), and my discussion in the next paragraph). His reasons for this are not stated, but two factors suggest that it might be correct: The geographical location Ludolf (1682: 37) describes; close to the Abbay river, but east of "*the Country of the Shankelites*"(ibid.), both fits well with the historical knowledge (cf. Tsega Endelew 2005) and corresponds to the common historical usage (cf. Beke 1845; Tsega 2005). In any case, whether Gonga in Ludolf's *History* indeed referred to what we may call an earlier stage of Borna, or to a related language, it is clear that he introduced for the first time any information about the language situation in these areas to an audience outside of Ethiopia[14].

3.2 Nineteenth century

3.2.1 Charles Beke

As mentioned in the last paragraph, there was for a long time an almost complete absence of information on the linguistic situation in peripheral western Ethiopia. Charles Beke's publication of fairly extensive word lists for thirteen minority languages[15] in 1845 (Beke 1845: 97-107) must therefore be considered a major breakthrough in the field. Most important with respect to the study of Borna is his *Gonga* word list. A comparison with my own material, as well as that of Gebre (1986) and Lamberti (1993), shows that very likely, his Gonga is (a predecessor to) a dialect of Borna. That is not to say that all his words are the same as in other sources; in fact several are quite different, but the pronouns are identical, and the first numerals are also almost the same. Importantly, they are in both cases clearly distinct from the Kafa forms, so in this case there can be no confusion on that matter. For some English words the Gonga translations are completely different words than the ones I have recorded. Tracing all these words, and examining the reasons for this variation would lead this

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[14] As Grottanelli (1941: 236) (and others following him (cf. Lamberti (1993: 17)) writes in his thorough examination of the earliest sources of information on this area, the Portuguese missionaries of the early 17th century were probably the first to mention the ethnonym *Xinâx*, but they did not document or describe the *language(s)* spoken in the area. The same seems to be the case for all the other pre-1845 sources on Gonga or Shinasha.

[15] In Beke's terminology (Beke 1845: 97): Wáng Agau or Hhámạra, Falasha, Agau of Agaumider, Gafat, Gonga, Kaffa, Worạtta, Woláitsa, Yángaro, Shánkala of Agaumider, Galla of Gúderu, Tigre and Hạrrargie.

study quite far away from its main topic. Beke does not comment much on the transcription he has used, and provides no analysis of the language, only a word list. Since the topic of this thesis is the synchronous phonology of the modern language, I will not go into any comparison of Beke's data with my own.

3.2.2 Arnauld d'Abbadie

The d'Abbadie brothers, who travelled widely in western and south-western Ethiopia in the mid-nineteenth century, are a recurring source of information on several languages in the region. They were apparently also in contact with Borna speakers, but do not provide any significant documentation; Arnauld d'Abbadie, in a recollection of his 12 years in Ethiopia, simply states that the *Simitchos* speak "(…) *une langue très-voisine de celle d'Afillo*" (d'Abbadie 1868: 94)[16].

3.3 Mid-twentieth century: Grottanelli and Plazikowsky-Brauner

The next published studies of Borna appeared in the mid-twentieth century: Vinigi Grotanelli's *Gli Scinascia del Nilo Azzurro ed Alcuni Lessici poco Noti Della lora Lingua* (Grottanelli 1941) and Herma Plazikowsky Brauner's *Schizzo Morfologico dello Šinaša* (Plazikowsky-Brauner 1950). The former contains a long discussion of what is known about the Bora from earlier European travelers and writers, as well as a substantial Borna lexicon of some 600 words, collected from the same sources. The latter is the first proper study of Borna grammar. In addition to its main topic, morphology, it contains a short note on phonology and stress (pp. 65-66), as well as some phrases (pp. 79-81) and a glossed text (pp. 81-83). Neither study has any discussion of tone in Borna.

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[16] I have not been able to find a printed copy of this book. However, it is available online through the Gutenberg project (see list of references for URL). One drawback of the web edition is that it has not kept the page numbering of the original; in fact, the HTML version has no page numbering at all. The page number I have given, 94, therefore relies on Grottanellis (Grottanelli 1941: 237) reference being correct. In the online HTML version, the quote can be found in the middle of the 27th paragraph of Chapter III.

3.4 1984 – current

After Grotanelli's and Plazikowsky Brauner's studies, there was a break in the research of Borna, with no new studies of Borna[17] until the publication of Gebre Bizuneh's BA thesis at the Addis Ababa University in 1986 (Gebre 1986). Within the next 10 years, a few other studies also appeared, namely Lamberti's monograph *Die Shinassha-Sprache* (Lamberti 1993), Rottland's article *A Sketch of Shinasha Morphology* (Rottland 1990) and two articles by Ashenafi and Wedekind (1990; 1994). I will introduce and discuss their analyses of various topics in the chapters where I present my own analysis.

3.4.1 Ashenafi 1989

Finally, there is one study I have not been able to get hold of and read. This is Ashenafi Tesfaye's unpublished MA thesis from 1989, *The Structure of the Noun Phrase in Shinasha*. This is very unfortunate, especially since the thesis deals not only with morphology, but also presents a phonological analysis. Ashenafi's two later articles with K. Wedekind (Ashenafi and Wedekind 1990; 1994) develop this analysis further, and it seems that one can get a good picture of Ashenafi's views on issues such as tone, central vowels and affricates from these articles. It might well be the case, however, that there are analyses in his MA thesis that are not reproduced in the later articles, and that would have been valuable to me. I am unfortunately not able to do anything about this shortcoming of the current study. This will not, however, have any *direct* implications for my analysis, since, as already mentioned, it is based only on my own data.

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[17] Excluding historical-comparative work on Omotic, where Borna data is also discussed briefly.

4 Consonants

In this chapter, I describe the basic distribution and features of Borna consonants, which are presented in Table 1. Some issues that are not related to any single sound in particular, but still a part of the consonant phonology, are discussed in Chapter 5.

Table 1.　Consonant chart

	Labial		Coronal		Dorsal		Glottal
Nasals	m		n				
Pulmonic stops	p	b	t	d	k	g	ʔ
Glottalized stops	p'		t'	ɗ	k'		
Pulmonic affricates			ts	ʤ			
Ejective affricates			ts'	ʧʼ			
Fricatives	f		ʃ	z			h
Liquids			r	l			
Semi-vowels	w		j				

4.1 Plosives

Borna pulmonic plosives consist of the glottal plosive and a series of correlation pairs at the labial, coronal and dorsal places of articulation. Their characteristics and distributions are described in this chapter.

4.1.1 Introductory note on /p/ and the analysis of the bilabial sounds

In former studies of Borna, the three bilabial plosives have been seen as being distinguished from one another by *voicing* and *type of air stream*: One is voiced (/b/), one is unvoiced and pulmonic (/p/), and the last is unvoiced and ejective (/p'/). In keeping with Trubetzkoy's notion of the phoneme, and in light of the data I have recorded, a slightly different analysis

must be introduced. The phoneme, in this conception, is "[…] *the sum of the phonologically relevant properties of a sound*" (Trubetzkoy 1969: 36), and the *phonemic content* is "[…] *all phonologically distinctive properties of a phoneme, that is, those properties which are common to all the variants 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: 66). The distribution and allophonic variation of the three plosives will be described in more detail in the relevant paragraphs, but already at this point we may summarize the main allophones, as is done in Table 2.

Table 2.　　Bilabial allophones

Phoneme	Initial position	Intervocalic position	Final position
/p/	p^h	p^h	p^h
/b/	b	β_r	p
/p'/	p'	p'	p'

Given the requirement that the phonemic content is that which is common to all variants (allophones) of the phoneme, it is clear that neither voicing nor complete occlusion can be part of the phonemic content of the /b/, since the allophone used in the word final position is not voiced, and the intervocalic allophone is not a plosive[18]. In fact, it can only be said to be a bilabial, unaspirated, non-nasal sound. This, in turn, has consequences for the description of the phonemic content of the /p/: Even though all allophones of /p/ are unvoiced, the lack of voicing cannot be part of the phonemic content of /p/. This is because there is no bilabial, non-nasal sound that has voicing as part of its phonemic content, and voicelessness is thus not a feature that distinguishes /p/ from other similar phonemes, in the sense of the definition given above. Therefore /p/ must be described as an aspirated, non-nasal bilabial sound, rather than as an unvoiced bilabial plosive. Why do I use the symbol <p> rather than <p^h> for this sound? Throughout this thesis, I use the IPA system for transcription, both phonetic and phonological. Within this system, the possibilities of writing sounds that are, in the structuralist sense, unspecified for certain features at the phonological level, is very limited.

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[18] For the majority of my informants; cf. 4.2.1 for further comments.

Various diacritical marks can be added to indicate manners and places of articulation, but there is (naturally, perhaps) no IPA symbol that is *unspecified* for this or that feature. The reason that I choose to use the symbols <p>, <p'> and <b> is that, as mentioned, this the traditional way of writing these sounds in Borna, and it is also a convention that is used when writing other languages where similar analyses are possible, such as Icelandic (in normal orthography) and Standard Chinese (in the Pinyin orthography). Furthermore, even though the structural analysis does not need to mention that they are plosives, most allophones of all the sounds described in this subchapter *are*, phonetically speaking, exactly that. There is no IPA symbol that would fully visualize the phonological analysis presented, so relying on secondary arguments of this type is in fact the only way to decide the question. For reasons of tradition and ease of reference, I will also continue to call the sounds discussed in this subchapter plosives. The same goes for the rest of the sounds transcribed in this thesis; IPA symbols are used, but the phonemic content of the sounds may depart from the IPA norm in those cases where no other possible.

4.1.2 Aspiration and ejectivity

The phonetic basis of the opposition between /p/ and /p'/ in Borna is also worth a closer look. As mentioned, they are both unvoiced, and they are traditionally seen as being distinguished by the type of air stream involved: When pronouncing a /p/, the pressure of air that breaks the bilabial closure comes from the lungs, while it is the pulling up of the larynx (with the glottis shut) that creates the necessary overpressure in the mouth cavity to break the closure of the /p'/. When hearing the bilabial plosives of Borna pronounced, however, it is not so obvious that the air stream mechanism is the most salient difference between /p/ and/ p'/. To my ears, the difference in aspiration is equally prominent, and, leaving Trubetzkoy for a moment, it seems that in practice, the two features *conspire to make the relevant distinction clear*.

In this regard, the bilabial plosives are different from the coronal and dorsal ones, where the ejectivity is much more prominent. This phenomenon has a general and straightforward physiological explanation. The volume of the air being compressed between the glottis and the dorso-velar closure when making a /k'/ is very small compared to the volume of air in the lungs. The acoustic difference between /k/ and /k'/ is consequently also quite large. /p'/, on the other hand, is pronounced at the very front of the mouth, and the air volume being compressed is much larger. The acoustic result is therefore more similar to that of a pulmonic

pronunciation. The /t'/ is somewhere in between these two. Ladefoged (2005: 148) describes this phenomenon in connection with explaining why /k'/ is more common than /p'/ in the languages of the world. He also notes that when pronouncing /p'/, the compressed air is bounded by the cheeks, which are easily distended. In this respect, /p'/ is different from both /t'/ and /k'/, and in my perception of Borna plosives, the line goes precisely there: In the coronal and dorsal cases, the acoustic effects of ejective pronunciation are very clear, while at the bilabial point of articulation, this is much less so.

When returning to the structuralist point of view, the data on allophonic variation given in Table 2 make it clear that the opposition between /p/ and /p'/ must be analyzed as based on the difference in air stream, since the difference in aspiration is what separates the phonemic content of /p/ and /b/.

4.1.3 Additional note on /p/ and /p'/

From the structuralist point of view, the analysis of the allophonic variation provided in the previous paragraphs settles the case of how to define the oppositions between, and phonemic content of, /p/, /b/ and /p'/. It might still be interesting to look briefly at another phenomenon that also indicates that glottalization is a more fundamental trait of the ejectives than their lack of aspiration. This is found in the alternation between the root used for indicative verb forms, and that used in the imperative. There is a complex system of such alternations in Borna. These are discussed by Lamberti (1993: 34-38), and our results are only partially the same. I will not be able to give a historical analysis of this phenomenon, or of the differences between my findings and Lamberti's, but see paragraph 5.2 for a summary and brief discussion. Here I will present some data relevant to this particular question. Consider the following table. In the three sections, the indicative root is given in the first column and the imperative root in the second. The third column in each section has the English translation.

Table 3.   Root alternations in glottalized plosives

p'-			t'-			k'-		
k'op'-	k'oʔ-	*prick, carve*	ʤòt'-	ʤòɗ-	*beat*	bèk'-	bèʔ-	*see*
ʃo:p'-	ʃo:ʔ-	*deflate*	ò:t'-	ò:ɗ-	*step down*	ʃí:k'-	ʃí:ʔ-	*crunch*
k'àp'-	k'àp'-	*feed*	k'ùt'-	k'ùt'-	*cut*	ʃìnk'-	ʃìnk'-	*smell*
lep'-	lep'-	*lick*	t'àt'-	t'àt'-	*cover*	k'a:k'-	k'a:k'-	*to be hungry*

Here, both /k'/ and /p'/ alternate with /ʔ/, and /t'/ alternates with /ɗ/, in some, but not all verbs. One way to look at this is the following: To the extent that ejective (glottalized) plosives enter into alternation relationships with other consonants, it is with other glottal or glottalized consonants. This cannot be considered a very strong argument for a particular analysis, especially since the alternations in question do not seem to be productive any longer (cf. 5.2). Still, this points in the same direction as the structural analysis.

4.1.4 The distribution of /p/.

In native words, /p/ is uncommon in the word initial position. I have in fact found only one such word; **pela** *a type of tall grass*, and it is safe to say that it is a marginal phoneme in this position. It is not, however, so marginal that it is changed into some other sound when occurring initially in loan words: The fruit papaya, for example, is called **pà:paja** in Borna. The data on the initial allophone of the /p/ is thus sparse, but aspiration was an invariant feature of those cases I recorded. It occurs more often intervocalically, in words like **tepà** *to pour*, **í:pà** *lid*, **è:pà** *to cry*, **ʃìpà** *to sew*, **ʃò:pà** *fat* and several others. The word final position is rarely occupied by a consonant in Borna, but some verb forms do not have any suffixes, and the sentence in Example 1 shows that there is no restriction on /p/ occurring in this position, in those few instances where the morphology requires it.

Example 1   **e:gè   (bí:)   bí̂è:p**

e:gè   (bí:)   bí-è:p

why   (he)   3SG.M.-cry(PERF)[19]

why did he cry?

4.1.5 The relationship between /p/ and /f/

A root alternation of the type discussed in 4.1.3 also occurs in some verbs with /p/ as the root final consonant. In these cases, it alternates with /f/. The verb **è:pà** *to cry,* for example, has the root **è:f-** in the imperative, giving **è:f** and **èfer** as the singular and plural imperatives, respectively. On the other hand, this alternation does not show up in a verb like **tepà**, which has **tep-** as its imperative root, with **tepa** and **tepo:r** as the singular and plural imperative.

As mentioned, the sentence in Example 1 shows that the same /p/ can also occur word-finally, and indicates that the alternation between **è:p-** and **è:f-** is historically conditioned, and not directed by the synchronous phonology, since the difference between the environments **bí̂è:_** and **è:_** seems an unlikely conditioning factor for an alternation between /p/ and /f/.

This hypothesis is strengthened by the mentioned lack of alternation in **tepà**. I cannot present any completely minimal pairs of /p/ vs. /f/ in lexical stems, but it seems that the occurrences of /p/ cannot be fully predicted by any synchronous phonological or morphological factors, and that /p/ should therefore be considered a phoneme, albeit a somewhat marginal one.

4.2 /b/

The unaspirated, non-nasal bilabial plosive /b/ is common and occurs both word-initially, intervocalically and word-finally. Examples include **bàtà** *to forget*, **bìra** *white* and **níbà** *heart*, **ʤa:ba** *branch*. Like all other consonants, it is rare (in absolute numbers) in word-final position, since consonants in general exist word-finally only in a few verb forms where there is no suffix following the verb stem. Just as for /p/, there is however no *phonological* restriction on word-final /b/, as can be seen from past verb form used in Example 2:

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[19] The bare verb root is used for the perfective in this construction. The inclusion of **bí:** as a pronoun in addition to the almost homophonous proclitic (the pronoun has a long /í:/ while proclitic the has the short /í/) is voluntary and appears to have an emphatic function. Both variants are correct, but my informants considered the variant *with* the pronoun to be most common, so the inclusion of the pronoun should thus not be considered a strong emphatic effect.

Example 2   **e:gè   bí: bík'eb?**

              e:gè   bí: bí-k'eb

              why   he   3SG.M.-listen(PERF)

              why did he listen?

/b/ also occurs as part of a consonant group with its homorganic nasal, i.e., with [m], as in **gùNbà**[20] [gùmβ̞à] *walking stick*. Further information on these consonant groups are given in the paragraph dealing with nasals, cf. 4.13.

4.2.1 Allophones of /b/

There is some variation in the number of main allophones of /b/ between speakers of Borna. For all speakers, it is phonetically a voiced plosive, [b], word-initially. Word-finally, it is partly or (usually) fully devoiced to an unvoiced unaspirated plosive [b̥] (or simply [p]), which is the basis for regarding the lack of aspiration as more essential than voicing for this consonant. A closer phonetic transcription of the word **bík'eb** (cf. Example 2) would thus be [bík'ep][21]. Between vowels, the /b/ is always lenited to a bilabial voiced approximant [β] by two of my main informants, while the third main informant retains the plosive pronunciation also in this position. This means that **[**níβ̞à] and [níbà**]**, respectively, are their pronunciations of the word **níbà** *heart*. I have not checked this feature with enough speakers to say for sure whether the variation is individual, dialectal or dependent on some other parameter, but it can be noted that both speakers with the approximant pronunciation are from the village of Lagabuna, while the third speaker is from the town of Bulen, some two hours away by foot. It should, finally, be mentioned that this lenition is a common feature of many Ethiopian languages, including Amharic, the dominating second language of all three speakers.

4.2.2 Root alternations

In alternations of the type described in 4.1.3, /b/ alternates with /w/ in native verbs, i.e. **k'eba** *to listen* has the imperative root **k'ew-**. See 5.2 for some comments on loan words, including a verb with root final /b/.

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[20] The capital N represents a nasal *archiphoneme* (cf. 4.13), and must not be confused with the IPA small caps N, representing a uvular nasal.

[21] Note that the opposition between /p/ and /b/ is nonetheless not neutralized in this position, due to the differences in aspiration.

4.3 /t/

The aspirated coronal plosive /t/ is common and occurs in all relevant positions (i.e., word-initially, intervocalically and word-finally). Examples include **tò:kà** *head*, **tufa** *leg/foot*, **mítà** *tree*, **à:ta** *to ask*. It can also be part of consonant groups with its homorganic nasal, [n], e.g. **sà:Ntínà** [sà:n̪t̪ín̪à] *casket*. The /t/ is always laminal, IPA [t̪], but since there is no non-laminal aspirated alveolar plosive, this will not be marked in the transcription. The /t/ does *not* alternate with any other sound when being the final root vowel in verbs.

4.4 /d/

The unaspirated coronal plosive /d/ is also common and occurs in all relevant positions. Examples include **dà:zà** *donkey*, **dagà** *between*, **bú:dà** *blue* and **bì:dà** *to fly*. In the relevant context (cf. Example 1 and Example 2) this verb behaves like **k'ebà** and **à:ta**, so there is restriction on the usage of /d/ word-finally. The /d/ is also common in consonant groups with [n], as in **dʒúNdà** [dʒún̪d̪à] *navel*. Like /b/ and /g/, /d/ is voiceless in final position; in Example 3, the final word is phonetically [bíβì:t][22], which is the reason why, structurally, its phonemic content cannot include voicing (cf. discussion of the same phenomenon in bilabial plosives in 4.1.1).

Example 3	**e:gè**	**bí:**	**bíbì:d**
	e:gè	**bí:**	**bí-bì:d**
	why	he	3SG.M.-fly(PERF)
	why did he fly?		

4.4.1 On the analysis of the /t/ – /d/ opposition

The /d/ is phonetically apical, IPA [d̺], but as with the laminality of the /t/, this is always the case and it would thus not normally be considered phonologically distinctive. One issue arises as a result of this observation, namely how to define the distinctive opposition between /t/ and /d/ in Borna in terms of features. I have defined /t/ and /d/ as aspirated and unaspirated alveolar plosives, respectively, but we have here an issue very much parallel with that of

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[22] Note that the opposition between /t/ and /d/ is not neutralized in this position, since there is still a difference in aspiration. This is important for the analysis of the phonemic content, and it supports my claim in paragraph 4.4 that there is no restriction on the usage of /d/ word-finally.

defining the opposition between /p/ and /p'/, discussed in 4.1.2, with two features clustering with respect to an opposition. In this case, an argument based on the relation of this opposition to the entire system of oppositions in the language's phonology seems to be applicable. It is clear that the opposition aspirated – unaspirated[23] pervades the whole Borna plosive phonology; such pairs can also be found at both the labial and the dorsal places of articulation. If analyzed as an aspiration opposition, /t/ – /d/ would enter into one of the main *series of correlation*[24] in Borna consonant phonology, while if analyzed as the parts of a laminal – apical opposition, they would not enter into any series of correlations. In fact, they would not form a correlation pair at all, since the laminal – apical opposition is not privative, but equipollent. It is, admittedly, possible to analyze this opposition too as resulting from presence or absence of a single feature (i.e. as a privative opposition); Chomsky and Halle (1991: 312), for instance, introduce the feature [distributed] for this purpose. This would still not change the conclusion with regards to the series of correlations. Analyzing /t/ – /d/ as distinguished primarily by [distributed] again leaves it as an isolated correlation pair, based on the ad hoc introduction of a feature that plays no other role in Borna phonology[25]. For these reasons, I will, in the structural analysis, consider the /t/-/d/ opposition as based on aspiration.

4.4.2 Root alternations

In native verbs like **bì:dà** *to fly*, /d/ alternates with /r/, giving forms like **bì:r** *fly* (IMP.2SG). Loan words like **sàgàdà** *to pray (of Muslims)* do not enter into any alternation; the imperative root is **sàgàd**-. It is important to note that /d/ and /r/ are distinct in the synchronous phonology, as illustrated by the pair **bòda** *weed, unwanted plant* – **bòra** *Bora*.

4.5 /k/

The unaspirated dorsal plosive /k/ is common and occurs in all relevant positions. Examples include **kànà** *dog*, **kè:zà** *three (numeral)*, **kiʃa** *hand*, **màkà** *shovel* and **tò:kà** *head*. The sentence in Example 4, with the verb **wà:kà** *to swim* illustrate that /k/ can also occur word-finally.

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[23] Which, in most allophones, occurs together with the opposition unvoiced – voiced.
[24] In the sense of Trubetzkoy (1969: 83-85).
[25] In fact, it could not play any role for /k/ – /g/ even in principle, since the feature does not have any reasonable physical interpretation for non-coronal consonants, and must therefore be considered irrelevant in such cases (cf., *inter alia*, Odden (2005: 142).

Example 4   **e:gè bí: bíwà:k**

　　　　　　e:gè bí: bí-wà:k

　　　　　　why he 3SG.M.-swim(PERF)

　　　　　　why did he swim?

In all positions, /k/ is aspirated, IPA [kʰ]. Two minimal pairs illustrating the distinction from /k'/ and /g/ are **mà:kà** *to hunt* – **mà:k'à** *to depart (from the road)* and **gaʃà** *tooth* – **kaʃà** *to warm oneself by the fire*. Like the other plosives, /k/ can be the last part of a consonant group with a nasal, such as in **àNkatà** [àŋkatà] *many*. /k/ is fronted before the front vowels /i/ and /e/, so a more detailed transcription of the words for 'three' and 'hand' would be [ḳè:zà] and [ḳiʃa]. The /k/ is also somewhat rounded before the rounded vowels /u/ and /o/, so words like **bà:kúra** *rooster* or **kòne** *who* could be transcribed [bà:kʷúrà] and [kʷòne]. The distribution of these allophones is entirely predictable on the basis of the features of the following vowel, so it will not be marked in the phonological transcription. In word final position, the /k/ seems to be slightly more fronted after the palatal vowels /i/, /i:/, /e/ and /e:/ than after /a/, /a:/, /o/, /o:/, /u/ and /u:/, but the difference here is much less pronounced than in prevocalic position.

4.5.1 Root alternations

/k/ does not alternate when it is the root-final consonant of a verb.

4.6 /g/

The unaspirated dorsal plosive is common and occurs in all relevant positions. Examples include **go:là** *a type of millet*[26], **gaʃà** *tooth*, **gà:gúrà** *beehive*, **àgà** *to build*. As already mentioned, /g/, like /b/ and /d/, is voiced in the initial and intervocalic positions, but devoiced to an unvoiced unaspirated plosive in word final position. In this position, aspiration is thus the only feature separating /g/ and /k/, which, again, is the reason for regarding lack of aspiration rather than voicing as part of the phonemic content of the /g/.

/g/ can form a consonant group with N [ŋ]: **moNga** [moŋga] *mortar (cooking utensil)*, **ʃè:Ngà** [ʃè:ŋgà] *good*. With respect to fronting and rounding, /g/ behaves exactly like /k/: **go:là** *a type*

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[26] When used as an ingredient in the local millet beer (Borna: **dòwtsà**). The word for the crop millet in general is **taʔà**.

of millet: [gʷoːlà], **gàːgúrà** *beehive*: [gàːgʷúrà], **gínà** *spear*: [gͅínà] and **gèːNza** *tall*: [gͅèːnza]²⁷. No such details are included in the transcription, for the same reasons as for /k/.

4.6.1 Root alternations

When it is the final consonant of a verb root, /g/ alternates with zero: **fúga** *to blow* vs. **fú** *blow* (IMP.2.SG), **àgà** *to build* – **àː** *build* (IMP.2.SG), **tsʼeːgà** *to call* – **tsʼeː** *call* (IMP.2.SG).

4.7 /ʔ/

The glottal plosive /ʔ/ has interesting characteristics. Consider first words like **ʃàʔà** *to walk*, **teʔà** *to lie*²⁸ or **hàʔa** *chin*. A possible hypothesis here would be that all these words have simple roots with the structure CV, and that the ʔ is automatically inserted to break up the two vowels when the ending **–a** is present. This would mean that [ʔ] should not be considered phonologically distinctive, but the hypothesis appears to be wrong, for several reasons. First, although there is no word ****teà**, there are words like **be.à**²⁹ *to sit* and **ge.à** *to search*, illustrating that there is no restriction on the sequence [e.à] in the relevant context. The /ʔ/ is also present in word-final position, such as in the sentence in Example 5.

Example 5	**eːgè** **bí:** **bíʃàʔ**	
	eːgè **bí:** **bí-ʃàʔ**	
	why he 3SG.M.-swim(PERF)	
	why did he swim?	

This cannot be explained by the given hypothesis, since the conditioning environment (V_V) is not present. As will be described in 4.8.3, some verbs with roots ending in /kʼ/ and /pʼ/ alternate with /ʔ/, so it might be suspected that /ʔ/ stands in some sort of allophonic relationship to either or both of these sounds. Pairs like **teʔà** *to lie* – **tekʼà** *shock, strong distress* and **ʃàʔà** *to walk* – **ʃàpʼà** *to throw* show that the distinctions /ʔ/ – /kʼ/ and /ʔ/ – /pʼ/ are distinctive in the synchronous phonology. I therefore conclude that /ʔ/ is phonemic on par with the other plosives in the medial position.

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²⁷ The font and word processor I am using does not allow me to combine the fronting diacritic with the correct g-symbol of the IPA, so I have exchanged it for the ordinary <g>. This should not be the source of any great confusion.

²⁸ As opposed to standing up, not 'to tell something not true'.

²⁹ The dot is here included to mark a syllable break. The vowels sequences in questions are not diphthongs, but two consecutive syllabic vowels.

4.7.1 Are there more than one /ʔ/?

In addition to this, there are very many words beginning, phonetically, with [ʔ]. It is well known that in many languages which do not have phonemic /ʔ/, a [ʔ] is nonetheless present in the beginning of words starting with vowels, when these words are pronounced in isolation or in the beginning of a sentence. Norwegian, for example, is such a language, where the occurrence of /ʔ/ can be analyzed as a non-phonemic epenthesis. With this in mind, it is interesting to observe that there are no words in Borna starting, phonetically, with a vowel, when pronounced in isolation. This indicates that we should check if these cases of the [ʔ] should perhaps be analyzed independently from the root-final /ʔ/.

4.7.2 Word-initial /ʔ/ in verbs

One way of checking the phonological status of initial /ʔ/ in verbs, is to see what the verbs look like with a proclitic or prefix. As already shown, verbs do, in some constructions, take an agent/subject marking proclitic; for the third person singular, masculine, this is **bí-**. Consider the verb forms in Table 4:

Table 4.   Third person singular masculine agent/subject marking proclitic

Infinitive	With the proclitic bí- (in wh-questions)
à:tà *to ask*	**bíàt**
ìʃà *to finish*	**bʃ**
úʃà *to drink*	**bú:ʃ**

The assimilation process in the final verb will be dealt with in paragraph 6.10, but most important here is the fact that there is never any [ʔ] between the /í-/ of the proclitic and the root initial vowel of the verb. If the glottal stop had really been phonemic in word-initial position, we would have to postulate a syncope rule to delete it between vowels. This would not fit with the rest of the data, since, as we have seen, [ʔ] *does* occur intervocalically.

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4.7.3 Word-initial /ʔ/ in nominals

A 'test' like the one just used with verbs can also be done with nominals. There is a similar proclitic[30] used on nouns, marking the possessor. Consider the following nominals, where I have used the first person proclitic **tɨ-**.

Table 5.   First person singular possessive proclitic

Quotation form	With the possessive proclitic tɨ- (*'my'*)
ù:tsà *a vegetable*	**tuùtsà**[31]
à:ra *arm*	**tià:ra**
ì:ra *kidney*	**tîra**
ò:ʃà *basket*[32]	**toòʃà**
e:ʃa *lion*	**tie:ʃa**

As can be seen, the situation is the same as for the verbs, and the argument is consequently also the same.

4.7.4 Conclusion on initial /ʔ/

Finally, I would like to mention an observation I made when interviewing my informants. When hearing a new word I would, naturally, ask them to repeat it for me several times. Sometimes they would repeat the words fairly rapidly, without stopping to breathe in between the repetitions. In these cases, [ʔ] would normally not be pronounced, except at the beginning of the first pronunciation. This is, of course, a somewhat anecdotal piece of evidence, but for what it's worth, it points in the same direction as the other data. I therefore, finally, conclude that the initial /ʔ/ should be considered non-phonemic and thus separate from the phonemic /ʔ/

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[30] In fact, it could probably be analyzed as *the same* morpheme, marking the subject on verbs and possessor on nominals.

[31] In the transcription of this verb, I have written the long vowel as two short vowels. This is only because I have not found a good way to indicate the difference between a contour tone that falls from high to low (e.g. on the long vowel in **bóòʃà**) and one that falls from mid to low (e.g. on the long vowel in **noòʃà**) that is compatible with the font and text editor I am using. Similar transcriptions will be used in other words of the same type, cf. for example Table 22.

[32] For carrying on ones back.

found root-finally. There is no contradiction in this; most languages have different phoneme systems in the different positions of the word or syllable.

4.7.5 Root alternations

As mentioned in 4.1.3, indicative roots ending in /k'/ and /p'/ may alternate with /ʔ/ (in the relevant context). When /ʔ/ is the final consonant in the indicative root, it does not alternate with any other consonant in the imperative, e.g. **ʃàʔ** *walk* (IMP.2SG).

4.8 Glottalized stops (ejectives)

Borna has ejectives at the same places of articulation as the pulmonic stops: labial, coronal and dorsal, that is, /p'/, /t'/ and /k'/. In addition, there are ejective affricates which will be dealt with in the paragraphs on affricates (cf. 4.14). For information on root alternations for /p'/, /t'/ and /k'/, see Table 3.

4.8.1 /p'/

The bilabial ejective /p'/ occurs in all relevant positions: **p'ita** *to throw (sticks, in a children's game),* **k'ap'à** *to kick*, **lò:Np'a** [lò:mp'a] *armpit*, **ʃàp'à** *to throw*. Some minimal pairs and triplets showing that it is phonologically distinct from similar sounds include **p'ela** *grasshopper* – **pela** *type of tall grass*, **gòp'a** *hole* – **gòpa** *slight, gentle bend/curve*, **gòfa** – *to make a shelter*[33], **ʃàp'à** *to throw* – **ʃàʔà** *to walk*. For a discussion of how to define and transcribe /p'/, see 4.1.1.

4.8.2 /t'/

The coronal ejective /t'/ is common and is not subject to any special distributional restrictions. Examples include **t'oNga** *cot/leather bed*, **k'ùt'a** *to cut* and **t'àt'à** *to cover/to bandage*. /t'/ can occur word-finally, as in **ege bí: bík'ùt'** *why did he cut?*, and it can also form a consonant group with a nasal, as in **ʃí:Nt'à** [ʃí: n̪t'à] *nose*. Some relevant minimal pairs are

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[33] Used of herders making non-permanent huts in the bush.

à:t'a *to burn oneself* – **à:da** *to burn dead grass in order to clear land*[34], **t'èra** *underside of the foot* – **tèra** *moral value, norm.*

4.8.3 /k'/

Examples of the very common dorsal ejective /k'/ include **k'apà** *to kick*, **k'ìra** *to die*, **gò:k'à** *leather* and **gì:k'à** *lazy*. It can also form a consonant group with [ŋ]: **ʃi:Nk'a** [ʃì: k'a] *to wake up*, and it can be used word-finally as in **kone bí: bíbèk'?** *who did he see?*[35]. Some relevant minimal pairs are **k'àna** *right (opposite: left)* – **kàna** *dog*, **ʃí:Nk'à** *smell (noun)* – **ʃí:Nt'à** *nose*. Like /k/ and /g/, /k'/ assimilates somewhat towards the place of articulation of the following vowel (cf. description in paragraph 4.5).

4.9 Implosive /ɗ/

As is common in Ethiopian languages (cf. Ferguson 1970: 70), Borna has only one implosive, the apico-post-alveolar /ɗ/. Words with /ɗ/ include **ɗama** *whey*, **dʒè:ɗja** *nine*, **e:ɗà** *to stand*. Importantly, a minimal pair like **boɗà** *bat*[36] - **bot'à** *to mix*[37] show that, although /t'/ sometimes alternate with /ɗ/ in verbs, the distinction between /ɗ/ and /t'/ must be considered distinctive in the synchronous phonology.

4.9.1 Root alternations

The /ɗ/ does not alternate when it is the final consonant in verb roots; e.g. **e:ɗà** *to stand* – **e:ɗ** *stand* (IMP.2SG).

4.10 Nasals

Borna has two phonologically distinct nasals, /m/ and /n/. The nasal allophonic variation is large, however, and phonetically, both [m], [n], [nʲ] and [ŋ] are found. How to analyze and transcribe these cases will be discussed in the following paragraphs.

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[34] This can also be used metaphorically about people, meaning something like 'to improve oneself through hardship'.

[35] **Kone** means who, the rest of the sentence is of the same type as examples 1-3.

[36] Used in a local ball game.

[37] Ingredients to make, e.g., *injera* dough.

4.11 /m/

The bilabial nasal /m/ is common in all positions. Examples include **mì:ɴzà** *cow*, **màʃà** *to wash*, **dòmà** *Amhari*, **ímà** *to give*. The latter verb can also illustrate word-final usage of /m/: **ege bí bí:m?** *Why did he give?* Minimal pairs and triplets with other labial and nasal sounds include **ímà** *to give* – **ípà** *lid*, **mà:kà** *to hunt* – **wà:kà** *mushroom* – **bà:kà** *hen*, **mà:ra** *leaf* – **nà:ra** *humankind*.

4.12 /n/

The coronal nasal /n/ is common in all positions. Examples include **nò:na** *language*, **níbà** *heart*, **dànà** *to know* and **è:nà** *big*. A question like **ege bí: bíà:n** *why did he return?* (from the verb **à:nà**, *to return*) shows the /n/ used also in word final position. The /n/, like the /t/, is laminal, IPA [n̪], when not influenced by neighboring consonants, i.e., word-initially, intervocalically and word-finally after vowels. /n/ contrasts with /t/ in the words **nà:ra** *humankind* – **tà:ra** *to swear*.

4.12.1 Root alternations

Neither /m/ nor /n/ alternate with any other sound in verb root final position.

4.12.2 Phonemic content

/m/ and /n/ pose no problems in this respect: They are distinguished from all other sounds by being nasal, and from each other by place of articulation (bilabial versus coronal).

4.13 On the analysis of the /m/ – /n/ opposition and [nasal]-[consonant] groups.

In [nasal]-[consonant] sequences, the nasal always has the place features of the following consonant, both those features that must be considered phonologically relevant in the structural analysis, and those that my analysis consider to be secondary. Ignoring phonetic details on all other than the nasal elements, the transcriptions in Table 6 are broad phonetic transcriptions of some words with such consonant groups, as well as one words with /n/ in the two other relevant positions.

Table 6.   Nasal-consonant sequences

[n̥ò:n̥a]	language
[lò:mp'a]	armpit
[ʃǐ:n̥t'à]	nose
[dʒún̥dà]	navel
[ʃè:ŋgà]	good

How should such words be analyzed? The variants [n̥] and [ŋ] are not used in any other context than before [ɖ] and velar plosives, respectively, so it seems obvious that they should be considered allophones of the same phoneme. Furthermore, even though /m/ and /n/ are clearly phonologically separate in Borna in general (cf. minimal pair given in paragraph 4.11), there is no such opposition in the mentioned context. If there were a context in which these groups were broken up, we could perhaps have decided whether the nasal element was an /n/ or an /m/ in each case, but these groups occur root-internally, and I have found no phonological processes breaking them up. In the synchronous phonology, then, there is no reason to analyze these cases as results of *assimilations*[38] (or any other *process*); they are simply homorganic nasal-obstruent groups. Consequently, the fact that two of the allophones in question happen to be phonetically the same as the two nasals that are independent phonemes in the language cannot be taken as an argument for assuming that they are allophones of these phonemes *in this position*. The most reasonable conclusion is to analyze the nasal element in [nasal]-[obstruent] groups as a nasal archiphoneme, not specified for place features, but always identical to the following sound in that respect. Using capital letters is the traditional way of transcribing archiphonemes (in this case N), and I use this transcription throughout the thesis.

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[38] It is, of course, likely that assimilation is the *diachronic* reason why these groups are homorganic.

4.14 Fricatives and affricates

Borna has pulmonic fricatives and both pulmonic and ejective affricates. They are mostly located in the coronal area, with the exception of the glottal fricative /h/ and the labiodental /f/.

4.15 /ʃ/

The postalveolar fricative /ʃ/ is common in all positions, in fact, in my data, it is the most common consonant in lexical roots. It occurs in all positions, and I have not recorded any great allophonic variation. Examples include **gòʃà** *to plough*, **ʃíʃà** *to hear*, **ʃè:ngà** *good*, **gà:ʃa** *teff*[39]. Some minimal pairs showing distinctions within the fricative/affricate set are **ʃàp'à** *to throw* – **ts'àp'à** *root*, **mà:ʃà** *to melt* – **mà:tʃ'à** *stomach*, **ʃúʃà** *dowry* – **ʃútsà** *rock*.

4.15.1   [s]

The alveolar fricative [s] is marginal in my data, appearing only in loanwords like **sàgàdà** *to pray (of Muslims)*, from Oromo **sagada** *pray (noun)* and **sà:Ntínà** *wooden box, chest*, from Amharic **sat'ïn** *wooden box*. The disappearance of [s] in "Kafa languages" is discussed by Hayward (1988: 280-282), and it seems clear that it has, at some point, merged with [ʃ], in favor of the latter. This merger probably also helps explain why ʃ is so common in modern Borna.

4.15.2   Root alternations

/ʃ/ alternates with /j/ in verb roots: **gòʃà** *to plough* – **gòj** *plough (IMP.2SG)*, **kà:ʃà** *to play* – **kà:j** *play* (IMP.2SG), **úʃà** *to drink* – **új** *drink* (IMP.2SG). In verbs with /i/ as the root vowel, the j merges with the vowel: **ʃíʃà** *to hear* – **ʃí:** *hear* (IMP.2SG). The opposition between /ʃ/ and /j/ is otherwise distinctive, as can be illustrated by a minimal pair like **ìjà** *uncle (mother's brother)* – **ìʃà** *to dig*.

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[39] The Ethiopian crop often used to make the pancake-like staple food *injera*.

4.16 /z/

The voiced alveolar fricative /z/ occurs more often in medial position than initially; examples such as **wà:zà** *ear*, **mì:nzà** *cow*, **dà:zà** *donkey*, **ts'à:zà** *to sweat*, **kè:zà** *three* illustrate the first type, while **zà:nzà** *fly* and **zìmìmbrà** *a type of beetle* are the only words I have found of the second. As for the medial /z/, I have failed to find a completely minimal pair for it with /ʃ/, which is perhaps the most crucial opposition to consider for /z/. However, it is hard to see this as an indication of an allophonic relationship between these two sounds. Near-minimal pairs such as **wòzà** *to braid* – **wòʃa** *religious sacrifice* and **àza** *to make, to create* – **àʃà** *person, man* exist, and all attempts to formulate rules that govern an allophonic relationship between /z/ and /ʃ/ appear to fail[40]. The occurrence of /z/ does not seem to be predictable, and it must be considered an independent phoneme.

4.16.1   Root alternations and allophones

The /z/ alternates with /j/ in some, but not all verb roots; The imperative roots of the verbs **wòzà** *to braid* and **àza** *to create*, for instance, are **wòz-** and **àz-**, while **bàza** *to refuse* has **baj-** as its imperative stem. The /z/ is not devoiced in final position: it is always [z].

4.17 /ts'/

The alveolar ejective affricate /ts'/ occurs frequently in all positions: **mì:ts'à** *to laugh*, **k'ets'à** *to harvest*, **ts'ìdà** *blast, explosion*, **ts'àp'à** *root*. Some minimal pairs illustrating contrasts with similar consonants include **kàts'à** *ripe* – **kàtsà** *fence*, **ts'àp'à** *root* – **ʃàp'à** *to throw*, **k'àts'à** *to transport* – **k'àtʃ'à** *prepare food*. The latter is particularly important, since it illustrates the opposition between /ts'/ and the consonant it alternates with in verb roots (see below).

4.17.1   Root alternations and allophones

In verb roots, /ts'/ alternates with /tʃ'/, e.g. **wòts'à** *to run* – **wòtʃ'** *run* (IMP.2SG), **k'ets'à** *to harvest* – **k'etʃ'** *harvest* (IMP.2SG). Generally, /ts'/ shows little allophonic variation, although the plosive part of the affricate is sometimes rather indistinct in the intervocalic position,

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[40] Just to account for the two pairs given here, completely unrealistic rules of the type "/ʃ/ is pronounced [z] between /o/ and /a/, but only if both the /o/ and the /a/ has mid tone, while /ʃ/ is pronounced [z] between /a/ and /a/ only if the first /a/ is low and the second mid (that is, with the opposite tone configuration from the /o/-case". Compare also the other words given with medial /z/. It seems unnecessary to continue this analysis.

giving a pronunciation close to [s']. One could perhaps say that there is free variation between [ts'] and [s'], but with a preference for the affricate.

4.18 /ts/

The pulmonic alveolar affricate /ts/ occurs only medially, where it is aspirated. Its occurrence in this position, however, is unpredictable and distinctive, as shown by minimal pairs like **kàts'à** *ripe* – **kàtsà** *fence,* **ʃúʃà** *dowry* – **ʃútsà** *rock*, as well as the minimal triplet **k'àts'à** *to transport* – **k'àʧ'à** *to prepare food* – **k'àtsà** *incomplete*.

4.18.1   Root alternations

/ts/ alternates with /ʃ/ in some, but not all verbs: **dètsà** *to grab* has the imperative stem **dèʃ-**, while **mìtsà** *to burn* has **mìts-**.

4.19 /ʧ'/

The last coronal consonant is the post-alveolar ejective affricate /ʧ'/ occurs in all positions. **ʧ'è:rà** *to poison* and **ʧ'à:ta**[41] *oxpecker* are examples of words with the sound in initial position, while examples of the sound in medial positions, as well as minimal pairs with other coronal consonants are given in the relevant paragraphs. The /ʧ'/ does not alternate when it is the final consonant of a verb root; e.g. **k'àʧ'à** *to prepare food* – **k'àʧ'** *prepare food* (Imp.2sg).

4.19.1   [ʧ]

The pulmonic equivalent of /ʧ'/ is very marginal in my data; in fact, it occurs only in one word: **bà:ʧà** *to relax, to enjoy oneself*. I have no good explanation for this word, and it is unclear whether it is a loan word.

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[41] I am uncertain of exactly which species of bird **ʧ'à:ta** refers to, but it is a small oxpecker or similar bird that sits and feed on the back of large animals such as cows.

4.20 /ʤ/

The voiced postalveolar affricate /ʤ/ occurs commonly in the initial position, in such words as **ʤúndà** *navel*, **ʤè:ʤja** *nine* and **ʤì:k'à** *back* (noun). I have only recorded one word where it occurs root-internally: **ba:nʤa** *Cordia Africana*[42]. The origin of this word is unclear, and I have little to say about it. One might speculate that it is a loan word, since the Amharic name for this tree is the rather similar **wanza**, but it would require a more thorough historical investigation to see if this is really plausible. It is tempting to posit some type of relationship between /ʤ/ and /ts/, since they have complementary distributions in roots: /ʤ/ occurs only initially, while /ts/ occurs only medially. In this connection, it must however be noted that although I have found no words with an intervocalic ʤ within a root, there is no phonotactic restriction on /ʤ/ occurring intervocalically *as such*, as can be seen in compound words like **kiʃíʤà:ba** *finger* and **tufíʤà:ba** *toe* from **kiʃa** *hand,* **tufa** *foot* and **ʤa:ba** *branch*. In this position, the /ʤ/ is frequently, but not always a fricative [ʒ] rather than an affricate.

It might also be noted that the typologically common distribution pattern of voiced and unvoiced allophones of a single phoneme is the opposite of what we would have to posit if we were to treat /ʤ/ and /ts/ as such allophones: Intervocalic voicing is more natural than intervocalic devoicing.

4.20.1   Root alternations

Since I have found no words with /ʤ/ as the root-final consonant, I have no information on possible root alternations involving this sound.

4.21 Affricates or consonant groups?

Four of the sounds mentioned here ([ts], [ts'], [ʧ'] and [ʤ]) are, phonetically, sequences of stops and fricatives. When considering whether such sequences should be analyzed as sequences of two phonemes (a stop and a fricative in this case), or as one (an affricate), the guidelines provided by N. S. Trubetzkoy are quite useful.

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[42] A tree native to Africa, which, as far as I have been able to find out, has no English name.

4.21.1   Potentially and actually monophonematic sound combinations

The set of rules for choosing between a *monophonematic* and a *polyphonematic evaluation of sound combinations* given by Trubetzkoy (1969: 55-62) can be said to have some basic rules and some more specific. As he explains on page 55, before deciding whether a certain combination of sounds is *actually monophonematic* in a particular sound system, one must first evaluate whether they are even *potentially monophonematic*. Potentially monophonematic are those sound combinations that I: are not distributed over several syllables, II: are produced by a homogenous articulatory movement and III: are not longer in duration than the normal duration of a single sound. These basic rules correspond to rules I, II and III in the specific list (Trubetzkoy 1969: 56-58). Do the sound sequences [ʦ], [ʦ'], [ʧ']and [ʤ] in Borna meet these requirements? They clearly satisfy the first two rules: There are no cases where the combinations need to be analyzed as belonging to two syllables, and they are all produced by homogenous articulatory movements. What about the lengths of these sound combinations compared to single consonants in Borna? Comparing lengths is not always easy, since there are variations between speakers as well as within the speech of a single speaker. The same speaker may speak slowly or rapidly depending on his or her emotional state and the demands of the particular speech situation. For example, when a speaker is agitated and speaking very quickly, a phonologically long vowel may be shorter (in absolute terms) than a phonologically short vowel would be in the same person's pronunciation when he or she is speaking slowly and calmly. The length of segments also vary depending on their position in the word. What we are interested in is of course *relative length.* When we wish to *refer* to lengths, however, absolute numbers are useful. In order to minimize unwanted influences, we may therefore formulate a question such as this: Is the duration of the sequences [ʦ], [ʦ'], [ʧ']and [ʤ] systematically and significantly longer than the duration of a single consonant in the same position in the word, when spoken by the same informant at the same general pace? In my data, the best source of such recordings are probably the sessions with Tsehay Mengesha where we sat for extended periods of time at the Addis Ababa University recording single words. In these cases, there was no sentence context that could influence the durations of the relevant segments, and he pronounced all words clearly and at a fairly consistent pace. Especially interesting here is perhaps the comparison between single plosives, single fricatives and the sequences [ʦ], [ʦ'], [ʧ']and [ʤ]. Table 7

shows the duration times of intervocalic consonants in some representative words. All words were recorded twice, and the duration times given are averages of those two pronunciations.

Table 7.   Duration times of some consonants

Word	Segment measured	Duration (milliseconds)
àʃà *man*	[ʃ]	109
kiʃa *hand*	[ʃ]	87
ʃè:ʃà *urine*	[ʃ]	114
wà:zà *ear*	[z]	86
dà:zà *donkey*	[z]	94
kè:zà *three*	[z]	87
ʃutsà *rock*	[ts]	120
dàtsà *ground*	[ts]	123
bè:tsà *penis*	[ts]	126
mì:ts'à *to laugh*	[ts']	113
mùts'à *fish*	[ts']	126
à:ts'à *aunt (father's sister)*	[ts']	117
ma:ʧ'à *stomach*	[ʧ']	124
k'àʧ'à *to prepare (food)*	[ʧ']	131
à:ta *to ask*	[t]	109
mítà *tree*	[t]	111
bàtà *to forget*	[t]	99

As we can see, the typical duration of intervocalic single consonants in Borna, as well as the duration of the sequences [ʦ], [ʦ'] and [ʧʼ], is about one tenth of a second. In general, however, the affricates are somewhat longer; the average of all the measurements I have is about 120 milliseconds, while fricatives and stops are on average about 100. *Gemination* is, in my data, marginal in Borna, and I will not be able to give a good analysis of it (cf. 5.2 for some discussion). It is still interesting to compare these duration times with those in two words with clearly geminated consonants in Borna: the numerals *one* and *two*. They are, in Tsehay's pronunciation[43], from the same session [ìk:à] and [gìt:a], respectively. Here, the average duration times of the intervocalic stops are 202 and 219 milliseconds. While the difference between the average lengths of the sequences [ʦ], [ʦ'] and [ʧʼ] and the single plosives and fricatives was about 20%, these durations are approximately twice as long as those of single stops. As I see it, this indicates that the length difference between single consonants and the sound sequences in question is too small to be taken as real evidence in favor of a polyphonematic evaluation as per Trubetzkoy's third rule.

A note on /ʤ/

Since /ʤ never occurs intervocalically within one morpheme, it is not possible to compare it to [t], [ʃ], [ʦ], [ʦ'] and [ʧʼ] in a completely exact way. Measuring the duration of stops (and stop-initial affricates) in the word-initial position is furthermore somewhat complicated, since a significant part of these sounds' duration consists of the silence preceding the explosion that defines a stop. The intervocalic allophone of /ʤ/, which occurs only at morpheme boundaries, is sometimes a [ʤ] and sometimes a [ʒ]. I have measured the length of these allophones in words such as like **kiʃíʤà:ba** *finger* and **tufíʤà:ba** *toe*, as well as in several instances of /ʤ/-initial words with the first person possessive proclitic **ti-** attached. In no cases is this allophone very long; it is even slightly shorter, on average, than /ʃ/ and /z/ in the intervocalic position, with an average duration of just above 80 milliseconds. The mentioned morphological difference means that the data here is not completely comparable with that in Table 7, but it seems safe to conclude that the evaluation of [ʤ] by Trubetzkoy's Rule 3 is the same as that of [ʦ], [ʦ'] and [ʧʼ].

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[43] But not in Asafa's; cf. paragraph 5.2.

4.21.2   Rule VI

Rule number VI states that "If a constituent part of a potentially monophonematic sound combination cannot be interpreted as a combinatory variant of any other phoneme of the same language, the entire sound combination must be considered the realization of a single phoneme" (Trubetzkoy 1969: 59). How does this apply to the sound sequences [ʦ], [ʦ'], [ʧ'] and [ʤ]? The plosive parts are unproblematic, since they all occur as independent phonemes as well. As for the fricative parts, things are a bit more complicated. If we first look at [ʦ], it is clear that the sound [s] is marginal in Borna, occurring only in loan words. It does not occur as an allophone of any other phoneme either; as mentioned in 4.16.1, /z/, unlike the unaspirated plosives, is not voiceless in word-final position. [ʒ] also occurs only as the final part of [ʤ], and as an allophone of this sequence in the intervocalic position. When considering the glottalized [ʦ'] and [ʧ'], we must first look at the question of whether the glottalization is a feature of the stop part of the sequence, or the fricative part, or of both. The main difference between a pulmonic plosive and an ejective is the manner in which the pressure needed to break the oral closure is produced (cf. discussion in 4.1.1). Since the fricative part comes *after* the closure is broken, it seems reasonable to consider glottalization as primarily a feature of the stop part of the sequence. This analysis would mean that the fricative parts of [ʦ'] and [ʧ'] are [s] and [ʃ], respectively. [s] has already been discussed (see above), and we are thus left with [ʧ'] as the only sequence in which the fricative part occurs elsewhere in the language. In conclusion, the application of Rule VI gives arguments pointing towards a monophonematic evaluation of [ʦ], [ʦ'] and [ʤ], while it has nothing clear to say about [ʧ'].

4.21.3   Rule IV

Rule IV reads as follows: "A potentially monophonematic combination of sounds, that is, a combination of sounds corresponding to the conditions of Rules I to III, must be evaluated as the realization of a single phoneme, if it is treated as a single phoneme; that is, if it occurs in those positions in which phoneme clusters are not permitted in the corresponding language" (Trubetzkoy 1969: 58)[44]. As will be discussed in paragraph 6.11, there are strong restrictions on consonant clusters in Borna, and obstruent clusters appear to be non-existent outside of the

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[44] A principle similar to this one appears to be behind Lamberti's decision to treat the j/w-final and the j/w-initial vocalic clusters separately.

sequences discussed here. This is thus an argument in favor of a monophonematic evaluation of these sequences as well.

4.21.4   Rule V and conclusion on the application of Trubetzkoy's rules for choosing between a monophonematic and a polyphonematic evaluation of [ʦ], [ʦ'], [ʧ'] and [ʤ]

Rule V states that "A combination of sounds fulfilling the conditions of Rules I to III must be considered the realization of a single phoneme, if this produces symmetry in the phoneme system" (Trubetzkoy 1969: 59). From one point of view, it is clear that a somewhat higher degree of symmetry in the coronal consonant system in Borna would be the result if we choose a polyphonematic evaluation of all the relevant sound sequences. The sounds [t], [t'], [d], [ɗ], [ʃ] and [z], and the sound sequences [ʦ], [ʦ'], [ʧ'] and [ʤ] could then neatly be summarized as the four pairs /t/ - /d/, /t'/ - /ɗ/, /s/ - /z/ and /ʃ/ - /ʒ/. On the other hand, there would be many gaps in this system too, since only a few of the possible sequences of two of these segments are actually found.

In conclusion, I find the arguments for a monophonematic evaluation of [ʦ], [ʦ'], [ʧ'] and [ʤ] stronger than the arguments for a polyphonematic evaluation, and I therefore consider these sounds combinations to be single, affricate phonemes rather than sequences of two phonemes (a stop and a fricative).

4.22 Phonemic content the of coronal fricatives and affricates

Which features are needed to distinguish the coronal fricatives and affricates from each other, and from the rest of the consonants? In Table 8, I summarize some important traits shared by all allophones of the consonants in question.

Table 8.   Allophones of coronal fricatives and affricates

	Laryngeal setting	Place of articulation	Manner of articulation	Aspiration	Airstream mechanism
ʃ	unvoiced	post-alveolar	fricative	unaspirated	pulmonic
z	voiced	alveolar	fricative	unaspirated	pulmonic
ts	unvoiced	alveolar	affricate	aspirated	pulmonic
ʤ	voiced	post-alveolar	affricate*	unaspirated	pulmonic
ʧʼ	unvoiced	post-alveolar	affricate	unaspirated	glottal
tsʼ	unvoiced	alveolar	affricate*	unaspirated	glottal

As can be seen, out of the mentioned traits, place of articulation is the only thing separating tsʼ from ʧʼ, so this feature is unavoidable in the phonemic content of these sounds. This feature also separates /ʃ/ from /z/, /ts/ and /tsʼ/, /z/ from /ʤ/ and /ʧʼ/, /ts/ from /ʤ/ and /ʧʼ/ and /ʤ/ from /ʧʼ/. As for the other pairs, some comments are needed. As already mentioned, there is free variation between a fricative form and an affricate form of the intervocalic allophone of /ʤ/ and /tsʼ/; this has been indicated in the table with an asterisk. If these free variants are included as allophones of these phonemes, as they probably should be, then manner of articulation is in fact not a possible feature of these sounds, since it is not consistent across the allophones. Table 9 shows this alternative summary of allophones.

Table 9.   Alternative summary of coronal fricatives and affricates

	Laryngeal setting	Place of articulation	Aspiration	Airstream mechanism
ʃ	unvoiced	post-alveolar	unaspirated	pulmonic
z	voiced	alveolar	unaspirated	pulmonic
ʦ	unvoiced	alveolar	aspirated	pulmonic
ʤ	voiced	post-alveolar	unaspirated	pulmonic
ʧˀ	unvoiced	post-alveolar	unaspirated	glottal
ʦ'	unvoiced	alveolar	unaspirated	glottal

In this system, /ʃ/ and /ʤ/ are only distinguished by voicing, so this becomes a necessary part of the phonemic content. This leaves aspiration as a superfluous feature, since all oppositions can be defined by *laryngeal setting*, *place of articulation* and *air stream mechanism*, while the opposition between /ʧˀ/ and /ʃ/ cannot be defined by reference to aspiration rather than air stream mechanism. This has a somewhat strange consequence, namely that aspiration, but not voicing, is distinctive among stops, while it is the other way around among the affricates and fricatives. This is not entirely unexpected, though, since aspiration in general is distinctive for plosives more often than for fricatives. In any case, there does not seem to be a way to avoid this if we are to follow the given definition of the phoneme and of phonemic content strictly.

4.23 Final note on coronal fricatives and affricates

The Borna system of coronal fricatives and affricates as I have analyzed it is rather uncommon. There is a lack of consistency in the root alternations, the distributional patterns for several of the sounds in question are unusual, and most strikingly, the system is highly unsymmetrical. All of this suggests that I might have overlooked some phonetic, distributional or dialectal details that could have led to a different and more cohesive analysis. It could of course also be that the system *is*, at the moment, slightly unusual. A factor pointing in that direction is that the gemination system appears to be undergoing change. There are

many cases where earlier researchers have transcribed geminated consonants, while in my data, the consonant in question is short and ungeminated: the words for *man* and *tree/wood* are two such examples: Lamberti (1993: 41) gives **asshà** (IPA: aʃ:à) for *man*, and Ashenafi and Wedekind (1990: 351) give **mít:à** for *wood*. In my data, these words are **àʃà** and **mítà**, respectively[45]. See also the discussion in 5.2 on this issue.

In conclusion, it is clear that the coronal affricates and fricatives is an area of Borna phonology that is in need of further investigation. In particular, a historical-comparative study of the effects of the changes in the gemination system on these consonants is needed. At present, however, I can only state that the analysis given in the previous paragraphs seems to be compatible with the data I have collected.

4.24 /f/

The labio-dental fricative /f/ occurs both medially and initially, in word such as **fì:na** *to work*, **fò:la** *road*, **gòfà** *shepherd's hut*, **k'òfà** *to knock, beat*. Verbs with /f/ as the root-final consonant in the indicative do not enter into any root alternations, but see paragraph 4.1.5 for a discussion of the relationship between /f/ and /p/. It is distinguished from all other sounds by its place of articulation.

4.25 /h/

The glottal fricative is not frequent in Borna, but it exists and must be considered an independent phoneme. Example words include **hàʔa** *chin*, **hìya** *20 (numeral)*, **dìha** *to fall*, **ʃahà** *to balance*[46]. The /h/ contrasts with /ʔ/ in, for example, the pair **bèha** *body odor* – **bèʔa** *wife's sister*. In the very few verbs with /h/ as the root final consonant, there were no alternations between the indicative and imperative forms.

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[45] As will be presented in subchapter 5.2, there is also variation between my informants on this issue, but the two words quoted here were pronounced with short consonants even by those informants that have phonetically long consonants in some words.

[46] Specifically, this refers to a building technique used when building roof on traditional round houses; the various poles used must be placed in a particular order so as to avoid temporarily unbalancing the house. This measuring and balancing process is what's called **ʃahà.**

4.26 The liquids /r/ and /l/

Borna has two liquids, /r/ and /l/, which I will here discuss together.

4.26.1   The distribution of /r/ and /l/

The distribution of the liquids in Borna is restricted. /r/ never occurs word-initially in native words, while /l/, in my data[47], is found only in two words that appears to be native: **lò:mp'à** *armpit* and **lep'à** *to lick*. Both sounds are quite common in the medial position, and here they contrast with each other, as in the minimal pair **bòla** *mule* – **bòra** *Bora*. Neither /r/ nor /l/ alternate with any other sounds in verb roots; the verbs **wòra** *to sit* and **ts'ílà** *to see*, for instance, have **wòr-** and **ts'íl-** as imperative roots.

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[47] Just like in the data of Lamberti (1993: 27).

5 Further issues in the consonant phonology

5.1 Semi-vowels and syllable structure

Borna has several *vocalic clusters* that can be analyzed either as diphthongs or as sequences of vowels and semi-vowels. Arguments can be made for both analyses, and I will discuss them in the following paragraphs.

5.1.1 Earlier studies

All recent studies of Borna phonology have concluded that Borna has two semi-vowels, /j/ and /w/ (Gebre 1986: 6)[48] (Lamberti 1993: 23, 28-29) (Rottland 1990: 187). The most thorough discussion is that of Lamberti, who includes a paragraph on diphthongs as well (Lamberti 1993: 44-45). In his data, they are aw, aaw, aj, ej, ij, oj, uj and uw[49]. It is interesting to note that the first elements of all these diphthongs are ordinary vowels, while the final elements are either /j/ or /w/. All these sounds are included as phonemes on their own by Lamberti, so, although he does not discuss this explicitly, it seems the reason for treating these groups as diphthongs might be based on syllable structure considerations. Looking at the words with /w/ and /j/ which he presents on pages 28-29, it is clear that none of them break with what is the normal Borna syllable structure in his analysis: Alternating vowels and consonants (cf. Lamberti 1993: 57-58). The words given on pages 44-45, on the other hand, fit this pattern only if the vocalic clusters are seen as diphthongs. If they are analyzed as consisting of one vocalic and one consonantal element, various consonant clusters must be accepted.

5.1.2 The patterns in my data

The patterns described by Lambarti are, roughly, the same as those that I have recorded. There are many vocalic clusters, but all can, at least at first glance, be analyzed as a sequence

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[48] Ashenafi and Wedekind (1990: 349) refer to Gebre's phoneme charts, and thus also include /j/ and /w/. Somewhat strangely, it might be noted, is that they claim to simply reproduce Gebre's consonant chart, but fail to include the /ʧ'/ that Gebre (1986:6) includes (<č'>, in Gebre's transcription).

[49] Note that Lamberti uses <y> for IPA [j].

of one of the ten ordinary monophthongs[50] and one of the two mentioned semi-vowels (in either order). Some examples in my data include the following words: **a:wà** *eye*, **wà:zà** *ear*, **ejʃà** *goat*, **doẃzà** *snake*, **ìjà** *uncle (mother's brother)*, **nà:jà** *son*, **ìndòwà** *grandmother*, **kèwa** *to talk*, **òwdà** *four*, **ʤèʤja** *nine*, **wòtsà** *to run* and **gufjà** *to boil.* There are, however, several other things to take into consideration when deciding which analysis is the correct one, and I will again refer to the guidelines provided by Trubetzkoy, discussed in subchapter 4.21.

5.1.3 Rules I-III

Looking at the data I have recorded, it is clear that some types of vocalic clusters must be excluded from being given a monophonematic evaluation already at this point. The sequences [a:w] in **a:wà** *eye,* [ìj] in **ìjà** *uncle (mother's brother)*, [à:j] in **nà:jà** *son,* [òw] in **ìndòwà** *grandmother* and [èw] in **kèwa** *to talk* all fail the first criterion, since the only reasonable analysis is that the two parts of the sound combinations belong to different syllables. In those cases where the [w] or [j] element precedes the ordinary vocalic element, criterion number 3 is generally not met: The already mentioned word **wà:zà** *ear,* for example, has **wà:** as its initial vocalic cluster. The full length of this cluster[51] is about 250 milliseconds, which is significantly longer than any single element in Borna, including the ordinary long vowels. The fact that the vowel following /w/ or /j/ in such clusters can be either long or short indicates that /w/ and /j/ should indeed be considered single, consonantal elements in this position. The clusters where the order is the opposite, such as in **doẃzà** *snake*, **òwdà** *four* and **ejʃà** *goat,* on the other hand, are all potentially monophonematic by this criterion, since the ordinary vocalic element in these clusters is never long in my data. They are also produced by a homogenous articulatory movement, and they are not distributed over several syllables. They must therefore be analyzed further to decide the correct evaluation.

5.1.4 [j]- and [w]- final vocalic clusters and Trubetzkoy's rules

Having concluded that [j]- and [w]- final vocalic clusters are potentially monophonematic, in the sense stated above, we can go on to Trubetzkoy's three other criteria.

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[50] Which will be described in chapter 6.
[51] Measured in the same way and from the same session as the data discussed in subchapter 4.21.

Rules VI and V

Number VI can be dealt with first. Since both /w/, /j/ and the ordinary vowels exist as phonemes in Borna, all constituent parts of the potentially monophonematic sound combinations in question have phonetic equivalents that occur in other positions. A monophonematic evaluation is thus not obligatory as per criterion VI. Note, however, that given the way the criterion is stated, the described situation should not *necessarily* be considered evidence in favor of a polyphonematic evaluation either[52].

Rule V, dealing with symmetry of the phoneme system, should not, in my opinion, be given too much weight in this particular situation. A system without diphthongs at all would certainly be more economical than one with diphthongs, but whether this can really be said to increase the system's *symmetry* is less clear.

Rule IV

When applying this rule to the current issue, the fundamental question must thus be: Does Borna otherwise allow consonant clusters in the positions where we have potential consonant clusters in words like **eʝʃà** or **doẃzà**? Or in other words: Does Borna allow intervocalic consonant clusters? As will be discussed in chapter 6.11, consonant groups that are introduced as the result of morphological processes are typically broken up by a short, indistinct vowel. In some cases it is hard to hear whether there is really a vowel present. The name of the language itself, for example, is **bòrna**. To this researcher's ear, there is simply no vowel between the r and the n in this word. The same is the case for words like **gùbra** *knee*, or the well integrated Amharic loan word **fàrʃa** *horse* (Am. *färäs*). In inflected verbs, some consonant groups also occur, cf. discussion in 6.11. We may therefore answer yes to the question posed earlier in this paragraph. In conclusion, this rule, like the others, gives no strong arguments in favor of a monophonematic evaluation.

5.1.5 Tones and vocalic clusters

None of the criteria looked at so far has indicated that the [j]- and [w]- final vocalic clusters need be analyzed as diphthongs. Before concluding, a phenomenon that is not mentioned by former researchers of Borna, and that is not directly touched upon by Trubetzkoy, must be

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[52] That the rules should be read in precisely this manner is clear from Trubetzkoy's own statement regarding rules IV-VI: "The following rules state when articulatory complexes that are potentially monophonematic *must* actually be evaluated as monophonematic" (Trubetzkoy 1969: 58, his emphasis).

discussed. There are examples in Borna of words with [j]- and [w]- final vocalic clusters in which these clusters carry a contour tone; the already mentioned words **eʝʃà** *goat* and **doẃzà** *snake* are such words. Does this indicate that we should analyze the clusters as diphthongs, since carrying a tone is a prototypical vocalic rather than consonantal property? In order to resolve this issue, we must look at what other types of sounds can carry tones in Borna. The basic fact is that the overwhelming majority of Borna words have only vowels carrying tones. Consider, however, the following two words: **ʃuḿtà** *eight* and **ʃə́rtà** *six.* In both cases, contour tones are spread across vowel-consonant groups. Although my data is scarce on this topic, and numerals are known to be phonologically unusual in Omotic languages[53] (Rolf Theil, p.c.), words such as these show that we cannot claim that only vowels can carry tones in Borna. Furthermore, the ability to host a tone is naturally dependent on a sounds sonority, and while both the nasal [m] and the liquid [r] are sonorants, they are still lower in the sonority hierarchy than semivowels. Tentatively, then, we may propose that the lowest possible sonority that a sound can have and still carry a tone in Borna is that of nasal. Given this, tone carrying semivowels are not an anomaly, and the /semivowel/-/vowel/- analysis of the vocalic clusters can be upheld.

5.1.6 Root alternations of /j/ and /w/

Neither /j/ nor /w/ partakes in any alternations when they are the final consonants of indicative roots.

5.2 Root alternations and gemination

The consonantal root alternations, and their relationship with the apparently ongoing disappearance of distinctive gemination in Borna is a part of the phonology of which I am not able to present a good analysis. Further research is needed on this issue, and in particular, historical-comparative studies seem to be crucial in order to understand the phenomenon well. I will here present a summary of the alternations, and some words on gemination.

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[53] This is certainly the case in Borna as well: The numeral six is, for example, the only word in my data with a root-internal schwa.

5.2.1 Summary of alternations

The root alternations described for the various consonants are summarized in Table 10. The first column has the consonant of the indicative root. The second and third columns have the consonants used in the imperative root: With consonants which always or never alternate, the two columns will be identical, but if the consonant alternates in some, but not all verbs, the second column will have the alternating consonant, and the third will have the non-alternating consonant (which will be the same as the indicative consonant).

Table 10.   Root alternations

Indicative	Imperative (alternating and non-alternating variants)	
p	f	p
b	w	w
t	t	t
d	r	r
k	k	k
g	Ø	Ø
ʔ	ʔ	ʔ
p'	ʔ	p'
t'	ɗ	t'
k'	ʔ	k'
ɗ	ɗ	ɗ
ts	ʃ	ts
dʒ	-	-
ts'	tʃ'	tʃ'
tʃ'	tʃ'	tʃ'
f	f	f
ʃ	j	j
z	j	z
h	h	h
r	r	r
l	l	l

The consonants can be divided into three groups based on their root alternation behavior.

1. Consonants that never alternate (t, k, ʔ, ɗ, ʧ', f, h, r, l)

2. Consonants that alternate in some, but not all native words (p, p', t', k', ʦ, z)

3. Consonants that alternate in all native words (b, d, g, ʦ', ʃ)

One important thing to note in this connection is the fact that the alternations seem no longer to be productive; they are the result of historical sound changes that are no longer effective. This can be seen from the non-alternation in loan words: No verbs that I have recorded, and that can definitely be assumed to be loan words, have any alternations. This is the case even for verbs where the root-final vowel is one that always alternates in native verbs: **sàgàdà** *to pray* and **nàbàbà** *to read*, which are borrowed from Oromo and Amharic respectively, have the imperative roots **sàgàd-** and **nàbàb-**, even though /d/ and /b/ normally alternate with /w/ and /r/ in these forms.

5.2.2 Gemination

Gemination is mentioned by both Gebre (1986: 14), Lamberti (1993: 29-31) and Ashenafi and Wedekind (1990: 350-351) as present in Borna. While Lamberti (1993: 29) says that all consonant can be geminated, Ashenafi and Wedekind (1990: 350) write that it is rare and limited to a few consonants, and that "[…] kk and tt are among the more frequent ones". Rolf Theil (personal communication) has also noted gemination in his interviews with Borna speakers. My own data on gemination is somewhat unclear. There is a significant difference between my informants on this point. In Asafa Balda's pronunciation, I could not detect any significant gemination at all. His pronunciation of the numerals one and two, which are mentioned as examples of word with geminated consonants by Ashenafi and Wedekind (1990: 351), was [ìkà] and [gìta]. In Tsehay's pronunciation, on the other hand, some words do indeed have phonetically long consonants, and his pronunciation of the numerals in question was [ìkkà] and [gìtta], respectively. It is not frequent, however, and I did not record any minimal gemination pairs in the interviews with him either. Still, the occurrence of long consonants cannot be completely predicted from any other features of the words in question. I will not be able to present an analysis of these data in this study, and further work is needed to get an overview of the role of gemination in Borna.

6 Vowel phonology

This chapter deals with Borna vowel phonology. The discussion has two main parts:

- A description and analysis of the *ordinary vowels*

- An attempt to clarify the phonological status of the *central vowels*

6.1 Ordinary vowels in Borna

The term 'ordinary vowel' will here refer to the ten peripheral vowels in Borna: /i/, /i:/, /e/, /e:/, /a/, /a:/, /o/, /o:/ and /u/, /u:/. They will be called *ordinary* because they, unlike the central vowels, can occur in lexical roots. Also unlike the central vowels, they come in pairs of long and short vowels.

6.2 /a/ and /a:/

The lowest, or most open vowels in Borna are the /a/ and /a:/. They are phonetically fronted, that is, closer to [a] than to [ɑ], but neither completely fronted nor completely open. The short variant is usually somewhat more central than the long one, they could be phonetically transcribed as IPA [ä][54] and [a:].

/a/ and /a:/ occur frequently in all word classes, as well as in inflectional affixes. Examples include **bà:ka** *hen*, **wà:ka** *to swim*, **ka:rí** *quickly*, **tà:** *I* for the long vowel, and **àʃà** *man*, **ʃàʔà** *to walk*, **aba** *on (preposition)*, as well as the predicative/infinitive enclitic **-à/-a** for the short one. Furthermore, these vowels can carry either the low or the mid tone, giving minimal pairs like **à:wà** *sun* – **a:wà** *eye* or **ʃàkà** *ape* - **ʃàka** *a building technique*.

6.2.1 Length opposition

The length opposition must be considered distinctive, as it is unpredictable and can be the only feature separating different words, giving minimal pairs like **ts'a:tsà** *breast* – **ts'atsà** *blood* and **à:wà** *sun* – **àwà** *mother-in-law*. The length of the /a/ is usually around half of the

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[54] This should not be confused with the letter <ä> used to translitterate Amharic and other Ethiopian languages written in the Ge'ez script, which denotes IPA [ə].

/a:/ in roots, but it can be even shorter (and more centralized) word-finally in casual, rapid speech.

6.3 /i/ and /i:/

The /i:/ has a place of articulation very close to the extreme, cardinal vowel: It is high (close), front and unrounded, IPA [i:]. The short variant is, here too, somewhat less extreme than the long one, and could be phonetically transcribed as IPA [ɪ]. Examples of the long /i:/ include **ʃí:Nt'à** *nose*, **ì:ra** *kidney*, **mì:ts'à** *to laugh*, **ʤì:k'à** *behind*, while **mìʃà** *sister*, **ʃíʃà** *to listen*, **ìkkà** *one*, **ʃìnà** *in front of* are example words with the short /i/. Unlike the /a:/ (and the other low vowels, as explained in coming paragraphs), the normal tonal contrast on /i:/ is not between a low and a mid tone, but between low and high, as in the third person singular pronouns, **bí:** and **bì:**, meaning *he* and *she*, respectively, or **mítà** *tree* – **mìtà** *to push*. There is at least one notable exception to this; the word **kiʃa** *hand*, which will be discussed in 7.4.2.

6.4 /u/ and /u:/

The /u:/ is similar to the /i:/ in having a place of articulation very close to the cardinal position; it is almost maximally high and back, as well as rounded, IPA [u:], while, again, the short version is less extreme, approximately IPA [ʊ]. Examples include **ù:tsà** *five*, **mú:ts'à** *to suck*, **úʃà** *to drink*, **gùbra** *knee*. The distinctiveness of the length opposition can be shown by a pair like **gù:ra** *Gura (the name of a clan/family)* – **gùra** *mountain*. The long /u:/ can accommodate contour tones in cases where it should be analyzed as morphologically complex: Female animals, for example, usually end in /ú:/, but if the second root tone is low, that tone will surface as the first part of a contour tone on the ending, e.g. **kànà** *dog* – **kànùú** *female dog, bitch*, **dà:zà** *donkey* – **dà:zùú** *female donkey, jenny*.

6.5 /e/ and /e:/

The front close-mid unrounded vowels /e/ and /e:/ are exemplified in words like **e:gè** *why*, **è:nà** *big*, **gè:nza** *tall* and **kewà** *to buy*. The short /e/ is slightly more open and central than the long one, giving [e:] and [ë] as IPA phonetic transcriptions. The length distinction can here be demonstrated with a pair like **teʔà** *husband's sister* – **te:ʔà** *back of chair*. As a non-high

vowel, the tonal distinction on these vowels is low versus mid, as in **tepà** *to pour* – **tèpà** *to weed*, cf. 7.4.2.

6.6 /o/ and /o:/

The lower rounded back vowel /o:/ is phonetically somewhat lower than IPA [o:], but not as low as [ɔ:]. The closest IPA symbol would be [o̞:]. Based on the quality of the other vowel pairs, one would perhaps expect the short variant to be more central than the long, but here I have not really detected a significant difference in their places of articulation. The short one could thus be transcribed [o̞]. Example words include **ò:tsà** *yesterday*, **tò:kà** 'head', **nò: 'we**', **okà** *there*, **bòrna** *Borna*, **wòts'à** *to run*. The long and the short vowels contrast in words like **gò:ndà** *brigde* – **gondà** *bad*. Being non-high vowels, the tonal contrast on /o/ and /o:/ is mid versus low, as in the semi-minimal pair **ʃòra** *scar* - **ʃorà** *to make (braid) ropes*.

6.7 Vowel quality oppositions

Some minimal vowel quality pairs for all vowels (disregarding length) are summarized in Table 11.

Table 11. Vowel quality oppositions

a – o	**ʃàpa** *half full* – **ʃòpa** *fat*
a – u	**àra** *appearance* – **ùra** *outside*
a – i	**à:ra** *upper arm* – **ì:ra** *kidney*
a – e	**àzà** *to hunt* – **èzà** *milk*
e – u	**kemà** *to sell* – **kúmà** *to beat, to play drums*
e – i	**bè:da** *sharp smell*[55] – **bì:da** *to fly*
e – o	**ʃè:tà** *traditional medicin* - **ʃò:tà** *dirt, dust*
u – i	**gùra** *mountain* – **gìra** *left*
u – o	**gú:rà** *region, area* – **go:rà** *to wake*
i – o	**tìgà** *to filter*[56] – **tògà** *to beat*

6.8 Thematic vowels

Borna has a set of so called *thematic* (or *theme*) *vowels* in its verbal morphology. They are not present in the infinitive, but show up in the inflectional paradigms of some verbs. Taddese (2001: 37) describes the same phenomenon in Kafa, and it seems likely that, like in Kafa, the occurrence and non-occurrence of the thematic vowels is, historically at least, connected with keeping the syllable structure simple even when consonantal tense suffixes are added to consonant-final verb roots.

Examples of thematic vowels

I will not present a full analysis of the thematic vowels, since this is mainly a morphological issue. Lamberti (1993: 136-137) in more detail. Here, I will present some data to illustrate how the vowels function, and one of the paradigms presented will also be referred to in the discussion of Borna tonology (cf. 7.5). Table 12 and Table 13 show simple past paradigms for some verbs with thematic vowels, and some without. The present continuous tense paradigms are also included, to demonstrate the lack of thematic vowels in these forms. The first column

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[55] Specifically, the smell of hot pepper, which makes you sneeze.
[56] Specifically, to filter **bòrí dòwtsà** *Bora millet beer*.

shows the forms in ordinary transcription, the second column includes morpheme boundaries and the third has glosses to the forms.

Table 12.   Examples of verbs with thematic vowel: **ʃàʔà** *walk* and **k'ìwà** fold up

ʃàʔeerè	ʃàʔee-r-è	walk-PAST-1SG
ʃàʔeerí	ʃàʔee-r-í	walk-PAST-2SG.
ʃàʔeere	ʃàʔee-r-e	walk-PAST-3SG.M
ʃàʔeera	ʃàʔee-r-a	walk-PAST-3SG.F
ʃàʔeero	ʃàʔee-r-o	walk-PAST-1PL
ʃàʔeeŕt	ʃàʔee-ŕ-t	walk-PAST-2PL
ʃàʔeernò	ʃàʔee-r-no	walk-PAST-3PL

ʃàʔirûè	ʃàʔ-irû-è	walk-PRES.CONT-1SG
ʃàʔirúí	ʃàʔ-irú-í	walk-PRES.CONT-2SG.
ʃàʔirûe	ʃàʔ-irû-e	walk-PRES.CONT-3SG.M
ʃàʔirûa	ʃàʔ-irû-a	walk-PRES.CONT-3SG.F
ʃàʔirûo	ʃàʔ-irû-o	walk-PRES.CONT-1PL
ʃàʔirút	ʃàʔ-irú-t	walk-PRES.CONT-2PL
ʃàʔirûno	ʃàʔ-irû-no	walk-PRES.CONT-3PL

k'ìweerè	k'ìwee-r-è	fold up-PAST-1SG
k'ìweerí	k'ìwee-r-í	fold up-PAST-2SG.
k'ìweere	k'ìwee-r-e	fold up-PAST-3SG.M
k'ìweera	k'ìwee-r-a	fold up-PAST-3SG.F
k'ìweero	k'ìwee-r-o	fold up-PAST-1PL
k'ìweeŕt	k'ìwee-ŕ-t	fold up-PAST-2PL
k'ìweerno	k'ìwee-r-no	fold up-PAST-3PL

k'ìwírúè	k'ìw-írú-è	fold up-PRES.CONT-1SG
k'ìwírúí	k'ìw-írú-í	fold up-PRES.CONT-2SG.
k'ìwírúe	k'ìw-írú-e	fold up-PRES.CONT-3SG.M
k'ìwírúa	k'ìw-írú-a	fold up-PRES.CONT-3SG.F
k'ìwírúo	k'ìw-írú-o	fold up-PRES.CONT-1PL
k'ìwírút	k'ìw-írú-t	fold up-PRES.CONT-2PL
k'ìwírûno	k'ìw-írû-no	fold up-PRES.CONT-3PL

Table 13.   Verbs without thematic vowels: **ʃùnà** to like and **dòà** to bring

ʃùnrè	ʃùn-ə̌r-è	like-PAST-1SG
ʃùnrí	ʃùn-ə̌r-í	like-PAST-2SG.
ʃùnre	ʃùn-ə̌r-e	like-PAST-3SG.M
ʃùnra	ʃùn-ə̌r-a	like-PAST-3SG.F
ʃùnro	ʃùn-ə̌r-o	like-PAST-1PL
ʃùnə́rt	ʃùn-ə́r-t	like-PAST-2PL
ʃùnərnò	ʃùn-ə̌r-nò	like-PAST-3PL

ʃùnìrûè	ʃùn-ìrû-è	like- PRES.CONT-1SG
ʃùnìrúí	ʃùn-ìrú-í	like- PRES.CONT-2SG.
ʃùnírûe	ʃùn-írû-e	like- PRES.CONT-3SG.M
ʃùnìrûa	ʃùn-ìrû-a	like- PRES.CONT-3SG.F
ʃùnìrûo	ʃùn-ìrû-o	like- PRES.CONT-1PL
ʃùnìrút	ʃùn-ìrú-t	like- PRES.CONT-2PL
ʃùnírûno	ʃùn-írû-no	like- PRES.CONT-3PL

dòòrè	dòò-r-è	bring-PAST-1SG
dòòrí	dòò-r-í	bring-PAST-2SG.
dòòre	dòò-r-e	bring-PAST-3SG.M
dòòra	dòò-r-a	bring-PAST-3SG.F
dòòro	dòò-r-o	bring-PAST-1PL
dòórt	dòó-r-t	bring-PAST-2PL
dòòrno	dòò-r-no	bring-PAST-3PL

dòirúè	dò-irú-è	bring-PRES.CONT-1SG
dòìrúí	dò-ìrú-í	bring-PRES.CONT-2SG.
dòírúe	dò-írú-e	bring-PRES.CONT-3SG.M
dòìrúa	dò-ìrú-a	bring-PRES.CONT-3SG.F
dòìrúo	dò-ìrú-o	bring-PRES.CONT-1PL
dòìrút	dò-ìrú-t	bring-PRES.CONT-2PL
dòírúno	dò-írú-no	bring-PRES.CONT-3PL

6.9 Central vowels

In addition to the ordinary vowels, two central vowels also occur in Borna speech: a schwa and a closer central vowel that we may, for the moment, write as [ɨ]. As already mentioned, they are distinguished from the ordinary vowels by not occurring in lexical roots[57], and by the fact that they do not have long counterparts. The schwa is furthermore extremely short, even shorter than the ordinary vowels.

There has, broadly speaking, been relatively little disagreement between modern researchers of Borna in the description of the ordinary vowels. The description (and analysis) of the central vowels, on the other hand, has varied more. Rottland (1990) does not write much about central vowels, exept a comment that "The short mid-vowels are more open than the long ones and may be heard in cases as [ɛ] and [ɔ]. There is, however, no evidence for an opposition e/ɛ and o/ɔ within the short vowels. The two short front vowels have a tendency to be centralized ([ə]) in quick speech" (Rottland 1990: 188). There are thus basically three modern descriptions of the phenomena: Lamberti (1993: 41-44), Gebre (1986) and Ashenafi and Wedekind (1990)[58].

6.9.1 Lamberti (1993) on central vowels

In addition to the ten ordinary vowels (five long and five short), Lamberti describes one centralized and one unvoiced vowel (Lamberti 1993: 41). The most interesting point here is certainly the unvoiced vowel. On this, Lamberti writes: "Der stimmlose Vokal ist ͥ. Er wird schwächer als das stimmhafte i ausgesprochen, bleibt meistens unbetont und kommt nur im Auslaut vor, wo er nicht selten in ᵊ übergeht oder gar phonetisch unrealisiert bleibt (Lamberti 1993: 41)". This description is not compatible with my data, since I have not recorded any systematically unvoiced vowel, nor any that is 'usually unstressed'. The latter follows from the fact that I have not found phonological stress to be present in Borna at all. Furthermore, expressing the relational case is given as the primary use of this vowel, with the word for man, asshà, being the example used[59]. The inflection of this word is given as asshà – asshò –

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[57] With the one exception mentioned in paragraph 5.1.5.

[58] Ashenafi and Wedekind (1994) do not present a different analysis of the central vowel from the one in Ashenafi and Wedekind (1990).

[59] In my transcription: àʃà. As for the segments, the difference between my àʃà and Lamberti's asshà is in part one of transcription conventions (he uses <sh> where I use <ʃ>), but there are also two differences in substance: He has a long /ʃ/ in this word, while it is short in my data, and the tone of the final consonant is different.

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assh^ì, in the absolute case, subject/object case and genitive/relational case respectively[60]. In my data, the vowel of the genitive/relational ending is simply an /i/, which carries a high tone, that is, the ending is –í. The phrase *a tall man*, which Lamberti gives as 'assh^ì geenzá was pronounced [àʃí gè:nzà] by my informants. Whether this difference is one of hearing/analysis, or an actual difference in the pronunciation of the respective informants is hard for me to say. I will not dwell more on this issue, but simply state that in my data (according to my hearing, which is the basis of my analysis), there is no systematically unvoiced vowel.

6.9.2 Ashenafi and Wedekind (1990, 1994) on central vowels

Ashenafi and Wedekind describe a vowel system with the ten ordinary vowels as well as an /ɨ/ and an /ə/. This is, phonetically, the same system as the one I have found. It is hard for me to assess their analysis of the schwa, since very little data on its distribution is given[61]. As for the ɨ, the distribution they describe is more similar to the one I have recorded, and I will discuss it in subchapter 6.10.

6.9.3 Gebre (1986) on central vowels

Gebre gives only the ten ordinary vowels as phonemic in Borna (Gebre 1986: 10-11), but also discusses an epenthetic, non-phonemic [ɨ] (Gebre 1986: 34-37). The context for the epenthesis is given by the following rules (Gebre 1986: 37):

$$\emptyset \rightarrow [ɨ] \quad / \quad \left\{ \begin{array}{l} CC\_\# \\ CC\_+C \\ C(C)\_+C\# \\ [-cnt]\_[-cnt] \end{array} \right.$$

These rules are not compatible with my data, where the [ɨ] is only found in one particular circumstance. There is another vowel, namely the schwa, which I analyze to be a non-phonemic breaker of certain consonant clusters in other positions. Both these cases will be described in the next paragraphs.

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[60] I discuss Borna's morphosyntactic alignment in 7.3.1. What I call the *predicative form* and the *argument form* correspond to the absolute and the subject/object case forms, respectively, in Lamberti's terminology.
[61] More on this is apparently said in Ashenafis MA thesis, cf. paragraph 3.4.1.

6.10 The distribution of the [ɨ] in my data

As already mentioned, there is a fundamental difference between the distribution of the ɨ and that of the ordinary vowels; ɨ never occurs in lexical roots, only in clitics. In fact, it seems reasonable to analyze it as being found in only one set of clitics, namely the proclitic variants of the personal pronouns. In Table 14, the independent pronouns are given in the first column, and the proclitics, with variants, in the second.

Table 14.   Independent pronouns and proclitics

	Independent pronouns	Proclitics[62]
1. person singular	**tà:**	**tɨ- / ti- / t¯-**
2. person singular	**nè:**	**nɨ- / ni- / n¯-**
3. person singular masculine	**bí:**	**bɨ́- / bí- / b´-**
3. person singular feminine	**bì:**	**bɨ̀- / bì- / b`-**
1. person plural	**no:**	**no-**
2. person plural	**ít**	**ít-**
3. person plural	**bo:**	**bo-**

6.10.1   Prefixes or proclitics?

Before looking at the morphophonology of the proclitics, some comments on their usage and meaning are in order, as well as a discussion of whether they should be analyzed as proclitics or prefixes. The main reason why I have chosen to label them clitics is that they can be attached to both nominal and verbal stems. In the present case, the clitics show the possessor when attached to a nominal, and the subject when attached to a verb. The meaning they contribute is thus not entirely the same, but this difference appears to stem from the inherent meaning of verbs contra that of nouns, and I do not consider this a reason to analyze the forms as two sets of clitics, one for verbs and one for nouns.

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[62] The diacritical marks following the consonants in the third variant of the singular clitics are tone marks, as will be discussed shortly.

Arguments also exist, however, for treating them as affixes. Clitics are supposed to be less integrated with the stems they attach to than affixes, and thus also less prone to idiosyncratic morphophonological alternations[63]. Such alternations certainly occur with these forms in Borna, as will be discussed in the next paragraphs. Should these morphs perhaps rather be seen as affixes (making up two separate sets, one for nominals and for verbs), rather than one single set of clitics? This is clearly a possible analysis. My reason for treating them together, and thus as clitics, is simply that I haven't found any syntactic or semantic differences between verbs and nominals that influence the distribution of the allomorphs of the clitics. In other words, the allomorphic variation in the singular forms is the same across verbs and nominals. It is not obvious to me that this is the correct analysis; in fact, it hinges on giving the criterion of promiscuity more weight than the criterion of morphophonological alternation in determining the status of a bound form. Whether this is correct is unclear to me, but it is, perhaps, not very important, *for the current purposes*. It is clear that in order to give a definite answer to this question, a larger investigation of Borna syntax and morphology is needed. Keeping in mind that the goal here is primarily to clarify the status of the ɨ, and secondarily to give a good description of the phonological basis of the morphological alternations in question, I will not go further in this direction. When I now continue calling the forms in question *clitics*, and deal with the verbal and nominal occurrences of them together, it should therefore not be seen as a final verdict on their status, but rather as *a possible way of presenting and discussing them that, pending further investigation, is not in conflict with my phonological findings.*

6.10.2   The variation between forms with -ɨ, -i and –Ø

As seen in Table 14, all the singular clitics have three different forms, ending in **-ɨ**, **-i** and –Ø. The distribution of these variants is governed by phonology. Consider the following tables. The words in Table 15 illustrate the normal shape of the first person clitic when attached to a word beginning with a consonant. Table 16 shows the full paradigm on one such word, **ʃíà** *sand*. Table 17 shows the first person clitic on words beginning with the five ordinary vowels, and Table 18, Table 19, Table 20, Table 21 and Table 22 show full paradigms for such words.

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[63] Cf. for example Haspelmath's discussion of data from Russian and Polish (Haspelmath 2002: 154).

Table 15.   First person possessive proclitic attached to consonant initial root

tò:kà	*head*	**tìtò:ka**	*my head*
níbà	*heart*	**tìníbà**	*my heart*
ma:tsà	*wife*	**tìma:tsà**	*my wife*
mèrè:rà	*sheep*	**tìmèrè:rà**	*my sheep*
ʃútsà	*rock*	**tìʃútsà**	*my rock*

Table 16.   Full paradigm of possessive proclitics

ʃĩà	*sand*
tìʃĩà	*my sand*
nìʃĩà	*your (sg.) sand*
bìʃĩà	*his sand*
bìʃĩà	*her sand*
noʃĩà	*our sand*
ítǝ̃ʃĩà	*your (pl.) sand*
boʃĩà	*their sand*

Table 17.   First person possessive proclitic attached to vowel initial roots

à:wà	*sun*	**tià:wà**	*my sun*
e:ʃa	*lion*	**tie:ʃa**	*my lion*
ù:tsà	*a vegetable*	**tuù:tsà**	*my vegetable*
ò:ʃà	*basket*[64]	**toòʃa**	*my basket*
ì:ra	*kidney*	**tììrà**	*my kidney*

Table 18.   Full paradigm of possessive proclitics attached to e-initial root

e:ʃa	*lion*
tie:ʃa	*my lion*
nie:ʃa	*your (sg.) lion*
bíe:ʃa	*his lion*
bìe:ʃa	*her lion*
noe:ʃa	*our lion*
íte:ʃa	*your (pl.) lion*
boe:ʃa	*their lion*

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[64] For carrying things on your back.

Table 19.   Full paradigm of possessive proclitics attached to a-initial root

à:wà	*sun*
tià:wà	*my sun*
nià:wà	*your (sg.) sun*
bíà:wà	*his sun*
bìà:wà	*her sun*
noà:wà	*our sun*
ítà:wà	*your (pl.) sun*
boà:wà	*their sun*

Table 20.   Full paradigm of possessive proclitics attached to i-initial root

ì:ra	*kidney*
tìì:ra	*my kidney*
nìì:ra	*your (sg.) kidney*
bîì:ra	*his kidney*
bìì:ra	*her kidney*
noì:ra	*our kidney*
ítì:ra	*your (pl.) kidney*
boì:ra	*their kidney*

Table 21.   Full paradigm of possessive proclitics attached to u-initial root

ù:tsà	*a vegetable*
tuùtsà	*my vegetable*
nuùtsà	*your (sg.) vegetable*
búùtsà	*his vegetable*
bù:tsà	*her vegetable*
noù:tsà	*our vegetable*
ítù:tsà	*your (pl.) vegetable*
boù:tsà	*their vegetable*

Table 22.   Full paradigm of possessive proclitics attached to o-initial root

ò:ʃà	*basket*
toòʃà	*my basket*
noòʃà	*your (sg.) basket*
bóòʃà	*his basket*
bòòʃà	*her basket*
noòʃà	*our basket*
ítòòʃà	*your (pl.) basket*
boòʃà	*their basket*

6.10.3   Short summary of the clitics' variants' distribution

As can be seen, the distribution of the variants of the clitics can be summarized as follows:

- The plural clitics do not have any significant variation depending on the phonology of the stem they are attached to.

- The variants **tɨ-**, **nɨ-**, **bɨ́-** and **bɨ̀-** occur when the stem starts with a consonant.

- The variants **ti-**, **ni-**, **bí-** and **bì-** occur when the stem starts with the vowels i, e or a.

- When the stem starts with an u or o, the clitic might, superficially, appear to consist of a single consonant, **t-**, **n-** or **b-**. However, the tones that are elsewhere associated with the clitics[65] appear here too, on the following vowel. In result we have contour tones on these vowels if the tone of the clitic and that of the root is not the same.

6.10.4   Epenthesis or weakening?

It seems obvious that, historically, all the proclitics are derived from the full pronouns: The plural clitics are simply shortened versions of the pronouns[66], while singulars share consonants with their pronoun equivalents. This type of grammaticalization process is not uncommon; words may develop into bound forms while still also being used as independent words. The Borna case is, for example, very similar to the Mongolian pronouns and person/number endings used to illustrate precisely this type of situation by Hopper and Traugott (2003: 141), where "bound morphemes can be shown to go back to independent words"[67]. More difficult is the question of exactly how this has happened; in particular, the question of the origin of the vowels i and ɨ in some variants of the clitics.

Two main alternatives must be considered: Either the vowels are remains of the full vowels found in the pronouns, or they have arisen later in a case of epenthesis, after the pronoun vowels got lost. The latter hypothesis makes it easier, perhaps, to account for the fact that the vowels now found in the clitics are very different from the ones found in the pronouns, and

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[65] Mid tone for the first and second person singular clitics, high for the third person singular masculine clitic and low for the third person singular feminine clitic.

[66] The difference between the independent 2. person plural pronoun **ít** and the proclitic **ítɔ̃-** is not phonologically substantial, cf. discussion in 6.11.

[67] As can be seen from Bernard Comrie's data (Comrie 1980: 88), which is the original source of the Mongolian paradigms (Hopper and Traugott 2003: 141), the endings on verbs and nouns are different in this case, so in this respect the situation is quite different from the one in Borna.

also that there are only two, phonetically similar vowels (i and ɨ) found in the clitics now, while there are three rather dissimilar vowels found in the pronouns (i, e and a). However, if we postulate a historical epenthesis, we also have to postulate an earlier stage without this epenthetic vowel, that is, a stage where Borna had word-initial consonant clusters beginning with **t-**, **n-** and **b-**, such as *tk-, *ns-, *bg- and so on. This would be typologically very unusual, and in addition, as pointed out to me by Rolf Theil (p.c.), nothing of this kind is known from the history of the Omotic languages.

Furthermore, we would also have to postulate an unusual sound change at an even earlier stage. Assuming the pronouns looked similar to how they look today, when they first started being attached to nouns, there would at some point be forms like ***tà:gaʃà** *my tooth*, ***tà:mùts'à** *my fish*, ***nè:gaʃà** *your tooth*, ***nè:mùts'à** *your fish*, ***bì:gaʃà** *her tooth* and ***bì:mùts'à** *her fish*. A sound change that deleted the first vowels in these words, changing the syllable structure from CV:CVCV to CCVCV in all cases is not something one expects to find.

Finally, the shape of those words that start with vowels also speak against this hypothesis. We find, as already mentioned, forms like **tia:wà** *my eye* and **tie:ʃa** *my lion* rather than, for example ***ta:wà** or ***te:ʃa.**

For all these reasons, it seems more reasonable to assume that the other alternative, where the vowels in the current clitics are assumed to be reduced forms of the vowels in the pronouns, is the correct one.

6.10.5   Variation between informants

The person/number-clitics is one of the few areas of the phonology where I found an easily noticeable difference between my informants. The difference lies in the pronunciation of the vowel of the singular clitics when they are attached to a word beginning with a consonant; in other words, the pronunciation of what I have so far transcribed as <ɨ>. The system described in the preceding paragraphs is that of those two of my main informants who are from Lagabuna, Tsehay and Mengesha (cf. 2.1). My third main informant, Asafa, from Bulen, pronounced the vowel in question differently in some contexts. Consider the words in Table 23. The first column has the words alone, where all three informants had the same pronunciation, and the second column has the English translation. The third column has the

words with the first person singular possessive clitic attached in Tsehay and Mengesha's (TS/M) pronunciation, while the last column has the same in Asafa's (A) pronunciation.

Table 23.   Variation in the pronunciation of proclitics

	Translation	With 1SG POSS (TS/M)	With 1SG POSS (A)
tò:kà	*head*	**tìtò:kà**	**tʉtò:kà**
dʒúndà	*navel*	**tìdʒúndà**	**tʉdʒúndà**
mà:tʃ'à	*stomach*	**tìmà:tʃ'à**	**təmà:tʃ'à**[68]
gèbà	*hip*	**tìgèbà**	**təgèbà**
níbà	*heart*	**tìníbà**	**tɪníbà**
ʃí:nt'à	*nose*	**tìʃí:nt'à**	**tɪʃí:nt'à**
ʃì:tsà	*face*	**tìʃì:tsà**	**tɪʃì:tsà**
ts'ì:rà	*hair*	**tìts'ì:rà**	**tɪts'ì:rà**

When the root vowel is a back, round vowel, the clitic also has a rounded and central or back-central vowel, and when the root vowel is a non-high, non-back vowel, the vowel of the clitic is a central, mid vowel, close to the IPA schwa. When the root vowel is /i/ or /i:/, there is some variation, both between words and between the several pronunciations of each word; the quality of the clitics vowel was always somewhere between [i] and [ɨ], but not always quite the same. The general picture can be said to be that in Asafa's pronunciation, the pronunciation of the clitics was less consistent, with more variation in the quality of the vowel. To some extent, the variation is clearly the result of an assimilation with following word's root vowel; both in terms of place of articulation and rounding, the clitic's vowel takes on features from this vowel. This does not explain all the different forms, however, and it seems there is a relatively large degree of free variation in his pronunciation of the clitics' vowels[69].

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[68] The vowel symbol used in the clitic here is not common, and it is perhaps worth noting explicitly that it is not, and is not supposed to be, a schwa; it is a close-mid central unrounded vowel [ɘ].

[69] The concept of free variation is of course a bit problematic. One must keep the option open that the variation might not be entirely free, but simply guided by principles which the researcher has not been able to discover.

6.10.6　　Conclusion on /ɨ/

Given the large allophonic variation, and the variation between informants, it is not easy to give a clear verdict on the status of this vowel. The question of whether we should regard it as an independent phoneme depends on whether we allow morphological information to be part of the conditioning environment of phonological rules: If we do, we can formulate a rule stating that the opposition between the vowels /a:/, /e:/ and /i:/ is neutralized in between consonants in proclitics. The [ɨ][70] would then be the representative of a vocalic archiphoneme in this position[71]. If we allow only phonological information in such rules, we will have to consider /ɨ/ a phoneme on its own, since the environments #t_V, #n_V and #b_V clearly are not reserved for [ɨ] alone in Borna. The latter is the traditional structuralist option, and in keeping with this, I will include /ɨ/ as a separate vowel phoneme.

6.11 The distribution of schwa

The final vowel sound in my Borna data is a very short schwa. Borna has a rich inflectional and derivational morphology, and the phonological shape of the affixes (and clitics) varies. If a consonant-final proclitic is added to a consonant-initial nominal root, or a consonant-initial suffix is added to a consonant-final verb root, to mention two relevant examples, the result might be a consonant group that is otherwise not found in Borna. These groups are in some cases broken up by a short, indistinct vowel. We have already seen that this happens in the case of the second person plural proclitic **it-** (see Table 16). We have also seen, however, that some consonant groups are allowed, in words like **gùbra** *knee* and **bòrna** *Borna*. The pattern in the inflection of verbs with consonant-final roots and no thematic vowels[72] can be illustrated by the verb **ʃùnà** *to like, enjoy*, as shown in Table 24.

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[70] In the phonological system of Tsehay and Mengesha.

[71] If we were to pursue this analysis, we could perhaps specify this archiphoneme more closely; all the three neutralized vowels as well as the representative of the archiphoneme are front and unrounded.

[72] Cf. subchapter 6.8 for a short description of this phenomenon.

Table 24.   Simple past inflection of the verb **ʃùnà** *to like, enjoy*

[ʃùnrè]	[ʃùn-r-è]	like-PAST-1SG
[ʃùnrí]	[ʃùn-r-í]	like-PAST-2SG.
[ʃùnre]	[ʃùn-r-e]	like-PAST-3SG.M
[ʃùnra]	[ʃùn-r-a]	like-PAST-3SG.F
[ʃùnro]	[ʃùn-r-o]	like-PAST-1PL
[ʃùnə́ɾt]	[ʃùn-ə́ɾ-t]	like-PAST-2PL
[ʃùnə́rnò]	[ʃùn-ə́r-nò]	like-PAST-3PL

As can be seen, with the addition of the suffix **–r**[73] we also get an [ə] between the root and the suffix. Somewhat surprisingly, no vowel sound, as far as I was able to hear, was present between the [r] and the [t] in the second person plural form. There is thus no way of avoiding the conclusion that Borna allows final consonant clusters of this type. Three consonants in a row is never allowed, but the question is why such words as [ítə̌ʃíà] *their sand* is broken up by a schwa when **gùbra** *knee* and **bòrna** *Borna* are not. It appears the answer is that two consecutive obstruents are broken up, while groups where at least one of the consonants is a sonorant are not. Athough the details of Gebre's (1986) treatment of epenthesis are very different from mine (including the fact that the epenthetic vowel itself is a different vowel), the sonority hierarchy plays a role in his description as well, and it makes good sense phonetically.

6.11.1   Phonological status of schwa

Given the phonologically predictable distribution of the schwa, I will not regard it as a phoneme in Borna.

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[73] The suffix does not include an [ə] when the verb root is vowel-final, or if a thematic vowel is present. This, combined with the fact that the [ə] also occurs in the other mentioned, phonologically defined environments, is the reason why I consider it as an epenthetic vowel here, rather than as a phonologically

7 Tonology

7.1 Tone languages: definitions and typology

A useful definition of what it means that a language is tonal[74] is given by Larry Hyman (Hyman 2001: 1368):

> *"A language with tone is one in which an indication of pitch enters into the lexical realization of at least some morphemes.[75]"*

I accede to this definition, and while it might seem quite commonsensical, Hyman gives good reasons for this exact wording. Since Hyman's argumentation is an important part of the reason why I accept this definition, I will give a short summary of it. I will argue that even if one part of the definition might be considered unnecessary by some linguists, the extension of the definition, i.e., which languages are considered tonal, would probably be accepted by these linguists too. Therefore, regardless of whether one accepts the theoretical premises of the definition's author, one could accept the definition as a useable classifying tool.

7.1.1 Earlier definitions and Hyman's arguments for the new one

The evolution behind the definition can be said to have three stages: Pike (1948), Welmers (1959) and Hyman (2001). Pike's defines a tone language as "[…] a language having lexically significant, contrastive, but relative pitch on each syllable*"* (Pike 1948: 3). The main problem with this definition is that there are tone languages where some morphemes[76] do not have lexically significant tone; Hyman's examples are the Mende postpositions **–hu** and **–ma**, which simply copy the tone of the preceding nominal (Hyman 2001: 1367). This insufficiency is remedied in Welmers' 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, as quoted by Hyman 2001). In the terms of generative phonology, Hyman interprets this as demanding pitch information to be present in the underlying representations of at least some morphemes (Hyman 2001: 1367).

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[74] Or *has tone*, is *a tone language* or *a language with tone*.
[75] This definition is adopted by Moira Yip in her influential textbook (Yip 2002: 4), and has become very much quoted and used; this was also my initial source of this definition.
[76] The difference between syllables and morphemes is irrelevant to this argument.

7.1.2 Theory independent acceptability of Welmers'/Hyman's definition

The last step then consists in accommodating languages where tone can be analyzed as "[…] predictable on the basis of morphological features" (Hyman 2001: 1367-1368), e.g. by gender, as in Hyman's (ibid.) Somali example. In theories of phonological representations where the distinction between underlying and surface representations, as well as between lexical and post-lexical phonology is not accepted, such a refinement of the definition would not be included, since the underlying representations and lexical realizations are assumed to be the same. The definition could still be cross-theoretically acceptable as a tool of classification, however, since the full definition, including the theory-internally necessary final step, has the same extension (i.e., which languages are considered tonal) in a generative framework as the definition, with or without this step, would have in a surface-oriented framework.

7.1.3 The definition's extensions

This definition excludes languages like English or Amharic, where the pitch contours of utterances can be analyzed without ascribing any tonal information to individual lexical entries. It includes typical tone languages like Mandarin and Borna's close relative Kafa (Addo 2001), but also languages with simpler tone systems, like Norwegian or Japanese, in which such non-tonal analyses are impossible.

7.1.4 Typology

Within the group of languages that fit the given definition of a tone language, the typology can be expanded in several ways. A broad distinction is often drawn between the so called *(pitch) accent languages* and *true/proper tone languages*. Norwegian is an example of a typical pitch accent language: Only one syllable per word (or accent phrase) need be marked for tone in lexical entries, while the tone of all other syllables in an utterance is determined by its relation to that syllable, and by matters of *intonation;* tonal phenomena on higher levels than the word level. The extreme case at the other end of the tone density scale is a language like Cantonese, in which *all* syllables have inherent tones. There are furthermore several tones

or (tone contours, depending on one's analysis) to choose between for all tone bearing syllables[77], so not only the density, but also the complexity of the system is greater.

7.1.5 Borna's place in the typology

As will be shown in the following paragraphs, Borna is a true tone language, and we must assume that tonal information is included in the lexical representation of most syllables.

7.2 Previous research

Although the first linguistic study of Borna was written some seventy years ago (Grottanelli 1941, cf. chapter 3), the importance of tone was first acknowledged in the 1990's, when Rottland (1990), Lamberti (1993) and Ashenafi and Wedekind (1990; 1994) all described Borna as tonal[78,79]. In the following paragraphs, I will give brief comments on the first two of these tone analyses. The third is much more similar to my own analysis, and will be discussed in parallel with this.

7.2.1 Rottland 1990

Rottland (1990: 189) distinguishes three tone levels and corresponding glides, but suspects that "(...) the language has basically L and H and that up-stepping and/or down-stepping are involved." (ibid.), since the only contrast in contours on two-syllable words is rising versus falling, and the mid tone in some three syllable words can be analysed as a phonemically non-distinctive intermediary stage between a preceding high and following low tone (or vice

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[77] My information on Cantonese comes from personal communication with Rolf Theil.

[78] In addition, Ashenafi & Wedekind (1994: 2) note that Ashenafi (1989) transcribes pitch, but restricts discussion of tone to "one or two paragraphs". I have not been able to read this work, but since the part on tone apparently was very brief, it seems safe to assume that Ashenafi's views are fully exposed in the two articles on tone (Ashenafi & Wedekind: 1990, 1994) published in the course of the following years.

[79] Although Lamberti's work was published in 1993 (i.e. three years later than Rottland's and Ashenafi & Wedekind's studies), the material it is based on was collected in 1984/1985 (Lamberti 1993: 5) and worked out and analysed in 1989 (ibid.). Consequently he did not have access to the published versions of Rottland (1990) or Ashenafi &Wedekind (1990). He does, however, mention one undated paper by Rottland (Lamberti 1993: 15), which he quotes on two occasions (neither related to tone, see Lamberti 1993: 79, 166). I have not been able to find out which paper this is, but it seems likely that the reference is to an earlier, unpublished version of Rottland (1990). With regards to tone, Lamberti explicitly states that there no publications available that treated this part of the phonology (Lamberti 1993: 46). Rottland (1990) is based on data collected from a refugee in Nairobi in 1980 (Rottland 1990:185), and he does not refer to any earlier description of Borna that includes a tone analysis. Ashenafi and Wedekind (1990: 348) state that " (…), a survey of the literature on Shinasha shows that there is no study on the role of tone.". In Ashenafi and Wedekind (1994: 2), they mention Rottland's article (Rottland: 1990), but their analysis is the same as in Ashenafi & Wedekind (1990). Thus, regardless of the publishing dates, the four studies in question represent three independent analyses.

versa). He does not mention whether this analysis can be extended to cover *all* cases of a phonetically mid tone, but there are indications that at least some additions or modifications need to be introduced to uphold a two-tone analysis.

Consider for instance the word **u:pǐ:rwā** *'stealing'* (Rottland 1990: 191), with a LLHM tone contour[80]. In order to accommodate patterns like this, with a final mid tone, in a two-tone system, one would somehow have to show that the M is the result of a predictable and automatic process, and thus that it is not necessary to consider the mid tone phonologically distinctive. Since final lowering is a universally common process, one might look for evidence that the M could be the result of a lowering of a final high tone. This is clearly not a general, language-wide process in this dialect, since there are many H-final words in Rottland's data. A possible step further would be to assume that final high tones are lowered only when they follow another high tone. This, however, has not occurred in a forms like **kíndá** *enter* (Rottland 1990: 199), so the conditioning environment of this process (if it exists at all) would have to be more narrowly specified. Since Rottland does not develop such an analysis, and I only have access to a small sample of his data (i.e. the example words in Rottland 1990), it is not possible to see exactly how this could or should be done, or whether it is the right way to go forward at all.

As for other prosodic features, Rottland (1990: 189) writes: "I am not aware of any stress phenomena in Shinasha, but the occasional vowel elision or epenthesis, which I have connected with L and H (cp. §5.4) may be linked with stress". Here, too, it is difficult to assess the analysis and compare it to my own, for the same reasons as above.

7.2.2 Lamberti 1993

Lamberti (1993: 46-47) agrees with Rottland (1990) in noting that tone has a distinctive function in both the morphology and the general lexicon on Borna, and distinguishes three tone levels; high, low and mid. The tonal data he gives is, however, very different from what I have recorded, and it appears that his inclusion of *stress* in the description is part of the reason for this. I have not noticed any stress phenomena in Borna, and it is hard to compare my tonological findings with those of Lamberti.

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[80] Rottland's tone marking differs slightly from the IPA convention, in that the low tone is unmarked (see Rottland 1990: 189). Thus, an IPA transliteration of u:pǐ:rwā would be ù:pǐ:rwā.

7.3 Nominal tonology and tone – vowel interaction

In this chapter, I will present the basics of Borna nominal tonology. Special emphasis is given to those phenomena that throw light on the interaction between tone height and vowel height, and which consequently can help answer the question of whether the Borna tone system has two or three phonologically distinct tone levels.

7.3.1 Dependent marking in Borna

A short note on Borna dependent marking is useful in order to understand the glossing I will use. It also explains some of the variation in the names used for the language (cf. discussion in paragraph 1.6.2). As described by works dealing with Borna morphology (i.e. Plazikowsky-Brauner (1950: 67-68), Lamberti (1993: 64-66), Rottland (1990: 191-192)) and discussed by Hayward (1997: 96-97), Borna has an unusual case marking system, where the principal distinction is that between what I will call an *argument form* (AF) and a *predicative form* (PF). The argument form is used for all core grammatical functions: The single argument of intransitive verbs, "S", the agent argument of transitive verbs, "A", and the patient argument of transitive verbs, "P", while the *predicative form* is used in the predicative, including the predicative of zero copulas; i.e., it is also used as the presentation/citation form[81]. The examples in Table 25 demonstrate the basic system.

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[81] By *citation* or *presentation form* I simply mean the form used when answering the question "what is this?", or also, in this context, by my informants when pointing at something and telling me what it was called in Borna. This is thus a pragmatic concept; in morphosyntactic terms it corresponds to the predicative in Borna, but this will vary from language to language.

Table 25.   Core case marking in Borna

àʃ-ò	**m-ò:**	**bek'-e:r-e**	*the man saw the house*
man-AF	house-AF	see-PAST-3SG	
àʃ-ò	**ʃàʔ-e:r-e**		*the man walked*
man-AF	walk-PAST-3SG		
mì:nz-ò	**è:n-à**		*the cow is big*
cow-AF	big-PF		
bí:	**àʃ-à**		*he is a man*
he	man-PF		
mì:nz-à			*(this is a) cow*
cow-PF			

Although superficially similar, this system is distinct from *direct case*-systems, where the one case also encodes both S, A and P (cf. Blake 2001: 128). There is no opposition between the direct case form and a predicative form in these languages, while this is the main opposition in Borna, so it would be confusing to use the term *direct case* here. Since neither *absolutive* nor *nominative* would be suitable terms either, I have chosen to call the form the *argument form*, since it is used for all verb arguments, but not for the predicative, which is not an argument of the verb.

Lamberti (1993: 66) mentions the possibility of considering an isolated word with the –a ending as a complete copulative sentence, so that the translation into English of an isolated word with this ending should in fact include something like "This is a …". This is an interesting proposal on its own, and even more so because the origin of the –a ending in Borna is unknown. It is possible that the case system I have drawn up here would have to be reanalyzed in light of new information on the copular function of the –a ending. For the purposes of the phonological analysis in this thesis, I do not think this would make a difference, so I will not pursue this topic any further.

7.3.2 Some notes on nominal syllable structure

Most morphologically simple, native Borna nominals have one-syllable roots. As mentioned above, the citation form has the ending –a, with a tone that is not predictable from the tone (or

any other phonological trait) of the root. Nominals with multi-syllable stems mostly belong to one of three groups:

- Loan words, where the stem (which is thus also the root) is morphologically simplex *in Borna*, e.g. **andúrà** 'cat', of unknown Cushitic origin (cf. Oromo: **adurree** *cat*), or **maskalia** 'cross', < Amharic *mäsqäl* 'cross',

- Native word with morphologically complex stems, e.g. **nìhíè:nà** *uncle* (specifically: father's older brother), from **nìhà** 'father' and **è:nà** 'big', and

- Reduplicates, e.g. **mèrè:rà** *sheep*, **lòlosa** *note*[82].

There are also some very few words which do not fit into any of these groups, such as **gà:gúrà** 'beehive'[83]. I have not recorded any fundamental tonological differences between words with one-syllable roots and words with multi-syllable roots, and in the following discussion I will mostly use one-syllable root words to exemplify the various phenomena. One particular type of compound nouns does, however, seem to give some interesting evidence against a two tone analysis, and it will be presented in paragraph 7.4.1.

7.3.3 Basic tone patterns

The five words in Table 26 illustrate the basic tone patterns of simple Borna nominals:

Table 26.   Basic nominal tone patterns

àʃà	LL	'man'
gùra	LM	'mountain'
e:ʃa	MM	'lion'
a:wà	ML	'eye'
ʃí:nt'à	HL	'nose'

If each syllable can carry one of three tones, there are nine possible tone patterns on a two syllable word (HH, HM, HL, MH, MM, ML, LH, LM, LL). As can be seen, only five of these

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[82] Plug used to attach the coulter and ploughshare to the beam of the plough.
[83] This important cultural word has an apparent cognate in at least one other Omotic language: Koorete: **gáagura** *beehive* (Theil 2011: 279). I do not know the word's etymology, but it appears to be a native Borna word, and, even if it might well have originated as a reduplicate or compound word, it is treated as morphologically simplex in the modern language.

are actually found; roots can take any of the three tones, while the absolutive enclitic can be low or mid. As first reported by Ashenafi and Wedekind (1990), however, a central feature of the Borna tone system is the interdependence between tone height and vowel height. Consider the words in Table 27, which illustrate the different tone combinations on the five ordinary vowels:

Table 27.   Tone combinations on ordinary vowels

níβà	HL	'heart'
ʤúndà	HL	'navel'
ʃútsà	HL	'rock'
gínà	HL	'spear'
ʤa:βa	MM	'branch'
mara	MM	'table, plate'
t'eŋga	MM	'strong'
ʃopa	MM	'gourd, *calabash*' (when used as drinking vessel, container)
gondà	ML	'bad, poor'
k'età	ML	'uvula'
t'e:ʃà	ML	'gun'
gaʃà	ML	'tooth'
bà:ka	LM	'hen'
mìʃa	LM	'injera'
bòla	LM	'mule'
gènza	LM	'tall'
t'ù:mba	LM	'piece of cloth used for carrying baby'
gèβà	LL	'hip'
mùts'à	LL	'fish'
kànà	LL	'dog'
mìʃà	LL	'sister'
tò:kà	LL	'head'

The pattern here is clearly that the two high vowels, /i/ and /u/, can be either high or low, and that the three non-high vowels, /e/, /o/ and /a/, can be either mid or low. This situation is

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discussed in Ashenafi and Wedekind's (ibid.) analysis, which I will summarize very briefly in the following paragraph.

7.3.4 Summary of the introductory part of Ashenafi and Wedekind's analysis

According to Ashenafi and Wedekind, there are two phonological tones, high and low, and the high tone has two variants (allotones), one regular high and one extra high. These two variants are phonetically very distinct, in fact the difference between them, measured in semitones, is larger than the difference between the regular high tone and the low tone (Ashenafi and Wedekind 1990: 364). However, the relation between the regular high and the extra high tone appears to be one of *complementary distribution*: The regular high tone appears on mid and open (low) vowels, while the extra high only occurs on close (high) vowels. This means that the system can be illustrated as in Table 28, with allotones superscripted to the phonemic tones:

Table 28.   Schematic illustration of Ashenafi and Wedekind's analysis

Phonemic tone	High	Low
Phonetic tone on non-high vowels	H^L	L
Phonetic tone on high vowels	H^H	L

Thus we have, phonologically, a two tone system instead of a three tone system. A&W note one word that seems not to conform to this pattern: the word **gálà/gálá** *village*[84] (Ashenafi and Wedekind 1990: 365-366), and speculates that the extra high allotone might be in the early phase of a process of phonologization (ibid.).

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[84] Ashenafi and Wedekind transcribe this word as **gálá** in their 1990 article (p. 365), with a high tone not only on the root vowel, but also on the ending. In their 1994 article (p. 4), this has been changed to **gálà**, which is also the pronunciation of my informants.

7.4 Discussion of Ashenafi and Wedekinds's analysis on the basis of new data

The data presented so far is compatible with Ashenafi and Wedekind's analysis. Consequently, it would also not be the case that only five out of ten possible tone combinations actually occur, but five out of six, since the ending **–a** is a non-high vowel. The sixth case will be discussed in paragraph 7.4.3. Furthermore, I have also found the word for *village* to be the only morphologically simple nominal with a high tone (or extra high allotone of the high tone, in the two tone analysis) on an open vowel; in the pronunciation of my informants, *village* is **gálà**. I have, however, also encountered several other word forms and phonological processes that seem to be incompatible with the two tone analysis. In the following paragraphs, I will present examples of this from the nominal tonology.

7.4.1 Nominal compounds

In most nominal-nominal compounds in Borna, the first constituent of the compound receives the ending –í (which is also the genitive case ending). Two examples are given in Table 29.

Table 29.   Examples of nominal-nominal compounds

nìhíɛ̀:nà   'father's older brother, uncle'   < **nìhà** 'father' + **è:nà** 'big'
lòmpíʃíkà   'a type of dagger worn in the armpit' < **lò:mpà** 'armpit' + **ʃíkà** 'dagger'[85]

The interesting case for the question of tone height – vowel height interdependence occurs in those compounds where the second constituent starts with an /a/. Consider the compounds in Table 30, with the word **a:wà** 'eye' as their second constituent[86].

Table 30.   Nominal compounds with a-initial second constituent

tàbá:wà   'the tip of a hoe, spade'   < **tàbà** 'hoe, spade' + **a:wà** 'eye'

gíná:wà   'spearhead'   < **gínà** 'spear' + **a:wà** 'eye'

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[85] As can be seen from the transcription, the root vowel in lò:mpà is shortened when the word is the first part in a compound, but this does not seem to have anything to do with the issue being discussed here.
[86] This word is in fact quite common as the second part of nominal compounds in Borna, mostly as a result of metaphorical extension of its basic meaning.

The segmental part of the genitive-suffix **–í** does not show up in these compounds, but, importantly, the high tone does. This is not expected, since the segment it is attached to, /a:/, normally cannot carry this tone, and it indicates that the high allotone has gained a degree of independence that allows it to occur in positions where the assumed conditioning environment, a close vowel, is not present. If we assume that the **–i** was once present in all compounds, but then lost in the position in question, it appears the tone has not been lost with the segment, but rather been re-associated with the nearest possible tone bearing unit[87]. Again, this would not be possible if the choice of allotone was automatically decided by phonetic redundancy rules; If the tone associated with the **–i** was phonologically just H (cf. Table 28), the phonetic tone showing up when the tone was associated to the /a:/ should have been H^L, not H^H.

7.4.2 Mid tones on high vowels

Logically, in a system of the type illustrated in Table 28, a HH allotone on a non-high vowel is only one of two possible mismatches between allotones and vowels. The second possible mismatch would be that of a H^L allotone on a high vowel. This is not mentioned by Ashenafi and Wedekind, possibly because the issue does not arise in their data, but in my data, there are at least two words in which exactly this type of association occurs, namely **kiʃa** *hand* and **tufa** *foot*. These examples are parallel to **gálà** *village*. They cannot be accounted for within the two tone analysis, except by introducing ad hoc phonological rules that explain these words alone. A further point should be mentioned in this regard. **Gálà**, **tufa** and **kiʃa** do not enter into minimal pairs with *galà, *túfa and *kíʃa[88], and one would thus be able to specify strictly phonological rules to account for these tone patters, simply by defining the conditioning environment of the rules so narrowly as to just include exactly these words. This way of dealing with exceptions is not desirable, in my opinion, since the rules do not have any other phonological motivation than keeping the two tone analysis intact; they are thoroughly ad hoc in this respect.

The most important argument against the two tone analysis is nonetheless the same as in the case of the compound nouns. By including the two high tones in phonological rules one

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[87] Exemplifying the common phenomenon of *tone stability*, described by Goldsmith (1999: 147) as "[…] when a vowel desyllabifies or is deleted by some phonological rule, the tone it bore does not disappear; rather, it shifts its location and shows up on some other vowel".
[88] Since these words, as far as I have been able to find out, do not exist.

assigns to them a high degree of *phonological autonomy*, they are present at the level in which phonological rules operate. The claim that the choice of tone is automatically conditioned by the quality of the vowel, on the other hand, excludes the possibility of such autonomy.

The fact that the rules would necessarily be phonetically unusual[89] is a weaker argument in this connection: The tone patterns of these words are exceptional however one analyses them, so something unusual must at some point have taken place in any case.

7.4.3 Neutralization of tone opposition in final position after high tones

The sixth theoretically possible combination of three tones on a two-syllable nominal, HM, does not occur at all in my data. A possible hypothesis is that the opposition between mid and low is neutralized in final position after a high tone, in favor of the low tone. This hypothesis is not easy to test, because, in my data, the tone associated with the predicative ending does not show up in any inflected forms of the nominals. A more thorough investigation of Borna lexicon and morphophonology might reveal whether there really are no such words, and in that case, why. I am not able to give an answer to this question in this study. As far as I can see, the other issues discussed here do not depend on a particular answer to this question, although this is hard to say without further analysis.

7.5 Some short notes on verbal tonology and thematic vowels

The following paragraphs deal with the tonology of Borna verbs. I am not able to present any real analysis of these phenomena. I will only present some basic tone patterns, and refer to one particular tone pattern that is interesting for the following reason: It appears to be relevant in deciding what is the correct analysis of a fundamental question in Borna tonology, namely whether Borna should be analyzed as having two or three phonemic tone levels.

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[89] Since the segmental phonology of the words in question is completely ordinary, they would have to explain why the tone patterns are unusual in these words, but not in other very similar words.

7.5.1 Basic verbal tone patterns

The infinitive (verbal noun), which is also used as the citation form, of Borna verbs has the same ending as the citation form of nominal; -a. The comments made in paragraph 7.3.3 all apply for verbs in this form; the root can have a high, mid or low tone, while the ending can be mid or low (if the root tone is high, the ending can only be mid or low). As such, there is nothing so far that is in conflict with a two tone analysis. Some examples are given in Table 31.

Table 31.   Basic verbal tone patterns

úʃà *to drink*		HL
ʃíʃà *to hear*		HL
k'eʃa *to open*		MM
fala *to banish, excommunicate*		MM
tepà *to pour*		ML
ʃagà *to make a hole*		ML
dʒòt'a *to beat*		LM
wòza *to braid*		LM
gè:pà *to brood*		LL
ʃùnà *to like*		LL

7.5.2 Verb inflection and the tone – vowel interdependence

Consider first the verbal person endings, summarized in Table 32.

Table 32.   Verbal person endings

1. person singular	-è
2. person singular	-í
3. person singular, masculine	-e
3. person singular, feminine	-a
1. person plural	-o
2. person plural	-t
3. person plural[90]	-no

The tones of these suffixes are compatible with a two tone analysis: the high vowel /i/ has a high tone, while the non-high vowels /e/, /o/ and /a/ have either mid or low tones[91]. Consider next the inflectional paradigm of the verb **ʃàʔà** *to walk*, given in Table 12. In the present continuous form of this verb (and of several other verbs as well) the vowel /i/ has a mid tone. Since I have not made a proper analysis of these forms, I cannot say *why* this is the case. Again, however, it can be noted that the occurrence of such forms must be considered as pointing towards the three tone analysis. The independence of the mid and high tone levels (or the two allotones of the high tone in the two tone analysis) is not compatible with the view that the choice between them is automatically decided by the features of the vowel that hosts them.

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[90] Ashenafi and Wedekind (1990: 362, fn. 11) write that they are not sure about the meaning of 'we', Borna **nò**. Many African languages distinguish between so called inclusive and exclusive first person plural pronouns, and perhaps this was what A&W had in mind. In my data, and according to my analysis, there is no such distinction in Borna, and the meaning of nò is simply '3. person plural pronoun', that is, the same as English **we.**

[91] Not mentioned here is the fact that the 2. person plural ending, which has **–t** as its segmental part, also seems to have a tonal part. A high tone which must be analyzed as being associated with this suffix is realized either on the nearest vowel or in fact on the /r/, which takes on a vocalic quality in these cases. This issue requires further investigation, both of the phonetics of the suffix itself, and the possible consequences this investigation might have for the analysis of the relationship between tone height and vowel height.

7.6 Conclusion on tone levels

We have seen that most of the Borna data can be accounted for within a two tone analysis. It seems clear that at some point, Borna has had a regular two tone system, similar, perhaps, to that of Kafa, as described by Taddese (2001). At the present time, however, there are many phenomena that do not fit this pattern, and I support the conclusion of Ashenafi and Wedekind (1990), namely that a new tone system, with three phonologically distinctive tones, is in the process of being established.

8 Summary

This thesis has dealt with the word level phonology of the Omotic language Borna, spoken in the Benishangul-Gumuz region of Ethiopia. The analysis has been based on interviews with native Borna speakers in Ethiopia, and the data collection process was described in some detail in a separate chapter.

General surveys of the different parts of the phonology have been presented, and some difficult issues have been discussed in more detail. These include:

- The phonological status of the central vowels. Here, I concluded that /ɨ/ should be considered phonemic in Borna. The phonologically predictable distribution of the [ə], on the other hand, makes it unnecessary to include this sound as an independent phoneme.

- The question of whether Borna has two or three distinctive tone levels. I showed that while the majority of my data is compatible with a two tone analysis (where the high tone has two phonetically very distinct allotones), there are also several word forms and phonological phenomena that can only be dealt with properly if the two higher tones are analyzed as phonologically independent tonemes.

- The analysis of some vocalic and consonantal sound combinations. I concluded that the consonant sequences in question ([ts], [ts'], [tʃʼ] and [dʒ]) should be considered single, affricate phonemes, while Borna in my analysis has no diphthongs, only polyphonematic combinations of vowels and semi-vowels (in either order).

It is the hope of the author of the thesis that the material and analyses presented will be of interest for future researchers of Borna, as well as for those who wish to do historical and comparative studies of Gonga and Omotic languages. Finally, one may hope that the thesis has some use for the Borna speakers themselves, perhaps in connection with the ongoing revision of the language's recently created orthography.

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