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Aspects of the phonetic and phonological structure of the G/ui language

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INTRODUCTION

The aim, scope and importance of the present study

This study aims to provide a detailed synchronic description of selected aspects of the phonetic and phonological structure of G|ui, a Khoisan language spoken in Botswana, and it covers features of the language that have never been studied. This study also discusses some theoretical problems that the phonetic and phonological structure of G|ui poses for existing frameworks.

This research is primarily descriptive rather than theoretical. In other words, limited amounts of G|ui data are not used to test current theoretical paradigms in phonetics or phonology. The data of interest are therefore not selected because they illustrate the correctness or otherwise of a theoretical claim. Rather, the study falls into the well-established tradition of descriptive studies that aim to provide a complete and accurate description of all the empirical data within the areas to be covered.

An important justification for this approach is that G|ui, like many other Khoisan languages, virtually lacks any systematic linguistic description (Güldemann and Vossen 2000: 103), and there is therefore a need to document it.

In fact, the need for documentation is urgent because of its endangered status. Note that G|ui is regarded as one of the "currently most endangered [Khoisan] languages" (Batibo 2002: 277). As will become clear from the sociolinguistic description in Chapter 1, good speakers of G|ui were decreasing in many G|ui communities even at the pre-relocational stage, i.e. before 1997 when most G|ui residents in the Central Kalahari Game Reserve (CKGR) moved to a new settlement in accordance with Botswana government policy. There is no reason to think that the sociolinguistic situation after the relocation is more favorable for the language preservation or maintenance of G|ui.

On the basis of these considerations, and on what has taken place elsewhere in Botswana with other Bushman groups such as the "Masarwa", Deti and Eastern ≠Hoan (Traill 1995), G|ui will soon start to change dramatically, and this may be the last opportunity to document it in its full richness.

The importance of this study also consists in the contribution it can make to theoretical issues in phonetics and phonology. Aspects of the description that this work provides are of direct relevance to controversial theoretical problems as follows:

(i) The unitary nature of clicks and their accompaniments (i.e. a question raised by Traill (1985) concerning whether some clicks and their accompaniments can be analyzed as consonant clusters (cluster analysis), rather than single consonants (unit analysis)).

(ii) The integration of clicks and non-clicks within a single feature system (Traill 1985, 1995a, 1997).

(iii) The interpretation of tonal structure (i.e. a question raised by Haacke (1999) concerning whether the contour tonal melodies should be interpreted as unitary contour tones or clusters of level tones in Khoe tonology).

This thesis therefore explores these issues from the perspective of G|ui data.

The name "G|ui"

Speakers of all dialects of G|ui call themselves /g|ûĩ-kò/ or /g|ûĩ k^hóè/: /g|ûĩ/ is a noun meaning "vegetation characterized by grasses and thornless bushes"; /-kò/ is a suffix meaning "person/people", and /k^hóè/ is a noun meaning "person/people". Their explanation for this name is that they are named /g|ûĩ-kò/ or /g|ûĩ k^hóè/ because they used to live in /g|ûĩ/. Their language is called /g|ûĩ qχ'ûĩ/ in which the second word /qχ'ûĩ/ means "language". In this thesis, therefore, I use the name "G|ui" to refer to this language.

Surrounding Khoisan speakers, such as the G||ana, Naro and !Xóõ people, also use the name /g|ûĩ-kò/ or /g|ûĩ k^hóè/ to refer to them. G|ui speakers of a dialectal variety spoken in the Kweneng District are called by the surrounding Kalahari people "Ba-Khute", in which "Ba-" is obviously a Bantu noun prefix signifying "people", but the etymology of "Khute" [k^hú:tè] is unknown.

The dialectal varieties of G|ui and their geographical distribution are presented in Chapter 1.

Genetic classification

G|ui is classified as a member of the Khoe (or Central Khoisan) family in Khoisan languages (Köhler 1962, Vossen 1984). According to Güldemann and Vossen's (2000: 102) latest Khoisan classification, G|ui belongs to the West Kalahari Khoe group. The genetically closest language is G||ana, another member of the West Kalahari Khoe group, and its comparative data are also considered in discussing two historical sound changes

attested in this group, namely click replacement (see Section 3.4.1) and palatalization (see Section 5.2).

Previous descriptions of G|ui

Systematic linguistic research on G|ui has not been conducted in the past. Previous studies that recorded G|ui materials are limited to the following two categories: (i) G|ui data recorded by anthropologists (non-linguists), and (ii) G|ui materials reported as part of historical linguistic study of the Khoe family. The former category includes Tanaka (1978) and Silberbauer (1981), and the latter includes Köhler (1962), Vossen (1984, 1988), Voßen (1997) and Traill (1984). Below, I review these works, focusing on phonetics and phonology.

To begin with, Tanaka (1978) is the first lexicon of G|ui (and G||ana). He collected the data during a first (1966-68) and a second (1971-72) field trip for his anthropological research into the G|ui and G||ana people in the Xade area (see Figure 1.1 in Chapter 1 for its location). The variety of G|ui of his material is the Xade dialect. The vocabulary contains over 1000 G|ui entries, and is the largest published collection of lexical material on G|ui. In this sense, this work is important for the study of the language, and it was extremely helpful for my data collection at the initial stage of my field research. However, it is phonetically and phonologically of little use because of numerous insufficiencies caused by inaccurate phonetic observations (Tanaka himself notes that he has no training in phonetics). He lists "twenty-seven phonemes", i.e. twenty-two consonants and five vowels (p. XX-XXI). Note that in fact, G|ui has 89 consonants, i.e. 52 clicks (four influxes for thirteen series) and 37 non-clicks, and ten vowels under unit analysis, as described in Chapters 3 to 5. In Tanaka (1978), there are many unidentified or misrepresented phonological contrasts not only among clicks, complex consonants and pharyngealized vowels, but also among relatively simple sounds, such as confusion of the contrast between a nasalized vowel and a nasal consonant in the final position (such as /ãã/ vs. /an/). There are also inconsistencies of transcription of long vowels and tones.

Second, in the section of "Note on Orthography" in his ethnography on the "G/wi Bushmen", Silberbauer (1981: xix-xx) presents a table of sixteen click sounds (i.e. four influxes for four series, i.e. voiceless, voiced, nasal and aspirated). His "orthography" is inadequate not only for clicks but also for non-click consonants, vowels, and tones.

For example, it transcribes neither ejectives, nasal and pharyngealized vowels, nor six tonal melodies. He also gives a sketch of some grammatical and semantic features, but they are superficial and often linguistically incorrect (pp. 123-137). He collected his data from the G|ui people who lived around Xade.

Köhler (1962) is the first account of G|ui by a linguist as far as I know. However, it presents neither the phonetic nor phonological structure of G|ui. In this study on the historical classification of the Khoe languages, Köhler reports incomplete paradigms of personal pronouns, noun gender markers and verbal formatives and extensions of G|ui. The G|ui words and morphemes provided in this study are so limited that it is difficult to evaluate the adequacy of his transcriptional framework.

Vossen (1984, 1988) are reports of a research project that aims at a historical reconstruction of the Khoe languages as its primary goal.

Vossen (1984) is a preliminary report on this project. Presenting data illustrating the sound correspondences in the Khoe languages, he provides examples of twenty-three words and some noun gender markers, verbal formatives and verbal extensions of G|ui. He identifies more (but not all) phonological contrasts than the preceding studies, but provides little information on the phonetic features and phonological interpretations of tone and vowels (especially length and nasality). This may be because the examples of words are only used for a comparison of consonants in this paper. However, descriptive terms for consonants are also questionable: for example, his description "voiced and nasalized alveolar click (occasionally followed by an alveolar nasal)" (p. 27) gives incorrect information on the action of the anterior closure of the click. In addition, the need for the following two phonetic distinctions is questionable (they should in fact be described as the same voiced velar nasal accompaniment).

(i) "voiced and nasalized palatal click" (p. 27)

(ii) "voiced and nasalized palatal click followed by a nasal" (p. 27)

His transcription also neutralizes the phonological distinction between the glottal stop accompaniment and the velar ejective accompaniment. These two problems concerning click accompaniments remain in Vossen (1998) and Voßen (1997). They are discussed in detail in Chapter 3 in the present thesis.

Vossen (1988) provides much more data (86 G|ui words) than Vossen (1984), but all problems of notation remain since "the orthography applied to Khoe words is the same

as in Vossen (1984)" (p. 68). Considering only the initial consonants of the data, some of them do not agree with my observations. These disagreements may reflect the different varieties of G|ui on which his and my descriptions are based.

Voßen's (1997) extensive comparative investigation of the Khoe family includes a more systematic phonemic inventory of the "//ANA und /Ui" (i.e. G||ana and G|ui), presenting a table of 37 click consonants (p.108), a table of 28 non-click consonants (p. 109), and a chart of vowels (p. 110), with a simplified phonetic and phonological sketch of the segments and tones. This monograph also includes a comparative Khoe vocabulary in the appendix, which contains 192 G|ui words. Apart from the notational problems mentioned above, his observation disagrees with mine in some points. The disagreement may partly be due to the difference of the G|ui variety, and partly due to the small size of his lexical database (Note that my lexical database contains approximately 2800 words and morphemes). Important disagreements in observation and interpretation between Voßen (ibid.) and the present study are discussed in detail in Chapters 3 and 4.

Discussing click replacements that occur in Khoe languages, Traill (1986) illustrates sound correspondences with selected vocabulary from five Khoe languages including 25 G|ui words. He also presents a table of clicks found in Khoe languages. The table consists of four click influxes and eight click accompaniments. Five accompaniments are exemplified in the 25 G|ui words. The identification of clicks for these words agrees with my observations. The length of the final vowels of two words is questionable.

gloss	*Traill*	*Nakagawa*
"three"	!nonaa (p. 307)	ŋ!ūnā
"chin"	!ganee (p. 305)	g!ánī
"chin"	!gani (p. 306)	g!ánī

As is clear from the review above, G|ui lacks any systematic detailed phonetic and phonological description, except for Nakagawa (1996a, 1996b), which are preliminaries to some aspects of Chapters 3 and 4 of this thesis.

The data gathering

This research required extensive fieldwork in Botswana to gather the original data in the first stages. The data were collected through interviews with G|ui speakers by

conventional elicitation methods for linguistic fieldwork. This was chiefly conducted through the medium of G|ui, which I have learned as the research has progressed. In rare cases, I used English with one G|ui consultant who attended the primary school in Xade.

Phonetic data are collected in three ways: (i) the use of auditory impression-based transcription, (ii) the use of DAT tape recordings, (iii) the use of instrumental techniques, i.e. the aerodynamic, palatographic, and acoustic investigations discussed in Chapters 3 and 4. Transcribed lexical data have been compiled into a lexical database with approximately 2800 words and morphemes, on which the phonological interpretation in the present study is based.

The date and location of the field trips are listed below.

1992: late August to mid December (in Xade)
1993: September-November (in Xade)
1994: August to 1995 January 13 in (in Xade)
1995: September in (in Xade)
1996: September to November (survey: see Chapter 1)
1997: July to September (survey: see Chapter 1)
1998: March (survey: see Chapter 1)
1999: November (in New Xade)
2001: October (in New Xade)

The field research between 1992 and 1995 was conducted in the Xade village in the CKGR, and that in 2001 was conducted in the New Xade village in the Ganzi District. I conducted a series of sociolinguistic and dialectological surveys between 1996 and 1998. The locations of the investigated G|ui communities during these surveys are presented in Chapter 1.

Chapter outline

Since G|ui is an endangered language, recording its sociolinguistic status is important. Chapter 1 describes selected sociolinguistic and dialectological facts of G|ui at the pre-relocational stage, i.e. immediately before the relocation of G|ui from the former settlements in the CKGR in 1997. The description includes the identification of three dialectal varieties of G|ui, the geographical distributions of fifteen G|ui-speaking communities, their estimated population, their dialectal affiliations, and their sociolinguistic conditions in terms of language contact and multilingualism.

Chapter 2 describes and discusses important aspects of the tonal structure of G|ui. The topics dealt with include (i) a critical review of the descriptive frameworks in previous tonological studies of the best-documented Khoe language, Nama, (ii) the identification of the two tonological domains, (iii) the establishment of the tone bearing unit and the underlying tones, (iv) an interpretation of all the tonal contrasts occurring in the two domains, (v) analyses of tonal alternations and other relevant morphophonological processes, (vi) assessment of the two approaches to Khoe tonology with new findings concerning tonal alternations, and finally (vii) an acoustic investigation of the two types of tonal contrasts. In order to prepare for an adequate descriptive framework for G|ui tonology, it is essential to revise the notion of "root" conventionally used in Nama tonology. The revised "root" is important for describing and discussing distributions of segments in Chapters 3 and 4.

Chapter 3 describes the consonants of G|ui. First, it presents an outline of the descriptive framework that I use in this thesis and the instrumental phonetic techniques employed for the description, i.e. palatographic, aerodynamic and acoustic investigations. Then, it provides a detailed phonetic description of the consonants. In the course of the description, I address a remarkable parallelism between the non-click consonant system and the click consonant system. This parallelism is fully discussed in the final section by considering comparative data with G||ana concerning sound correspondences between clicks and non-clicks.

In Chapter 4, I first identify the vowel inventory and classify the attested vowel phonemes. I then describe important phonetic details of the vowels for the three classes, i.e. the plain vowels, the nasal vowels, and the pharyngealized vowels. Finally, I deal with two types of distributional constraints of vowels in G|ui. One of the

constraints falls into a type of constraint, the so-called Back Vowel Constraint, attested in other Khoisan languages. I present a cross-linguistic comparison of this constraint, and hypothesize an implicational hierarchy of the [+back] consonants, which explains the variation of this constraint in Khoisan languages.

Finally, Chapter 5 discusses three important phonological issues: (i) a historical sound shift ongoing in G|ui and G||ana, (ii) a phonological interpretation of the clicks and their accompaniments, and (iii) the integration of the clicks and the non-clicks. Concerning (i), I demonstrate that in order to understand the phonetic basis of this phonological change, an observationally adequate phonetic description must be achieved by my palatographic and linguographic investigation seen in Chapter 3. I also discuss the phonological patterning exhibited by both non-click alveolar/palatal stops and clicks in terms of their distribution in the consonant sequences.

Issue (ii) concerns a question raised by Traill (1985), namely whether the clicks and their accompaniments are all phonological units (unit analysis) or whether some of them should be treated as consonant clusters (cluster analysis). The descriptive framework used in Chapter 3 is based on a cluster analytic approach. By comparing my cluster analysis with two alternative analyses, namely, unit analysis that regards all the syllable onsets as single phonemes and radical cluster analysis that regards more clicks as clusters than my cluster analysis, I assess my descriptive framework. I further discuss the theoretical implications of my cluster analysis for Güldemann's (2001) generalization on cross-Khoisan consonant regularities. In addition, I apply my cluster analysis to interpreting Ju|'hoansi, another Khoisan language, which is interpreted by Miller-Ockhuizen (2004) using unit analysis. I assess the adequacies of the two interpretations, and discuss the applicability of my cluster analysis to other Khoisan languages.

Finally, I explore the issue of what features are required for the integration of clicks and non-clicks. Based on the G|ui findings, I discuss how the two sub-classes should be adequately cross-classified in terms of the same set of features.

Early versions of Chapter 1 and Section 5.2 of Chapter 5 have been published in Nakagawa (2004) and (1998), respectively.