AN OUTLINE OF ǀGUI PHONOLOGY

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ABSTRACT Phonological contrasts of segments and tones are briefly described. In the course of the description, the characteristics of the click and non-click consonants of ǀGui are discussed, and more general problems relevant to Khoisan phonological typology and historical investigations of the Central Khoisan Family are addressed with some new findings of ǀGui. A tentative orthography is proposed for the linguistically adequate recording of ǀGui material.

Key Words: Khoisan; Khoe; click; palatalization; orthography

INTRODUCTION

ǀGui [gǀúi] is one of the less well-known Khoisan languages. It is classified as a member of the Central Khoisan (or Khoe) family (Köhler 1962, Vossen 1984). It is an unwritten language spoken mostly around the Xade area, in the Central Kalahari Game Reserve, Botswana, by about five hundred people who call themselves gǀúi-kò which can be literally translated as "bush-person". A dialect of ǀGui, which is called Khute (Traill 1986), is spoken in the Dutlwe and Takatokwane areas.

Like many of the Khoisan languages, ǀGui lacks virtually any systematic linguistic description. ǀGui materials have only been recorded by anthropologists, such as Tanaka (1978) and Silberbauer (1981), or reported as part of the historical linguistic study of the Central Khoisan Family, such as Köhler (1962), Vossen (1984, 1988) and Traill (1986).

This paper will present an outline of the phonological contrasts of this language providing an overview of the segmental distinctions and the tonal contrasts in citation forms. It briefly describes the phonetic features of segments and tones based on an adapted version of the International Phonetic Association (IPA) framework. In order to symbolize the click consonants I will use the systematic approach suggested by Ladefoged & Traill (1994). This study aims at characterizing the consonantal inventory of ǀGui, and discusses a number of general issues concerning typological and historical studies of Khoisan languages. In addition I will propose a practical orthography which will enable a phonologically adequate documentation of ǀGui materials.

The study is based on data of about two thousand words which have been collected by me on field trips to Xade since 1992 totalling about 12 months.

CONSONANTS

Two subclasses of consonants

This section concerns the phonological contrasts and some phonetic features of the two subclasses of ǀGui consonants, clicks and non-clicks. This paper does not discuss the problem of the cross-classification and integration of these two classes, and deals with these two classes separately. In the course of the description of click consonants, however, I will point out some aspects of the cross-classification of click accompaniments and non-click consonants.

Click consonants

Clicks are described in terms of *click types* and *click accompaniments*. These are the terms used by Ladefoged & Traill (1994) in order to indicate the two aspects of click called *click influx* and *click efflux* in older terminology. I will apply many of the descriptive labels for click types and click accompaniments which are used in Ladefoged & Traill (1994) to the ǀGui equivalents, and also employ their notational system for click transcriptions: the back closure is symbolized first followed by the click type which is followed by the different releases of the back closure when necessary.

ǀGui has four click types and thirteen click accompaniments. As illustrated in Table 1, their combinations make fifty-two phonetic complexes, all of which form phonologically distinct syllable onsets, which we call click consonants in this paper. In the descriptive tradition of Khoisan linguistics they are assumed to be phonological units.[1]

One of the characteristics of ǀGui phonology is the complexity of the click acompaniments. Phonetic features of the ǀGui click accompaniments have been described in Nakagawa (1995). Here I will put emphasis on the illustration of

Table 1. The click consonants of ǀGui.

	Click Type ⇒	Dental	Lateral	Palatal	Alveolar
	Accompaniment ⇓				
(1)	*Voiced velar plosive*	gǀ	gǁ	g‡	g!
(2)	*Voiceless velar plosive*	kǀ	kǁ	k‡	k!
(3)	*Aspirated velar plosive*	kǀh	kǁh	k‡h	k!h
(4)	*Voiced uvular plosive*	ɢǀ	ɢǁ	ɢ‡	ɢ!
(5)	*Voiceless uvular plosive*	qǀ	qǁ	q‡	q!
(6)	*Aspirated uvular plosive*	qǀh	qǁh	q‡h	q!h
(7)	*Voiceless velar ejective*	kǀ'	kǁ'	k‡'	k!'
(8)	*Voiceless uvular ejective*	qǀ'	qǁ'	q‡'	q!'
(9)	*Voiceless uvular affricate*	qǀχ	qǁχ	q‡χ	q!χ
(10)	*Affricated uvular ejective*	qǀχ'	qǁχ'	q‡χ'	q!χ'
(11)	*Voiced velar nasal*	ŋǀ	ŋǁ	ŋ‡	ŋ!
(12)	*Aspirated velar nasal*	ŋǀh	ŋǁh	ŋ‡h	ŋ!h
(13)	*Glottal stop*	ŋ̊ǀʔ	ŋ̊ǁʔ	ŋ̊‡ʔ	ŋ̊!ʔ

typological characteristics of the ǀGui click accompaniments rather than their detailed phonetic description, summarizing some important points which Nakagawa (1995) makes on them.

Click accompaniments

Plosive Accompaniments

First, we see six plosive accompaniments shown in Table 1 from (1) to (6). The first three involve the back closure release in the velar position, and the latter three in the uvular position. Accompaniments (1), (2) and (3) are also attested in better documented Khoisan languages, such as !Xóõ and Zhu (Ladefoged & Traill 1994). So I do not elaborate them here. The other three accompaniments, (4), (5) and (6), are uvular counterparts to (1), (2) and (3) respectively, and make their six-way distinctions which have not been found in other languages. As Ladefoged & Traill (1994) comment, clicks with this type of accompaniment "are found in only a very few languages such as !Xóõ and ǁAni" (p. 50). !Xóõ has (4) and (5) together with the first three accompaniments (Ladefoged & Traill 1994), and ǁAni seems to have only (5) in the uvular series (Vossen 1986), as illustrated in Table 2.

Four-way Distinction of Plosive and Ejective Accompaniments

The velar/uvular contrast extends to ejective accompaniments in ǀGui: there are two unaffricated ejective accompaniments involving the velar/uvular distinction, namely (7) and (8). Accordingly, the set of features, "velarity" and "uvularity", organizes the click consonants in a maximal way in ǀGui: voicing, voicelessness, aspiration and ejection are found with both velar and uvular posterior closures. It is interesting that the identical distinctions are found in non-click stop consonants, as shown in Table 3.

Table 2. Velar and uvular plosive accompaniments of ǀGui, !Xóõ and ǁAni.

	Voiced	Voiceless	Aspirated
ǀGui	g! ɢ!	k! q!	k!h q!h
!Xóõ[2]	g! ɢ!	k! q!	k!h —
ǁAni	g! —	k! q!	k!h —

Table 3. The velar/uvular distinctions in clicks and non-clicks.

	Voiced	Voiceless	Aspirated	Ejective
(i) Velar Click	g!	k!	k!h	k!'
(ii) Uvular Click	ɢ!	q!	q!h	q!'
(iii) Velar Non-click	g	k	kh	k'
(iv) Uvular Non-click	ɢ	q	qh	q'

The two features, [velar] and [uvular], thus, participate in the cross-classification of click accompaniments and non-click consonants: (i) and (iii) are specified as [+velar], while (ii) and (iv) as [+uvular].

There are two interesting cross-linguistic observations which reveal general properties of the velar/uvular distinction of the accompaniments. First, there is an audible difference in the timing of the release of the back closure: the uvular series (ii) being more delayed than the velar series (i). A similar delay of the uvular release is also seen in !Xóõ, where ɢ! and q! are distinguished from g! and k! respectively in the timing of release of the back closure (Traill 1985). Second, the voiced uvular plosive accompaniment ɢ! tends to be prenasalized. The same prenasalization regularly occurs in !Xóõ (Traill 1985). This prenasalization may be caused by the difficulty of sustaining voicing throughout a uvular stop, as Ladefoged & Traill (1994) interpret it, and this tendency is probably a general property of the voiced uvular click.

Uvular Affricated Accompanimets

There are two "uvular affricated" accompaniments, (9) and (10). Nakagawa (1995) has pointed out the problems of describing them as "uvular" and "affricate" and discussed the crucial difference between (10) and (8), so this is not repeated here. Here we provide some observations on these accompaniments with reference to certain non-click consonants.

Clicks with accompaniment (9) are similar to the non-click complex consonants, tχ and tsχ in that they are all followed by the same long "scrapey" uvular fricative and are phonetically consonant sequences from the auditory point of view. Analogously, clicks with accompaniment (10) are similar to the non-click consonants, tχ' and tsχ' in that they involve the ejective uvular release. This is optionally followed by a uvular plosive, i.e. [q], so, q!χ', tχ' and tsχ' may be represented in "narrow" transcription as [q!χ'q], [tχ'q] and [tsχ'q] in such variants, respectively. These observations are of relevance to theoretical issues, such as the cross-classification of click and non-click consonants and unitary or cluster analysis of clicks and complex consonants, topics which are currently being investigated.

Nasal Accompaniments

As the transcriptions in Table 1 indicate, the remaining three accompaniments, (11), (12) and (13), are here regarded as involving a velar nasal back closure, either voiced [ŋ] or voiceless [ŋ̊]. The nasal back closure [ŋ] of (11) does not give rise to any problem. This accompaniment is attested widely in other click-using languages, such as !Xóõ (Southern Khoisan), Zhu (Northern Khoisan), Nama (Central Khoisan), Xhosa (Bantu) (Ladefoged &Traill 1994), Sandawe and Hadza (languages spoken in Tanzania) (Kagaya 1993, Sands et al. 1993), and even Damin (a kind of ritual "language" formerly used by Lardil speakers in Australia) (Dixon 1980).

Accompaniment (12) involves the nasal back closure which is regularly voiced when preceded by a vowel and usually voiceless in citation form. This nasality is auditorily evident. This accompaniment is different from the two aspirated

accompaniments (3) and (6) in that it involves the nasality and in that it has an inaudible release of the back closure, while in (3) and (13) the posterior release is audible (i.e. [kh] and [qh] respectively). As discussed in Nakagawa (1995), this accompaniment is fairly similar to so-called *delayed aspiration accompaniment* which is found in other Khoisan languages in the nasality and the inaudible back release, and is provisionally regarded as a variation of delayed aspiration accompaniment.

The nasal back closure in the glottal stop accompaniment (6) is less evident, and the nasality is only occasionally audible (in a subtle way) when preceded by a vowel. The similar accompaniment found in Nama (Ladefoged & Traill 1984) and Hadza (Sands et al. 1993) also involves nasality when postvocalic, but it is a consistent and clear feature: the vowel preceding a click with this accompaniment is nasalized in both languages and in addition the click becomes fully nasal in Nama. An aerodynamic study in progress will be used to establish the feature of nasality in the ǀGui accompaniment. At the present stage we provisionally interpret this accompaniment as nasal based on the phonological evidence in Table 4.

This interpretation would make the feature "ejective" redundant and the two phonological features, "glottal" and "ejective", would no longer be necessary. Ejective accompaniments would thus be specified [−nasal, +glottal], and the glottal stop accompaniment [+nasal, +glottal]. If this accompaniment were not specified [+nasal], then both features would be needed for the contrast between the glottal stop accompaniment (kǃʔ) and the velar ejective accompaniment (kǃ').

Ejective Accompaniments

ǀGui has three ejective accompaniments, (7), (8) and (10). This triple distinction has not been reported in any other languages. As their descriptive labels in Table 1 indicate, they are distinct in the place and manner of the posterior release. Some other phonetic properties which make them distinct from each other have been discussed in Nakagawa (1995).

Table 4. An interpretation of the glottal stop accompaniment.

	voiced	aspirated	glottalized
Nasal	ŋǃ	ŋǃh	ŋ̥ǃʔ
Velar	gǃ	kǃh	kǃ'
Uvular	ɢǃ	qǃh	qǃ'

Table 5. Minimal triplets for the three aspirated accompaniments and the three ejective accompaniments.

Accompaniment	Word	Gloss
(3)	kǂhâm	"to beat"
(6)	qǂhâm	"to make firewood"
(12)	ŋǂhâm	"to sharpen"
(7)	kǀ'ôạm	"buttocks (euphemism)"
(8)	qǀ'ôạm	"to soften by squeezing"
(10)	qǀχ'ôạm	"to break"

Before ending this section it should be noted that contrasts among the three aspirated accompaniments and those among the three ejective accompaniments have not been attested in other languages. These distinctions are therefore unique features of the ǀGui click system. The following shows complete and near minimal triplets for these contrasts. (For tonal transcriptions, see the section of TONE).

The following words exemplify all the 52 click consonants shown in Table 1:
(1) Voiced velar plosive accompaniment.
      gǀâa   a kind of tree (*Terminalia sericea* Burch. ex. DC.)[3]
      gǁâa   to spend a hard season
      gǂaa   to move smoothly
      gǃáa   to hurt
(2) Voiceless velar plosive accompaniment.
      kǀaa   to skin
      kǁáã   to crave for
      kǂâa   to cover, to stick
      kǃáa   to miss
(3) Aspirated velar plosive accompaniment.
      kǀháa   to put something into grass
      kǁháa   to cultivate
      kǂhaa   pan, dry lake-bed
      kǃhăa   piece
(4) Voiced uvular plosive accompaniment.
      ɢǀáa   to open
      ɢǁâa   to twinkle
      ɢǂăã   spleen
      ɢǃââ   a kind of termite
(5) Voiceless uvular plosive accompaniment.
      qǀāa   dried river (Okwa)
      qǁáa   to be dry
      qǂâa   silver, transparent
      qǃàã   to raise the back (e.g. of a donkey)
(6) Aspirated uvular plosive accompaniment.
      qǀhâa   to peep
      qǁhâa   to spread
      qǂhâa   lying
      qǃháa   to spit out, to cough out
(7) Voiceless velar ejective accompaniment.
      kǀ'âo   to bend down
      kǁ'áa   flower
      kǂ'âa   to faint
      kǃ'áã   to taste like giraffe (meat)
(8) Voiceless uvular ejective accompaniment.
      qǀ'áa   to carry
      qǁ'âa   sitting upon one's heels
      qǂ'áe   to spit
      qǃ'āã   to smell like jackal

(9) Voiceless uvular affricate accompaniment.
    qǀχáa   meat
    qǁχâa   during the daytime
    qǂχáa   to move something
    qǃχâa   diarrhea

(10) Affricated uvular ejective accompaniment.
    qǀχʼáã   liquid, wet, moist
    qǁχʼâa   to wash
    qǂχʼâã   a kind of termite
    qǃχʼáã   to pound

(11) Voiced velar nasal accompaniment.
    ŋǀàa   stomach
    ŋǁâã   horn
    ŋǂâa   to stare
    ŋǃàa   to choose

(12) Aspirated velar nasal accompaniment.
    ŋǀhaa   to find something in a container
    ŋǁháa   to cut anus and take intestines
    ŋǂhâã   to go before
    ŋǃhaa   to lack horns

(13) Glottal stop accompaniment.
    ŋ̥ǀʔáã   smell of sand
    ŋ̥ǁʔaa   bat-eared fox
    ŋ̥ǂʔáa   to hide oneself
    ŋ̥ǃʔáã   to know

Non-click consonants

We have seen that ǀGui has a complex click consonant system with extensive distinctions some of which have not been found in other Khoisan languages. Like the click consonants, the ǀGui non-click consonants also show some distinctive complexities. In this section we will illustrate the phonological contrasts of the non-click consonants, and discuss some interesting aspects of this consonantal class with reference to relevant sounds found in other Khoisan languages.

The non-click consonant inventory of ǀGui is shown in Table 6. The two sounds in parentheses, namely tʼ and ŋ, may be regarded as marginal because they are only found in the following two peripheral words: tʼaa "to carve", which few ǀGui speakers know, and ŋoã, which is an ideophone expressing the sound with which something is pulled off. The tap r and the alveolar nasal n do not occur in the root-initial position except for loan words. In the root-medial position only b, r, m, n, j and w may occur. (In a small number of trisyllabic roots t, g, k and s also occur medially; these are originally disyllabic roots affixed with a monosyllabic element.) The two nasals, m and n, may occur as syllabic in the final position of disyllabic roots and as a monosyllabic suffix.

Table 6. Non-click consonants of ǀGui.

	Lb	Al		Pl	Vl	Uv	Gl
voiced	b	d	dz	ɟ	g	ɢ	
voiceless	p	t	ts	c	k	q	ʔ
aspirated	ph	th	tsh	ch	kh	qh	
ejective	—	(t')	ts'	c'	k'	q'	
affricatied ejective					kx'		
voiiceless with uvular		tχ	tsχ				
ejective with uvular		tχ'	tsχ'				
fricative			s			χ	h
nasal	m	n			(ŋ)		
tap		ɾ					
glide	w			j			

(*Lb*= labial, *Al*= alveolar, *Pl*= palatal, *Vl*= velar, *Uv*= uvular, *Gl*= glottal)

The following words illustrate the non-click consonats of ǀGui.

Root-initial non-click consonants:

b	bǎa	father, daddy
p	paa	to bite
ph	phàba	useless immature seed of melon
m	mâā	to give
ŋ	ŋoã	ideophone (a sound of being pulled off)
d	dǎi	crowned plover (*Vanellus coronatus*)
t	tậā	a kind of tree
		(*Rhigozum brevispinosum* Kuntze)
th	thậri	dull (of edges)
t'	t'aa	to carve
tχ'	tχ'ám	a kind of termite
tχ	tχām	to lace up
ɟ	ɟĭa	owner
c	cěn	to stand
ch	chém	soft, easy
c'	c'îbe	to cut clearly with a small knife
g	gǎā	duck
k	kǎo	to promise
kh	khao	back of thigh
k'	k'âe	to belch
kx'	kx'âa	to drink
ɢ	ɢába	to eat something on the palm
q	qâā	a kind of melon
		(*Acanthosicyos naudiniana* (Sond.) Jeffrey)
qh	qhǎa	to error
q'	q'am	hot sand of a fire
dz	dzáa	to frighten

ts	tsāa	to disappear
ts'	ts`áa	squeeze in the hand to extract moisture
tsh	tsháa	water
tsχ	tsχâã	to hate
tsχ'	tsχ'āe	blue, green
s	saa	to miss a shot
χ	χae	to have sex
h	háã	to exist
ʔ	ʔāã	to wear
j	jîa	to step

Consonants which occur in the root-medial position:

b	kǃâba	to spread and dry
m	kǃâmã	to pass far from here
r	kǃàra	a kind of tree (*Ochna pulchra* Hook.)
n	kǃânã	to twist
j	ʔāja	to govern
w	gǁàwā	a dead person

Syllabic nasal consonants:

m	kǀam	the sun
m	-m̃	his
n	kǃ'án	to cut
n	-ñ	their

Below I will discuss some aspects of the non-click inventory of ǀGui.

Stop System and Palatal Series

As shown in Table 6, ǀGui has a large number of contrasts for stops. The four-way distinctions, namely voiced, voiceless, aspirated and ejective, are all represented in the four places of articulation, namely alveolar, palatal, velar and uvular. These full contrasts are not attested in other Khoisan languages, many of which do not have both palatal and uvular stop series. ǃXóõ and apparently ǁXegwi (an extinct Southern Khoisan language) have both series, but the former lacks three palatals, c, ch and c' (Traill 1994), and the latter lacks one palatal c (Westphal 1971: 415). The existence of the distinctive alveolar-palatal-velar-uvular places of articulation with full members in the stop system, which is a characteristic of ǀGui, is the result of an interesting sound shift which ǀGui has undergone, as I will discuss below.

I will here provide some comparative data between ǀGui, ǁGana and Naro, a neighboring Central Khoisan language, which has apparently not undergone the sound shift. Naro words are cited from Visser (1994), the latest Naro lexicon, and are written in his transcription.

The list of cognates in Table 7 illustrates the palatalization that ǀGui and ǁGana have undergone, a sound shift in which the alveolar stops in some (not all) words change into the palatals (*d>ɟ, *t>c, *th>ch, and *t'>c') to different

extents: the palatalization has affected all the eight words in ǀGui but only the first four words in ǁGana, whereas Naro has preserved the alveolars. (There are small number of words in ǀGui which have not undergone this palatalization.)

As these words show, this sound change is a kind of palatalization in the sense that it involves the raising of the tongue body, but it is not obvious what its motivation is: the front vowels in the first syllable of (1), (5), (6), (7) and (8) are results of the assimilation to the initial palatals, and not phonetic triggers. This palatalization therefore seems "unmotivated" in the conventional sense. Furthermore, this sound shift is typologically peculiar because alveolar stops are often viewed as unmarked while palatal stops are relatively marked, and it changes the unmarked series into the marked one without any obvious phonetic motivation.

The last four items in Table 7 show that the effect of the change is greater in ǀGui than in ǁGana. Table 8 presents the comparison of the frequencies of alveolar and palatal stops which occur in the cognates of ǀGui and ǁGana. It also shows the proportions of the palatal to the alveolar series. ǀGui has clearly high palatal/alveolar proportions for all the four classes, i.e. voiced, voiceless, aspirated and ejective, whereas ǁGana shows a low proportion for the voiced, and

Table 7. The sound correspondence among Naro, ǁGana and ǀGui.

	Naro	ǁGana	ǀGui	gloss
(1)	dàra	ɟíra	ɟíra	"to visit"
(2)	túú	cuu	cuu	"rain"
(3)	thõò	chôō	chôō	"to feel pain"
(4)	t'õè	c'ôẽ	c'ôẽ	"beautiful"
(5)	dàò	dâo	ɟîo	"path"
(6)	tãá	taã	ciã	"different"
(7)	thàm	thám	chém	"soft"
(8)	—	t'êbe	c'îbe	"to trim"

Table 8. The frequencies of the alveolar and palatal stops in ǀGui and ǁGana cognates.
The rows of frequency present the numbers of words with the relevant sounds, and those of proportion present alveolar/palatal proportions.

	ǀGui	ǁGana	(total)
voiced	d / ɟ	d / ɟ	
frequency	8 / 27	20 / 15	(35)
proportion	1 : 3.4	1 : 0.75	
voiceless	t / c	t / c	
frequency	12 / 38	20 / 30	(50)
proportion	1 : 3.2	1 : 1.5	
aspirated	th /ch	th / ch	
frequency	3 / 20	5 / 18	(23)
proportion	1 : 6.7	1 : 3.6	
ejective	t' / c'	t' / c'	
frequency	1 / 6	2 / 5	(7)
proportion	1 : 6	1 : 2.5	
all stops	d t th t' / ɟ c ch c'	d t th t' / ɟ c ch c'	
frequency	24 / 91	47 / 68	(115)
proportion	1 : 3.8	1 : 1.45	

less clearly high proportions than ǀGui for the other classes. This reflects the difference in the progress of the sound shift between these two languages.

A more specific comparison of the cognate words counted in Table 8 allows the further generalization that if a word in ǁGana has been affected by the palatalization, then its cognate in ǀGui will always be affected by the palatalization. In other words, a palatal stop in a ǁGana word implies a palatal stop in its ǀGui cognate.

It is worth mentioning here that this palatalization is blocked by a pharyngealized vowel which follows the alveolar stop[4]. This blocking shows a difference between ǀGui and ǁGana in the extent to which it applies. In ǁGana no palatal stop precedes a pharyngealized vowel, and in ǀGui I found three words in which a palatal stop is followed by a pharyngealized vowel (out of 94 words[5] with a palatal stop), namely chạri "dull", ɟɔ̧m "braid" and ɟạna "marijuana". Furthermore, the first two words involve an interesting phenomenon, as we will see in the following paragraph.

These two words have variants as shown in Table 9. A small number of ǀGui speakers use the forms with a palatal stop and others those with an alveolar stop (these two words are counted as those with an alveolar in Table 8 because fewer speakers use palatal sounds). By comparison with ǁGana cognates we can regard the variants beginning with ch and ɟ as the result of the palatalization and that those beginning with alveolar stops are older forms. My four ǁGana consultants (two from Xade and the other two from Molapo) claimed that no ǁGana speakers say chạri and ɟɔ̧m. The observation on these variations in ǀGui enables us to hypothesize that the "unmotivated" palatalization is still advancing in ǀGui and is entering into the new stage where its application breaks the block by pharyngealized vowels[6].

Here I will provide additional data from an earlier phonetic account of ǁGana in order to see more about the dynamic aspect of the palatalization.

Maingard (1961: 119) reports that "ǁganakwe has a number of words with initial dental, **t-** or **d-**, which have a variant form with palatalized initial". This language is probably a different dialect of ǁGana. He recorded the material at the Uitkoms, 38 miles east of Ghanzi, in 1955 (Maingard 1957). Table 10 illustrates Maingard's observation on the variation, which is shown with

Table 9. The palatalization unblocked by pharyngealized vowels.

ǀGui	ǁGana	gloss
chạri ~ thạri	thạri	"dull"
ɟɔ̧m ~ dɔ̧m	dɔ̧m	"braid"

Table 10. Maingard's observation on the palatalization in "ǁganakwe".

Naron (Visser)	"ǁganakwe" (Maingard)	ǀGui; ǁGana (Nakagawa)	gloss
dòro	doro ~ dʒuro	ɟúro	"to make fire with sticks"[7]
dù̀ù	du ~ dʒu	ɟũu	"eland"
tẽè̃	te ~ tjẽ	cìẽ	"thigh"

reference to Naro, IGui and IIGana counterparts. The variation of the alveolar and palatal stops indicates that the sound shift in question is, or at least was at the time of Maingard's recording, ongoing in the IIGana dialect which he dealt with. The comparison in Table 10 clearly shows that alveolar stops in certain words are (or were) presently undergoing the palatalization in "IIganakwe" around Uitkoms and those sounds in IGui and IIGana have already undergone this change.

From the above discussions we can conclude firstly that IGui and IIGana have been in the process of a peculiar sound shift where the alveolar stop series changes into the palatal series, and secondly that this palatalization has affected IGui, IIGana and Naro to different degrees (it has proceeded further in IGui than in IIGana, and has not affected Naro), and finally that this change, the palatalization, is still ongoing. It seems that this sound shift, taking place in an unmarked stop system, leads to a peculiar stop system without the unmarked alveolar series.

In concluding this section I will raise a question concerning this sound shift. How can we explain this palatalization, which seems to lack the phonetic motivation in the conventional sense? Since the direction of the sound shift is from an unmarked stop system to a marked one, we would hope to find some causation for the change.

It is suggestive that the palatograms and linguograms of alveolar stops in other Khoisan languages show a much wider contact between the tongue body and the palate than is expected in alveolar stops, though this is auditorily not palatal (Traill 1996). If IGui and IIGana alveolar stops also have the similar property, they have a latent articulatory motivation within themselves rather than their environments. Furthermore, the palatogram of a palatal stop in IIGana in Gope shows the contact in the much advanced region, indicating that this is a palatalized alveolar stop (Traill 1996). If the palatal stops in IGui and IIGana have the similar phonetic feature, the sound shift will seem less peculiar (more likely to happen). Palatographic and linguographic investigation in IGui and IIGana, therefore, is worth making, and I am planning to undertake it in the onging study.

We should here also pay attention to the point which Traill (1980) makes on Non-Khoekhoe languages of Khoe family that "there seems to be some sort of structual pressure in these languages to have a non-click palatal series of consonants." As he discusses, in some Non-Khoekhoe languages the non-click palatal series is generated as a result of the click loss of ǂ, while in IGui and IIGana, as we have seen, the palatal stops are derived from the non-click alveolar stops, and these two processes did not take place at the same time in one language. This structural pressure forms a background of the "unmotivated" palatalization. At this stage, however, I can not explain the mechanism of the "pressure" in these languaes.

The Lateral Release of kx'

The affricated velar ejective is transcribed in Table 2 as kx', but this consonant involves a **lateral** release in IGui and may be broadly transcribed as [kʟ'] in IPA. I have observed the same type of release with the affricated velar ejective in IIGana (in the Xade and the Molapo dialects).[8]

This phonetic detail has not been described in phonetic accounts of Khoisan languages. The affricated velar ejective is widely found in other Khoisan laguages, such as Nama, IIAni, !Xóõ and Zhu (Beach 1938, Vossen 1986, Traill 1985, Snyman 1970), but the lateral release is not reported (the sound has been conventionally transcribed as [kx'] or [kx?]). However, it is possible that the lateral release of ejected velar affricate was observed in two other Khoisan languages. First, in an unpublished lexical collection of a Central Khoisan language recorded by the well-known explorer David Livingstone in around 1850, we can find the transcription **k'l** in one word **k'loo** "flesh, meat" (Maingard 1961: 118), of which the cognate in IGui is [kʟ'óo] "to eat meat". Maingard comments that the vocabulary by Livingstone is likely to be a sample of the Danisi dialect. The letter **l** in the transcription **k'l** may perhaps represent the lateral release. Second, Snyman (1980: 18) shows a table of Angolan !Xū consonants where he specifies **k'** as "lateral". Unfortunately, he does not provide any further information on it.

The Realization of r

The tap r occurs root-medially, and is usually realized as lateral [l] when the root-initial consonant has the lateral click type (cf. [k!àɾa] *Ochna pulchra* Hook. and [kǁâla] *Acacia erioloba* E. Mey). The latter realization involves a progressive distant assimilation caused by the click type. This shows that the articulatory feature of the click type "lateral" affects the liquid consonant of the following syllable. In other words, the assimilation by the click type of the initial consonant reaches as far as the following syllable onset while it does not seem to affect the following vowel.

However, the ejected affricated velar lateral kx' [kʟ'] above mentioned does not cause the same assimilation. This may be explained by interpreting the lateralness of kx' [kʟ'] as a phonetic detail and not an underlying feature.

The lateral realization of r also occurs after a pharyngealized vowel, a̰, o̰ or o̰a̰ (see examples in the section of pharyngealized vowels below). At the present stage, I can not present the phonetic explanation for this process.

VOWELS

This section simply outlines the IGui vocalic segments by presenting the vowel inventory in broad phonetic transcriptions and their distributions in monosyllabic and disyllabic morphemes. Monosyllabics and disyllabics are approximately 97 percent of the IGui morphemes that have been found. Here we will not concern the detailed discussion about the underlying representation of each vowel segment.

Overview

Table 11 shows the vowels found in IGui. There are six plain vowels (five monophthongs and one diphthong), three nasal vowels and three pharyngealized

vowels (two monophthongs and one diphthong). The plain monophthongs involve three tongue heights and the nasal vowels two.

The vowels in monosyllabic morphemes

The vowels [i e a o u ē ã õ] occur in monosyllabic morphemes which consist of a vowel with or without an initial consonant (i.e. CV or V structure). The following examples are to illustrate the five plain vowels in this position.

kì	tense marker (today past)
kè	conjunction (reason)
kà	postposition ("of, in, by, with, than etc.")
kò	derivational suffix "person, people"
ku	verbal suffix (reciprocal)

The nasal vowels in this position only occur when preceded by a nasal consonant.

nḕ	conjunction ("and then", used with the imperative mood)
ŋ|ē	"this" (deictic)
mã̀	nominal suffix (male singular accusative)
ŋ‖ã	"this" (anaphoric)
ŋ̥|ʔõ	"other"

The pharyngealized vowels do not occur in monosyllabic morphemes.

The vowels in disyllabic morphemes

The vowels shown in Table 11 all occur in disyllabic morphemes, but they show distributional constraints in relation to the syllable structure of morphemes, as stated in following sections. For convenience we classify the syllable sructures of disyllabic morphemes into two types as illustrated in Table 12. In the posotion C1 all the click consonants and the non-click consonants except **n** and **r** may occur, and in C2 **b**, **m**, **r**, **n**, **j** and **w** may occur. C2 may be null (C1V1V2), in which case V1 and V2 will form connected vowels or a long vowel (CVV or CV: structure).

The vowels which occur in V1 of both syllable structure types are **i**, **e**, **a**, **o**, **u**, **o̯a**, **a̱**, **o̱** and **o̯a̱**. Among these, six vowels, namely **i**, **e**, **a**, **a̱**, **o̱** and **o̯a̱**, all occur in V1 of both types. The two rounded plain vowels **o** and **u** occur in V1 of (a) type, not of (b) type. The plain diphthong **o̯a** occurs in V1 of only (b) type. The three

Table 11. The vowels of ǀGui.

plain:	i	e	a	o	u	o̯a
nasal:		ē	ã	õ		
pharyngealized			a̱	o̱		o̯a̱

Table 12. Two types of syllable structure of disyllabic morphemes.
C stands for a consonant, V a vowel and N a syllabic nasal, i.e. m or n.

(a)	C1V1C2V2	
(b)	C1V1N	

pharyngealized vowel, a̠, o̠ and o̠a̠, are only found in the V1 position. In V2 five plain vowels, **i**, **e**, **a**, **o** and **u**, and three nasal vowels, ẽ, ã and õ, occur.

Vowel Distributions in C1V1C2V2-type Morphemes
(1) The unrounded plain vowels, **i**, **e** and **a**, in V1

The three unrounded plain vowels, **i**, **e** and **a**, all occur in V1 of CVCV-type morphemes, but their occurrences are constrained by C1, C2 and/or V2. The main constraints on **i**, **e** and **a** in this position are as follows.

If C1 is a non-click palatal, then the unrounded plain vowel in V1 is always **i**.

ɟĭa	"owner"
cie	"to stand"
ɟibu	"to cover"
c'îbe	"to cut clearly"
ɟíra	"to visit"
ɟina	"to please"

If C1 is neither a uvular consonant (a click with a uvular accompaniment or a uvular consonant including **tχ**, **tsχ**, **tχ'** or **tsχ'**) nor a non-click velar ejective (**k'** or **kx'**), and V2 is **i**, then the unrounded plain vowel in V1 is always **i**.

pîi	"breast"
sîi	"to gas"
ʔĩi	"to seem"
kǀíi	"song"
ŋǂĭi	"to learn"
ts'íbi	"to rain lightly"
dzĭri	"paralyzed

If C1 is a non-click alveolar or a click of dental or palatal type with a velar accompaniment, and V2 is **u** or **e**, then the unrounded plain vowel in V1 is always **e**.

séu	"to weave"
tsēbu	"to snatch"
tséru	"funny"
gǂeu	"kori bustard"
ŋǀʔéu	"name of a place"
kǀeru	"to chat"
kǂĕbu	"to bundle"
ŋǂheru	"to present to a visitor"
tsee	"to work"
ŋǀʔée	"fire"
kǂêbe	"Tswana (people)"

If C1 is a non-click alveolar or a click of dental or palatal type with a velar accompaniment, C2 exists, and V2 is **a**, **ã**, **o** or **õ**, then the unrounded plain vowel in V1 is always **e**.[9]

dzéra	"bird"
dzémã	"to glare"
ŋ̥ǂʔero	"body, core"
g̊ǂenõ	"to convey on the head"

If C1 is a uvular consonant (a click with a uvular accompaniment or a uvular consonant including **tχ**, **tsχ**, **tχ'** and **tsχ'**), an alveolar or lateral click with a velar accompaniment, or a non-click velar ejective (**k'** or **kx'**), then the unrounded plain vowel in V1 is always **a**.

qhâe	"to smell bad"
tsχae	"to turn one's head"
gǁăe	"female"
k'aẽ	"liver"
qhái	"quiet, still"
qǀχái	"a flat grassy place in a pan"
ŋ!ái	"lump"
qhări	"Kalahari (people)"
kx'ai	"far"
k!ânã	"winder (plant)"
qǀχ'ãra	"to drop by"
qǀχ'áo	"snake"
qǂχânõ	"to praise"

(2) The rounded plain vowels, **o** and **u**, in V1

The two rounded plain vowels occuring in the V1 position of C1V1C2V2-type morphemes show the following distributional constraint.

If C1 is uvular, then the rounded plain vowel in V1 is always **o**.

qǂχ'óa	"to go out"
qǀχói	"bean of *Tylosema esculentum* (Burch.) Schreiber"
qoru	"to turn up"

Vowel Distributions in C1V1N-type Morphemes
(1) The unrounded plain vowels, **a** and **e**, in V1

These two vowels show the following constraint.

If C1 is a non-click palatal, then the unrounded plain vowel is always **e**. Otherwise, it is **a**.

ɟem	"tongue"
cĕn	"to stand up"
chém	"to be soft, easy"
kǀam	"to get thirsty"
qhán	"to talk"

Obviously, **e** and **a** are in complimentary distribution in this position, and are not contrastive. Furthermore, these two vowels show morphophonological alternation: the vowel **a** in this position alternates with **e** in a verb morphological process when preceded by an alveolar or velar non-click consonant, or by a click of dental or palatal type with a velar accompaniment as exemplified below.

       klémã-ha "to be thirsty"   <   klam "to get thirsty"

The complimentary distribution and the morphophonological alternation of the two vowels in this position suggest the possibility of the interpretation that **a** underlies **e** in V1 of C1V1N-type morphemes.

(2) The plain diphthong, **o̬a**, in V1

The other plain vowel that occurs in V1 of C1V1N-type morphemes is the diphthong **o̬a**.

ɟo̬âm	"molapo (a place name)"
co̬âm	"to swallow"
ko̬am	"to hear"
qō̬an	"to move"
tshó̬an	"to pluck"
ts'ó̬am	"beak"
kǀò̬am	"long bag"
qǀχó̬am	"to help"
qǀχ'ō̬an	"name"
kǁò̬am	"short"
ŋǂō̬am	"charcoal"
gǃo̬âm	"to blow"
ŋ̥ǃʔo̬am	"arm"

This vowel is the diphthong [o̬a] and is pronounced shorter than the sequence of two vowels [oa]. The following examples illustrate the difference of their lengths.

(i)	[kǃám]	"penis"	(two morae)
(ii)	[kǃo̬am]	"heavy"	(two morae)
(iii)	[kǃoa]	"an open space"	(two morae)
(iv)	[kǃoa m̀]	"of an open space"	(three morae)

Auditorily, the diphthong with the syllabic nasal, [o̬am] in (ii) is as long as [am] in (i) and as the vowel sequence [oa] in (iii), and is shorter than the vowel sequence with the syllabic nasal [oa m] in (iv).

This diphthong is only found in the V1 position of C1V1N-type morphemes. This unique distribution may be explained by interpretting that this diphthong is a phonetic realization of either **u** or **o**, neither of which is found in this position as mentioned earlier. In other words, it is plausible to interpret either **u** or **o** underlies the diphthong [o̬a]. Here I provisionally interpret this diphthong as **o** underlyingly on the following morphophonological ground: this diphthong alternates with **o** in a verb morphological process as illustrated below.

co̬âm	"to swallow"	>	cōmã-ha	"to have swallowed"
ko̬am	"to hear"	>	kómã-ha	"to have heard"
qō̬an	"to move"	>	qōnã-ha	"to have moved"

It is not of direct relevance to the synchronic interpretation but suggestitve that this diphthong corresponds to **o** in ‖Gana cognates as illustrated below.

	ǀGui	‖Gana
"to swallow"	cô̯am	côm
"to hear"	ko̯am	kom
"to move"	qō̯an	qōn

Pharyngealized Vowels in V1 of both Types of Morphemes

The three pharyngealized vowels, **a̱**, **o̱** and **ô̯a̱**, occur in the V1 position of both C1V1C2V2-type and C1V1N-type of morphemes, but do not occur when C1 is a uvular consonant (i.e. either a click with a uvular accompaniment or a uvular consonant including **tχ**, **tsχ**, **tχ'** or **tsχ'**) and/or an ejective conconant (whether click or non-click).

ŋǀha̱i	"useless fiber"
gǁâ̱e	"light"
gǀā̱o	"to cry in the night (of a small child)"
kǀhâ̱ā	"to cut off meat from bones"
kǁâ̱õ	"to fire a standing dead tree"
ŋǁʔa̱bi	"a throwing stick"
gǂà̱le	"a kind of tree (*Acacia erubescens* Welw.ex Oliv.)"
gába	"noon"
ŋǁà̱lu	"surround"
ŋǁhâ̱mē	"whip"
dâ̱nā	"leaf"
ŋǁă̱nõ	"a kind of lizard"
gǀâ̱m	"a kind of tree"
ŋǁă̱n	"a kind of melon (*Citrullus lanatus* (Thunb.) Matsumura & Nakai)"
gǂò̱e	"bone arrowhead"
gǀó̱ã	"resin, gum"
ŋǀô̯a̱bi	"upper cheek"
kǀô̯a̱la	"a kind of plant (?)"
gô̯a̱n-ka	"to crawl (of a caterpillar)"

The rounded pharyngealized vowel **o̱** and the pharyngealized diphthong **ô̯a̱** are not contrastive but variants. The monophthong [o̱] tends to occur when it is immediately followed by V2 (i.e. when C2 is null), and that [ô̯a̱] tends to occur in all other cases.

gǀo̱i	"a kind of grass"
ŋǀhó̱u	"to drink water with a hand"
gǁó̱õ	"to have a special flavor"
gǀô̯a̱li	"slender mangooes"
gǃô̯a̱be	"to cool one's body"
kǀô̯a̱ba	"ringworm"
gǀô̯a̱nē	"to cause sickness"
ŋǁʔô̯a̱mā	"large branch"
gǁô̯a̱m	"to cram mouth"

I found one speaker who always uses [o͡a]. Thus his pronunciation is exemplified as follows:

gǀo͡ai   "a kind of grass"
gǂo͡ae   "bone arrowhead"
ŋǀho͡au   "to drink water with a hand"
gǀo͡aã   "resin, gum"
gǁo͡aõ   "to have a special good flavor"

In ǁGana cognates these pharyngealized vowels are more regularly realized as [o] with weaker pharyngealization. At the present stage it is difficult to answer the question why the rounded pharyngealized vowel has the diphthongal variant in ǀGui.

V2 and C2

As already mentioned, the vowels which occur in the V2 position are the five plain vowels, namely **i, e, a, o** and **u**, and the three nasal vowels, namely **ẽ, ã** and **õ**. Both plain and nasal vowels may occur if C2 is w, j or null. Only plain vowels may occur if C2 is b or r, and only nasal vowels may occur if C2 is m or n.

TONE

This section presents an overview of the tonal contrasts in ǀGui. For lack of space we will here limit ourselves to exemplification of the distinctive tonal melodies that occur in citation forms, and will not deal with tonal alternations found in morphological processes, such as verbal suffixations, verbal compounds and reduplications of various types. The tonal notations in the present paper imply a traditional contour tone analysis (a unitary analysis), under which the tone bearing unit is basically assumed to be a monosyllabic morpheme and a disyllabic root. This type of approach was used by Beach (1938) for describing another Central Khoisan language, Nama, and has recently been criticized by Haacke (1992), who proposes an alternative register tone analysis (a cluster analysis) under which tones occurring with disyllabic roots are analyzed as clusters of two register tonemes. In a full discussion it will be important to examine the adequacies of these two approaches since ǀGui tonology is similar to that of Nama in a number of points, such as the nature of the tone bearing unit and the tonal alternations, which are of direct relevance to Haacke's argument. However, we will not discuss this issue here, but will tentatively adopt a unitary representation for the present survey.

Tonal contrasts of monosyllabic morphemes

Monosyllabic morphemes are all grammatical elements except one noun, χò "thing, place, case"[10], and are restricted in number in the ǀGui lexicon. Some of them are free forms, such as tense and aspect markers, and others bound forms, such as affixes, which are shown with "-".

They contrast only two tonal melodies, namely "High" and "Low". We only mark Low with a grave accent on the vowel, leaving High unmarked. The following minimal pairs illustrate the tonal distinctions found in monosyllabic morphemes.

morphemes	tone	meaning/function
ci	(high level)	"my"
cì	(low level)	habitual (aspect marker)
-ki-	(high level)	focus marker
kì	(low level)	today past (tense marker)
-ka	(high level)	verbal formative
kà	(low level)	postposition (multifunctional)

Tonal contrasts of disyllabic morphemes

Except for a small number of grammatical elements, disyllabic morphemes are lexical roots which predominate in the lexicon: over 90% of the |Gui morphemes that have so far been collected are disyllabic lexical roots. Also in other Khoisan languages, such as Nama, ||Ani and !Xóõ, their lexical roots are essentially disyllabic, and it is assumed that "the decisive tonological characteristics can be derived from the predominantly disyllabic roots" (Haacke 1991: 121).

Disyllabic morphemes show six contrastive tone melodies, which we label "high level", "mid level", "low level", "high falling", "falling" and "low rising". These distinctions and their notations are illustrated by the following complete minimal sextuplet. (Tones are marked on the first vowel. If it is unmarked, it is high level.)

|Gui	tone melody	gloss
k‖ae	(high level)	"to teach"
k‖áe	(high falling)	"to chew"
k‖âe	(falling)	"to brood"
k‖āe	(mid level)	"to watch"
k‖àe	(low level)	"to work as a shelter"
k‖ăe	(low rising)	"to cause (a strange thing)"

Tonal contrasts of trisyllabic morphemes

Trisyllabic morphemes are quite limited in number and semantic field. They are only approximately three percent (about 70 samples) of the |Gui lexical morphemes that have been found so far, and more than half of them may be analyzed as historically "disyllabic root + monosyllabic suffix" (ending with -ri, -ne, -ba, -be, -te or -gu, whose semantic effects are unclear but perhaps kinds of diminutive), and many of them are names of animals, birds and plants.

Trisyllabic morphemes show fourteen distinctive tone melodies. I interpret twelve of them as sequences of two tones: a tone for a disyllabic morpheme plus a tone for monosyllabic morpheme, on the ground that their tonal manifestations are identical to those of all the possible sequences of a disyllabic morpheme and a monosyllabic morpheme. In other words, a trisyllabic morpheme with one of these tone melodies consists of the two tone bearing units, namely that of a disyllabic morpheme and that of a monosyllabic morpheme, in this order. The

interpretation of twelve types of tones on trisyllabic morphemes are illustrated below. Tonal notations can be made by the combination of the markers for disyllabic and monosyllabic morphemes.

ǀGui	tone sequence	gloss
kǀ'aari	H+H	a kind of bagworm
k!aribè	H+L	a kind of plant
ŋ̊ǂʔóori	HF+H	a kind of plant
		(*Ximenia caffra* Sond. var. *caffra*)
sáakù	HF+L	there
ŋǁôori	F+H	grandchild
côorà	F+L	to be strong
q!'ābaté	M+H	serval?
ʔābagù	M+L	belt for carring a baby
gǀàari	L+H	a kind of beatle (*Anomalipus lemur*?)
g!àõgù	L+L	running high jump (play)
gǁo̧ori	R+H	a kind of bird (Cape glossy starling?)
tshĕrerè	R+L	bug

The remaining two melodies are only found in two words, so the generalization is difficult. We may however interpret that they are also tonally analyzed as sequences: each consists of a monosyllabic element and a disyllabic element on some tonological level. A tentative interpretation of the two words is shown below.

kusūro	H+M	but rather
kǀòkūro	L+M	maybe

ORTHOGRAPHY

Based on the segmental and tonal contrasts which have been presented above, this section will propose a practical orthography for the purpose of documentation of ǀGui materials. This orthography is in principle "phonemic" and designed to represent all the phonological contrasts which have been identified, but at the same time it is "practical" in that in deciding some symbols it follows the transcriptional convention which has been practised and developed for communications among the researchers of our project.

Since the orthgraphy is basically "phonemic" and shows a one-to-one correspondence between each contrastive segment and its symbol to a large extent, it will be sufficient here to illustrate their correspondences and to make some comments on their disagreements where necessary.

First, the four click types are represented by using the IPA symbols, namely ǀ, !, ǂ and ǁ, but click accompaniments are transcribed as illustrated below with the alveolar click.

Secondly, non-click consonants are transcribed with the same symbols as phonological representations shown in Table 2 except for the segments in the right of Table 13.

Thirdly, some vowels are represented phonetically, some are treated

Table 13. Some correspondences between phonological and orthographical representations.

phonological	orthographical	phonological	orthographical
g!	!g	dz	z
k!	!k	ɟ	gy
k!h	!kh	tχ	tx
ŋ!	!n	tsχ	tsx
ŋ!h	!nh	tχ'	tx'
ŋ!ʔ	!ʔ	tsχ'	tsx'
k!'	!k'	χ	x
q!'	!q'	j	y
q!χ'	!qx'		
q!χ	!x		
ɢ!	!ɢ		
q!	!q		
q!h	!qh		

phonologically and others are written in orthographically assigned letters in this orthographical system. Non-pharyngealized vowels in the V1 position are transcribed phonetically as **i, e, a, o** or **u**. Pharyngealized vowels are dealt with phonologically in orthography and are always symbolized as **a̱** and **o̱**. Oral vowels in the V2 position are always phonologically represented as **i, e, a, o** or **u**. Nasal vowels in V2, on the other hand, are represented as **ẽ, ã** and **õ** unless C2 is **m** or **n**, and are written using symbols for oral vowels, namely **e, a** and **o** when preceded by a nasal consonant, **m** or **n**. In the latter case the vowel letters are "read" as nasal vowels by the "phonic" rule that **e, a** and **o** are pronounced [ẽ], [ã] and [õ], respectively, after m or n. Likewise, nasal vowels which occur in mono-syllabic morphemes, ẽ, ã and õ, are written as just **e, a** and **o**, and their nasality is "predicted" by the preceding nasal consonants which include clicks with nasal accompaniment, such as ŋ!, ŋ!h and ŋ!ʔ, (a click with the glottal stop does not have any nasal markers in orthograpy). Finally, tonal contrasts are marked in the same way as we have seen in the previous section.

NOTES

[1] Nonlinear phonology has provided a theoretical framework in which this assumption is justified (Sagey 1986, Lorenson 1992). Against this assumption, the cluster analysis has been argued by Traill (1985 and 1993). It is, therefore, of theoritical interest to examine these two views with |Gui data, but it is not our present concern.

[2] The aspirated accompaniment k!h is interpreted as phonetically uvular in Traill (1985). Under this interpretation the distinctions in !Xóõ are illustrated as follows:

!Xóõ   g!   k!   —
             ɢ!   q!   q!h

[3] Identifications of plants in this paper are based on Tanaka (1980).

[4] It is interesting to explore the phonetic explanation for this blocking since Bhat (1978) notes "only two enviroments that could be specified as capable of blocking palatalization", namely "1) an apical trill or tap, and 2) a retroflexed consonant. (p. 66)" In this paper, however, I will not concern this issue.

[5] Table 3 shows that there are 91 words with a palatal stop. They do not include chǎri "dull" and ɟòm "braid" for the reason mentioned below, nor they include ɟàna "marijuana", of which the cognate is not found in ǁGana.

[6] It is suggestive that among the words with which this new stage begins the word meaning "marijuana" has already undergone the sound shift completely while the other two are still undergoing it, indicating that ɟàna "marijuana" is the first to arrive at the new stage. This word may change historically in a special way because the ǀGui people hesitate to refer to it directly: marijuana is often called euphemistically, such as daõgu-tsúu "donkey-dung", ŋǀũutsha "hyena (meat)".

[7] The gloss given to this word in Maingard (1961) is "fire-sticks", which is probably a mistranslation.

[8] The similar velar lateral ejective is also found in some languages other than Khoisan, such as Zulu, Artchi and a dialect of Avar (Catford 1977).

[9] It should be noted here that **a** in V1 alternates with **e** in a verb morphological process when preceded by an alveolar or velar non-click consonant, or by a click of dental or palatal type with a velar accompaniment as exemplified below.

tsēra-ha	"to have disappeared"	<	tsāa	"to disappear"
kěro-ha	"to have promised"	<	kăo	"to promise"
gǀénā-ha	"to have pillowed"	<	gǀáã	"to pillow"
tshéro-ha	"to have dug"	<	tsháo	"to dig"

It can be interpretted that the vowel **a** underlies the vowel **e** occuring in such derived forms. We do not deal with this issue in this paper any further.

[10] This exceptional word can also be regarded as a "grammatical element" in the sense that its function is the situational reference like pronouns.

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