Ghost Consonants: The Glottal Stop in Kaansa

Stuart D. Showalter
SIL Burkina Faso

1. Introduction

The Kaansa language is spoken by about 6000 people living in southwest Burkina Faso, in 20 villages in an area of about 500 square miles. It is a Gur language, classed as central southern Gur in the Gan-Dogosé group. Laryngeal occlusives, or glottal stops (GS), are used frequently in spoken Kaansa. Thus it has been important to understand the functions of this phonetically frequent segment as we develop an orthography and literacy materials in the language.

A typical complex utterance in Kaansa will manifest several GSs in its phonetic realization:

(1) [thiŋəŋ ñiɲí wá béeʔ meʔ ï khaʔ hāʔ la ɪŋəmə ñá jòʔ]

    greet wePFTV people POS all all and say give us water we drink
    je ñi hāaʔ ña wáʔ]

    but they giveNASP us NEG

    ‘We greeted all the people and said “Give us water to drink”, but they didn’t give us any.’

How many of these GSs are predictably inserted in conditioning environments? How many are unpredictable (phonemic)? Do GSs ever mark lost segments? Even if some phonetic GSs are inserted under certain conditions, under other conditions can phonemic GSs undergo assimilation and thus ‘disappear’?

2. Glottal stops in West African languages

Hyman (1988) provides a nice overview of functions of syllable- or utterance-final GSs in languages as disparate as Japanese, French, and Dagbani (Gur, Ghana), and reports quite a variety of functions, from phonetic to semantic, associated with this segment. Phonetically, GSs are common as boundary phenomena: they occur word-finally before pause, or after pause for vowel-initial words. They also demarcate word boundaries for vowel-initial words when preceded by vowel-final words. Hyman comments on the latter two of these phenomena:

Phonologists are especially familiar with rules that insert glottal stop . . . between vowels or before a word —or phrase-initial vowel. In such cases it can be argued that GS has the “prosodic” function of providing a minimal onset to a syllable that would otherwise not have an onset. While in some languages there are further restrictions on such rules (e.g. restricting their application only to stems or to stressed syllables), it is generally assumed that initial (or prevocalic) GS insertion

---

1 Phonetic transcription is broad: a) only high tones and contour tones are marked, and only on the first vowel of a complex nucleus if tone remains the same on all vowels of the nucleus; b) nasality on vowels is only marked when vowel is preceded by a [-nasal] consonant; c) long vowels are marked by double vowels [aa], not vowel plus colon [a:].

2 Abbreviations are as follows: ASTV assertive mode, CNTV continuative aspect, EMPH emphatic, FUT future, IMP imperative, INTRG interrogative, IPFV imperfective aspect, LOG logophoric, MVMT displacive aspect (movement before action of verb), NASP neutral aspect, PFTV perfective aspect, POS possessive (genitive), QTV quotative, SUB subordinate clause marker.
has to do with syllable structure, and ultimately, with the phonetic motivation for having an onset in every syllable. (1988:113)

Syllable-final GS, while still common, presents more of a theoretical puzzle:

On the other hand, when a vowel uttered before pause acquires a following GS, it appears that the syllable has gone from being “less marked” to “more marked”, since, as is well-known, the “unmarked” option is for a syllable to end with a vowel, not with a non-vocalic articulation such as a GS. (1988:113)

These cases are often motivated in Niger-Congo languages by the historical loss of a segment (Konni: Cahill 1992, Akan: Schachter and Fromkin 1968, Chumburung: Snider 1986), or by a pragmatic distinction between declarative and interrogative utterances (Dagbani: Hyman 1988, Pougouli: Warfel 2004), or by the need to distinguish between long and short vowels utterance-finally (Nawuri: Casali 1995).

3. The functions of the glottal stop in Kaansa

With GS as a common phonetic feature of spoken Kaansa, it became imperative to understand its functions in order to develop a practical orthography of the language. Should GS be written at all? If so, when? Should it be written in some cases even if phonetically absent (see section 4)? Investigations into the functions of GS in Kaansa led to important insights into the morphology of nouns and verbs, and thus to the simplification and regularization of the orthography.

Kaansa GS have five functions in the spoken language:

- Phonetic delimiter between vowels at word boundaries
- Marker of short vowels before pause
- Word-initial consonant in two personal pronouns
- Marker of diminutive status in noun class suffixes 1-4
- Root-final marker of a lost consonant in nouns and verbs

The first two functions are widespread in West African languages and are somewhat trivial; the last three are unpredictable and therefore contrastive (phonemic). All of the functions will be examined here, for it is often difficult to distinguish between them in any isolated utterance.

3.1. Phonetic delimiter

3.1.1. Between vowels at word boundaries

GS is inserted between word final and word-initial vowels when they are juxtaposed. This functions simply to prevent assimilation or coalescence of the vowels. Contrast these pairs of highlighted words:

<table>
<thead>
<tr>
<th>SG</th>
<th>PL</th>
<th>GENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>-V, -Ø</td>
<td>animate things, people, most loan words</td>
</tr>
<tr>
<td>Class 3</td>
<td>-rV, -nV</td>
<td>animate things, people, most loan words</td>
</tr>
<tr>
<td>Class 5</td>
<td>-gV, -kV</td>
<td>animate things, people, most loan words</td>
</tr>
<tr>
<td>Class 7</td>
<td>-mV</td>
<td>animate things, people, most loan words</td>
</tr>
<tr>
<td>Class 2</td>
<td>-bV, -pV</td>
<td>animate things, people, most loan words</td>
</tr>
<tr>
<td>Class 4</td>
<td>-jV</td>
<td>animate things, people, most loan words</td>
</tr>
<tr>
<td>Class 6</td>
<td>-sV</td>
<td>animate things, people, most loan words</td>
</tr>
</tbody>
</table>

Vowel quality is determined by vowel harmony and vowel weakening rules. Some class 1 nouns have a null (-Ø) suffix.
(2) KWH.002
[kasuʔ  ū  pí  jiʔ  sîmbɛ.]
Kasiya whom they call Simbe
‘The Kasiya whose name is Simbe.’

(3) KWH.001
[kasu wá míjā ʔa bée ðéʔ a seeʔ?]
Kasiya POS matter we wish that we speak
‘It’s regarding the Kasiya that we would like to speak.’

(4) KWH.003
[ɕ  kʰɛʔ  ɕ  jaari  kó  ja[bkãrkɔ...]
one day  he got.up  one  second.market.preparation.day
‘One day he got up on the day before market day...’

(5) LH.001
[ɕ  wàjɛ  kha  ʔ  ɕ  kʰɛ  ɕ  kàn  jà  jà  jàbgɔ....]
other guy  said  one  day  I  had.gone  to  market
‘another guy said one day I had gone to the market...’

However, in section 3.2 we will see that coalescence does occur at intervocalic word boundaries with certain object pronouns. This, in fact, helps distinguish between the simple phonetic insertion of GS as a boundary delimiter and its use as a contrastive word-initial consonant in these pronouns.

### 3.1.2. Word-finally after a short vowel before pause

Kaansa inserts GS after a short vowel utterance-finally, or before pause, as illustrated in the highlighted words in these examples:

(6) DWM.003
[dohage  khrn̂  kí  hâʔama  doqɔ̆  ʔã  kí  diʔ  .]
shea.nut.tree  in.advance  CNTV.gives.us  shea.nuts  we  CNTV.eat
‘Early on the shea-nut tree gives us its fruit so that we can eat.’

With the same morpheme /di/, a GS is not there when the root takes a suffix or is followed by a word starting with CV:

(7) [a  dîmã  suøgã]
we  eat.ASTV  millet
‘We eat millet.’

[tâfîrbe  wɜnnã  dî  gi  jaʔ?]
white.folks  can  eat  it  NEG
‘White folks can’t eat it.’

This set of utterances from natural texts shows the same behavior:

---

4 These are references to transcribed natural texts and the line numbers of the utterances cited.
IWB.038
... [pí  thāamina  pí  ké  hā  pí  jő?]  
... their beer  they take  give  they drink  
‘It’s their beer  they give  them to  drink.’

MWS.037
[mí  kʰāʔ  mít  wēʔ  jő  gr  jaʔ?]
I  said  I  NEG.IPFV  drink  that  NEG  
‘I said “I’m  not going to  drink  that.”’

NPPTK.007
[Ṵ kpōrĩ  khaar  jēe  băn̩?o  jē  kʰaʔ?  ma  nã  jũма  nnã]  
he  picked  up  the.animal  and.IPFTV  bring  it  and  said  I  MVMT  drink  in.the.village  
‘He picked  up  the slain  animal  and  started  to  carry  it, and  he  said  “I’ll  get  a  drink  in  the  village.”’

The  locative  [fũ]  ‘here’  will  take  GS  before  pause,  but  will  not  have  it  elsewhere:

ODWHY.046
[kʰar o  pí  patrũ  wā  ʒo  ũrã  seerje  pũsrũ  kʰaʔ?  kʰoró  
QTV  he.said  their  boss  POS  one  here  he.EMPH  said  the.others  QTV  he.said  
pi  jẽe  ibũra]  
they  leave  us  
‘He  said,  “One  of  their  bosses  is  here,”  and  he  spoke  to  the  others  saying  “Leave  us  alone.”’

I  here.ASTV  and.IPFV  working  
‘I  am  here  working.’

NPPTK.007
[u  fĩ̱  nnã]  
she  here  in.the.village  
‘She  is  here  in  the  village.’

The  Kaansa  phonological  system  contrasts  short  and  long  vowels,  and  in  many  verbs  with  CVV  roots  this  contrast  signals  the  marking  of  imperfective  vs.  perfective  aspect.  In  pre-pause  position,  the  use  of  GS  thus  helps  mark  the  aspect  on  this  type  of  verb:  the  imperfective  form  (i.e.  the  short  vowel  form)  is  marked  with  GS  word  finally.  Compare  the  forms  for  ‘eat’:

AWM.002
[mí  bā  nũ  nã  pì  kʰaʔ?  ō  jakã̱o  koonĩgo  waʔ?]
I  FUT  heard  that  they  said  his  grandmother  feeling.well  NEG  
‘I  then  heard  people  say  that  his  grandmother  was  not  doing  well.’
But a question in Kaansa can be signaled by the use of the negative particle, with the final vowel lengthened rather than truncated with GS:

(17) SWM.025

[ðɛ̃ sɪ̃mbiri pt fɛr dusirá bó waa]
so fetishes they today in.the.house exist NEG.INTRG
‘You do have fetishes in your houses now, don’t you?’

3.2. Marker of word-initial consonant in pronouns

Kaansa has four pronouns that until recently we have interpreted as single vowels:

(18) ø 3rd pers sg/class 1 (sg)
a 1st pers pl
ĩ 2nd pers pl
i class 4 (pl)

The behavior of these pronouns in the post-verbal object position leads one to suspect that the 1st and 2nd person plural personal pronouns have GS in the initial position. In the following examples, each pronoun is substituted into the same imperative sentence. Note how the verb form (highlighted) changes in some cases but not others:

(19) a. [hã mí̲nɛ̃ jɛ́ bu ʔa waʔ]

let problem NEG.IPFV overcome us NEG
‘Let no trouble overcome us.’

b. [hã mí̲nɛ̃ jɛ́ buwo⁵ waʔ]

let problem NEG.IPFV overcome.her NEG
‘Let no trouble overcome her.’

(20) a. [hã mí̲nɛ̃ jɛ́ bu ʔĩ̲ jãʔ]

let problem NEG.IPFV overcome you(pl) NEG
‘Let no trouble overcome you (pl).’

b. [hã mí̲nɛ̃ jɛ́ buwe⁶ jaʔ]

let problem NEG.IPFV overcome.it NEG
‘Let no trouble overcome it (the village).’

When the pronouns /ø, i/ follow the verb, they cliticize and induce changes in surface verb morphology, including coalescence with the final vowel of the verb. This does not happen to the pronouns /ʔa, ʔĩ̲/. One way to account for this behavior is to posit GS as the initial consonant for these words, giving them a syllable structure of CV rather than V.

---

5 The suffixed class 1 object pronoun ø ‘her’ coalesces with the verb root buu ‘overcome’ to create the surface form buwo.

6 The suffixed class 4 object pronoun i ‘it’ (as in, ‘the village’, for example) coalesces with the verb root buu to create the surface form buwe.
3.3. As a sign of the diminutive

GS can be added to the class suffix on a noun to communicate a sense of the diminutive. The classic example is for the word ‘stone’ or ‘rock’, for which Kaansa uses the root pūrá.

(21) [pūnna] [pūjï] ‘stone/s’
/pūrá.rV/ /pūrá.jV/

(22) [pūr'ga] [pūr'sa] ‘rock/s’
/pūrá.gV/ /pūrá.sV/

(23) [pūráʔra] [pūráʔja] ‘very small stone/s’

When nouns of classes 5 and 6 (large things) are diminished in this way, they change class suffixes to classes 3 and 4, plus GS:

(24) [khãmar'ga] [khãmar'sa] ‘field/s’
/khãmara.gV/ /khãmara.sV/

(25) [khãmaraʔra] [khãmaraʔja] ‘small field/s’

Animate things can be diminished as well using GS. In this case, the noun root does not take marker from classes 3 and 4, but add GS to the normal class 1 and 2 markers:

(26) [bikhoo] [bikhoobo] ‘male child/-ren’
/bii.khoo.Ø/ /bii.khoo.bV/

(27) [bikhooʔjo] [bikhoopo] ‘small male child/-ren’
/bii.khoo.ʔ.Ø/ /bii.khoo.ʔ.bV/

Notice how the addition of GS induces surface changes for the class 1 and 2 suffixes in examples (26) and (27). Even though the normal class 1 suffix -V is suppressed in nouns with CVV roots (bi + khoo ‘child’ + ‘man’), when GS is added to express the diminutive, the -V suffix reappears, and even takes on a glide, apparently to prevent a word-medial VʔV sequence. For the class 2 suffix, the combination /-ʔb-/ coalesces to [p] to express the plural: bikhooʔbo > [bikhoopo].

3.4. Root-final marking of a lost consonant

The most frequent and contrastive use of GS in Kaansa is in certain verbs. Consider these contrastive sentences involving ‘forget’ and ‘sweep’:

(28) [phaʔ urma] ‘She forgot.’
forget she.PFTV.ASTV

7 The penultimate weak syllable is reduced, creating the surface form pūnna.

8 It is interesting that Kaansa does this while it’s closest related variety, Dogosé, does allow word-medial VʔV sequences in similar situations: [woyej] ‘faces’, [woʔe] ‘small faces’ (Ouattara 2002:24). Kaansa does in fact allow a VʔV sequence in a context of syllable reduction/weakening, as in this title for a natural text: [jɔ doo)bikhooʔi wá x₇רג joojo] ‘When a Lobi child went to the Ivory Coast.’
The phonetic realizations of the Kaansa verbs meaning ‘forget’ and ‘sweep’ seem to be complete homophones in some contexts, in others to be distinguished merely by the presence of GS, and in others to have distinct realizations, such as in examples (36) (phaa) and (37) (phag). The surface forms of these verbs in examples (28) and (29) could be explained simply by the insertion of GS at a word boundary before a word starting with a vowel, as already discussed under section 3.1.1. Examples (30) and (31) might be explained most easily by simply assuming the two verbs are indeed homophones, but (32) through (37) cannot be explained at all except by positing an underlying morphological difference in the roots of the two verbs.

To make sense of the confusing (dis)appearances of GSs in Kaansa verbs, we need to understand paradigmatic verb morphology. Verbs in Kaansa are marked primarily for variations in the perfective aspect. Imperfective is not marked, and both perfective and imperfective verbs can take a modal suffix -ma, which indicates the assertive, and which often marks the main verb in a sentence, be it simple or complex. Perfective aspect can be marked in three ways: a) with the suffix -rɪ, b) with the affixation of the subject pronoun between the verb and the aspect or modal suffixes, or c) with a simple vocalic suffix -V attached to the verb root. These forms are illustrated in the examples below:

Imperfective:

(38) [u \textipa{f\textipa{u}uma}] ‘He’s crying.’
  he cry.ASTV

(39) [u ba \textipa{j\textipa{o}oma} bi\textipa{gr}a ī fu\textipa{o}] ‘He’s going to the funeral to cry.’
  he FUT go.ASTV to.the.funeral CNJ cry

9 The class 6 referential pronoun here (sɪ) could be refering to an abstract idea, such as foriiso ‘fatigue’.
Perfective:

(40) [khr bīsā u ḍūrī]  ‘For three days he cried.’
   day three he cry.PFTV

(41) [fū ṭurma]  ‘He cried.’
   cry he.PFTV.ASTV

(42) [mó u nannī bugrā wērī, ő fōwa]  ‘When he arrived at the funeral, he cried.’
   when he arrive.PFTV at.the.funeral SUB he cry.NASP
   The form in (42) is a neutral aspectual form most commonly used to express the narrative perfect, used once actions are established to be in the perfective aspect. This form is then used primarily until a major scene change or turning in the discourse. The same form is also used for conditionals, for imperatives, and for negative propositions in the perfective aspect. The following verbs demonstrate the morphophonemic changes that may occur with suffixation in the various forms of the perfective:

<table>
<thead>
<tr>
<th>Root</th>
<th>Perf - Foc</th>
<th>Perf - NonFoc</th>
<th>Perf - Narr</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>bēe</td>
<td>bēe ṭurī</td>
<td>bērī</td>
<td>beve</td>
<td>‘fold’</td>
</tr>
<tr>
<td>dāje</td>
<td>dāje ṭurī</td>
<td>dārī</td>
<td>dāja</td>
<td>‘stay, endure, remain’</td>
</tr>
<tr>
<td>Súu</td>
<td>Súu ṭuri</td>
<td>Sū uri</td>
<td>sūwo</td>
<td>‘steal’</td>
</tr>
<tr>
<td>Keu</td>
<td>Keu ṭuri</td>
<td>Keuri</td>
<td>kewe</td>
<td>‘break, shatter’</td>
</tr>
<tr>
<td>phiī</td>
<td>phiī ṭuri</td>
<td>Phiiri</td>
<td>phije</td>
<td>‘cover’</td>
</tr>
</tbody>
</table>

Table 1. Kaansa verb forms with perfective aspect

Verbs with CVV roots with the mid vowels e, e, o, ə and the low central vowel a take a simpler form in the narrative perfect:

<table>
<thead>
<tr>
<th>Root</th>
<th>Perf - Foc</th>
<th>Perf - NonFoc</th>
<th>Perf - Narr</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>bēe</td>
<td>bēe ṭurī</td>
<td>beeti</td>
<td>bēe</td>
<td>‘want, seek’</td>
</tr>
<tr>
<td>boo</td>
<td>boo ṭuri</td>
<td>Boori</td>
<td>boo</td>
<td>‘spread’</td>
</tr>
<tr>
<td>Tée</td>
<td>Tée ṭuri</td>
<td>Tēeri</td>
<td>tēe</td>
<td>‘disappear’</td>
</tr>
<tr>
<td>ḍōo</td>
<td>ḍōo ṭurī</td>
<td>ḍōrī</td>
<td>ḍōo</td>
<td>‘mix together’</td>
</tr>
<tr>
<td>Daa</td>
<td>Daa ṭurī</td>
<td>Daari</td>
<td>daa</td>
<td>‘set alight, set on fire’</td>
</tr>
</tbody>
</table>

Table 2. VV roots with mid vowels and low central vowel

For a small group of CVV verbs the root shortens in the imperfective form:

(43) [pha, phama]  ‘forget’

But compare the perfective forms:

(44) [pha ṭurī, phaari, phaa]  ‘forgot’

---

10 In Kaansa this includes verbs of perception, such as ‘see’, ‘feel’, ‘hear’, ‘understand’, ‘know’.
11 Perfective aspect, focused (primary verb of sentence).
12 Perfective aspect, non-focused (secondary or subordinate verb of sentence).
13 Perfective aspect, narrative or neutral form.
Verbs that shorten the root tend to be high-use CVV verbs such as ‘set’, ‘burn’, ‘know’, ‘fall’, ‘obtain’, ‘do’, ‘hear/feel’, ‘cut’, ‘kill’, ‘eat’, etc. In contrast to ‘forget’ in (43) and (44), ‘sweep’ in the examples below manifests GS in most suffixed forms:

Imperfective
(45) [phaʔ, phaʔma] ‘sweep’

Perfective
(46) [phaʔurma, phaʔur, phaga] ‘swept’

It is the narrative perfect form phaga\(^{14}\) that interests us here. One might be tempted to parse this form as pha -ga or phaʔ -ga and posit a variant narrative perfect suffix of -gV. Would this variant apply to only verb roots with root-final GS? Does the same or similar form occur for all verbs manifesting GS? Let us look at some more examples:

<table>
<thead>
<tr>
<th>Root</th>
<th>Perf - Foc</th>
<th>Perf – NonFoc</th>
<th>Perf -Narr</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>siʔ</td>
<td>siʔ uri</td>
<td>siʔri</td>
<td>sige</td>
<td>‘lie flat’</td>
</tr>
<tr>
<td>siʔ</td>
<td>siʔ uri</td>
<td>siʔri</td>
<td>siga</td>
<td>‘fry in oil’</td>
</tr>
<tr>
<td>seʔ</td>
<td>seʔ uri</td>
<td>seʔri</td>
<td>sege</td>
<td>‘sculpt, shape’</td>
</tr>
<tr>
<td>feʔ</td>
<td>feʔ uri</td>
<td>feʔri</td>
<td>fege</td>
<td>‘hide something’</td>
</tr>
<tr>
<td>saʔ</td>
<td>saʔ uri</td>
<td>saʔri</td>
<td>saga</td>
<td>‘vomit’</td>
</tr>
<tr>
<td>suʔ</td>
<td>suʔ uri</td>
<td>suʔri</td>
<td>sugo</td>
<td>‘pound yams’</td>
</tr>
<tr>
<td>tuʔ</td>
<td>tuʔ uri</td>
<td>tuʔri</td>
<td>tuga</td>
<td>‘crash, hit against’</td>
</tr>
<tr>
<td>hoʔ</td>
<td>hoʔ uri</td>
<td>hoʔri</td>
<td>hoko</td>
<td>‘gather, collect’</td>
</tr>
<tr>
<td>soʔ</td>
<td>soʔ uri</td>
<td>soʔri</td>
<td>sogo</td>
<td>‘measure out (grain)’</td>
</tr>
</tbody>
</table>

**Table 3. Narrative perfect forms for verb roots ending in GS**

All of these show that the -g- in the narrative perfect form appears regardless of the vowel of the root. However, the examples below show that it is not just -g- that appears in this context:

<table>
<thead>
<tr>
<th>Root</th>
<th>Perf - Foc</th>
<th>Perf – NonFoc</th>
<th>Perf -Narr</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>kšʔ</td>
<td>Kšʔ uri</td>
<td>kšʔri</td>
<td>káro</td>
<td>catch</td>
</tr>
<tr>
<td>khrʔ</td>
<td>khrʔ uri</td>
<td>khrʔri</td>
<td>khrʔ</td>
<td>hit</td>
</tr>
<tr>
<td>khaʔ</td>
<td>khaʔ uri</td>
<td>khaʔri</td>
<td>khaba</td>
<td>say</td>
</tr>
<tr>
<td>daʔ</td>
<td>daʔ uri</td>
<td>daʔri</td>
<td>daba</td>
<td>miss, lack</td>
</tr>
<tr>
<td>boʔ</td>
<td>boʔ uri</td>
<td>boʔri</td>
<td>boso</td>
<td>be sick</td>
</tr>
<tr>
<td>kuʔ</td>
<td>kuʔ uri</td>
<td>kuʔri</td>
<td>kuso</td>
<td>leave, go out</td>
</tr>
<tr>
<td>jiʔ</td>
<td>jiʔ uri</td>
<td>jiʔri</td>
<td>jisa</td>
<td>call</td>
</tr>
<tr>
<td>wʊʔ</td>
<td>Wʊʔ uri</td>
<td>wʊʔri</td>
<td>wósə</td>
<td>wash the face</td>
</tr>
</tbody>
</table>

**Table 4. Variant consonants in narrative perfect forms**

Table 4 shows cases where the consonants r, b, s appear in the narrative perfective form. This variation occurs in this form for all roots and stems with GS. Miehe, in her earlier work (1996a, 1996b, 2001), posited variant narrative perfect suffixes -V, -gV, -rV, -bV, -sV with no conditioning factor for the variation. It seems historically more realistic to posit a simple suffix -V for all verbs and attribute the variation to an underlying consonant of the root that has weakened over time but has left GS as a place marker. We might call these ‘ghost consonants’: consonants which appear under certain

---

\(^{14}\) Intervocalic g here varies phonetically with ɣ. For simplification in this article, I’ll transcribe this broadly as g.
conditions (in this case, when followed by a vowel-initial suffix)\(^{15}\), but are normally marked only by a glottal stop.

### 3.4.1. When the ghost disappears

In some morphological contexts, GS disappears completely in the phonetic realization of the utterance. We saw in examples (31) and (33) above some cases of this disappearance (repeated here):

(47) [phaʔ urima] ‘She swept.’

(48) [ʊ̃ ba pha st jaʔ] ‘She will not sweep them (houses).’

(49) [ʊ̃ wʊn̥ pha pʊ jaʔ] ‘She can not sweep them (snakes) up.’

Example (48) can be explained by observing that the voiceless root final GS of [phaʔ] is easily assimilated into the initial voiceless fricative in the following word. There is also a kind of progressive spreading of the [-voice] feature, which is demonstrated in Example (49) where we see the referential pronoun .bt changed to ɔt following the verb with root final GS. Here is the same sentence with its underlying form:

(50) [ʊ̃ wʊn̥ pha pʊ jaʔ]

/ʊ̃ wʊn̥ phaʔ bi ja /

she can sweep them NEG

We will see below in section 3.5 that this progressive spreading of the [-voice] feature of GS also affects noun suffixes.

### 3.5. In noun roots

The interpretation of GS in verb roots as a ghost consonant that appears when suffixed by a vowel-initial affix, and which spreads the [-voice] feature to voiced consonant-initial suffixes, helps us to interpret certain nouns of the animate gender marked by class 1 (sg) and class 2 (pl) suffixes: -V and -bV. A small number of nouns have the following singular and plural forms:

<table>
<thead>
<tr>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>(51) boro</td>
<td>bopo</td>
</tr>
<tr>
<td>(52) nɪ́na</td>
<td>nɪ́pa</td>
</tr>
<tr>
<td>(53) sʊ́ra</td>
<td>sʊ́pa</td>
</tr>
</tbody>
</table>

An initial interpretation, without consideration of verb morphology, would be to posit the following underlying forms:

(54) boro = bo -rV bopo = bo -pV
(55) nɪ́na = ní -rV nɪ́pa = ní -pV
(56) sʊ́ra = su -rV sʊ́pa = su -pV

\(^{15}\) Aside from the suffixing object pronouns ʊ and ɪ mentioned in section 3.2, the only other vowel-initial suffixes in Kaansa are -ʊŋ, which is a reflexive object pronoun for verbs, and -Vŋ which transforms the verb root to a verbal participle as in the following:

horoʔ ‘to run’
horg.ʊ (narrative perfect or neutral form)
horg.ʊŋ ‘running (adj)’
tá.horg.ʊŋ.go ‘running thing (bicycle, motorcycle, car, means of transportation)’
Similarly with these multi-syllabic roots:

(57) darга\^{16}= dara -гV  
    darapa = dara -pV  
      ‘blind person/s’

(58) khаґа = khara -гV  
    karapa = khara -pV  
      ‘red monkey/ies’

(59) торіґо = toro -гV  
    toropo = toro -pV  
      ‘fly/ies’

This is indeed how Miehe analyzed noun classes in Kaansa and related varieties in her early work (1994, 1996a).\(^{17}\) However, in light of the verbal analysis presented above, we can posit just one class 1 and one class 2 suffix for these forms:

<table>
<thead>
<tr>
<th>Root</th>
<th>Class 1 (sg)</th>
<th>Class 2 (pl)</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>boʔ</td>
<td>-V = boro</td>
<td>-bV = bopo</td>
<td>‘hare, rabbit’</td>
</tr>
<tr>
<td>nɪʔ</td>
<td>-V = nina</td>
<td>-bV = nipa</td>
<td>‘person’</td>
</tr>
<tr>
<td>sʊʔ</td>
<td>-V = sura</td>
<td>-bV = supa</td>
<td>‘flea’</td>
</tr>
<tr>
<td>daraʔ</td>
<td>-V = darга</td>
<td>-bV = darapa</td>
<td>‘blind person’</td>
</tr>
<tr>
<td>khараʔ</td>
<td>-V = хаґа</td>
<td>-bV = karapa</td>
<td>‘red monkey’</td>
</tr>
<tr>
<td>torоʔ</td>
<td>-V = торіґо</td>
<td>-bV = toropo</td>
<td>‘fly’</td>
</tr>
</tbody>
</table>

Table 5. Proposed noun class 1 and 2 suffixes

The -r-, -n-, and -g- that appear with the class 1 suffix would be the manifestation of the ghost consonant that we saw in the verb roots.

GS in these roots can be heard when the root is modified by an adjective with a voiced consonant in the initial position, as in these examples:

(60) [boʔ mі́jάма]  ‘a real rabbit’
(61) [nіʔ mі́jάма]  ‘a real person’
(62) [daraʔ mі́jάма]  ‘a real blind person’
(63) [torоʔ mі́jάма]  ‘a real fly’

Note that there is no spreading of the [-voice] feature to the initial consonant of the adjective. However, GS is lost in pronunciation when the noun root is followed by a voiceless consonant:

(64) [bo kpórόo]  ‘a big rabbit’
(65) [nі kpórόo]  ‘a big person’

3.6. The glottal in the negative particle

GS is pronounced in most cases as a part of the negative particle that usually occurs at the end of a sentence:

(66) [hаʔ ʊ́ jόо waʔ?]  ‘He must not go.’
IMP he go  NEG

---

\(^{16}\) In Kaansa a penultimate light syllable is normally reduced. Thus, words with syllable structure CVCVCV are realized as CVCiCV, where the penultimate vowel is weakened to [i] or [ɪ], depending on the vowel harmony, and sometimes it is elided. The fact that it is not reduced in the forms darгапа, karapa, toropo argues in favor of the interpretation that the underlying structure is daraʔ-ба, etc. with spreading of the feature [-voice].

\(^{17}\) In Miehe (to appear) she proposes an analysis similar to this one.
This contrasts with a question, which is marked often by the negative particle without GS and with a long vowel:

(67) [ʊ́ jóo waa] ‘He isn’t going?’
he go NEG.INTRG

However, when the negative particle does not occur before pause, as when a negative proposition is embedded in a question or in another negative proposition, GS is not pronounced word-finally, as in wa in this example:

(68) [mí seerje mò kho? hà mú jóo ?í nmá wa waa]
I said you saying IMP you go that village.LOC NEG NEG.INTRG ‘Didn’t I tell you not to go to that village?’

The sentence in (68) is composed of two propositions:

(69) [mí seerje mu...waa] ‘Didn’t I tell you?’
I tell.NASP you NEG.INTRG

(70) [hà mú jóo ?í nmá wa?]
IMP you go that village.LOC NEG ‘You must not go to that village’

When the two particles wa? and waa coincide in the sentence final position, the prepausal GS is not pronounced for the negative particle of the embedded sentence. This leads us to interpret the phonetic GS associated with the negative particle as merely the same pre-pausal phenomenon we have already seen in roots with short vowels (section 3.1.2), rather than as an essential segment of the negative particle.

3.6.1. In other particles

The same interpretation can be given to the particle mè used as emphasis with the word bée? ‘all’. Since mè occurs most of the time at the end of a sentence, it usually is pronounced with a pre-pausal GS [mèʔ] as in this example:

(71) YWM.019
[bonná kho? ná ?u hîni ma hûwûnso, ?îbi thînna baama tákîrî, je ná ?u hîni ma mîngîrà,]
[?îbi thînî wá bée? sóoma mèʔ]
our race POS all finish all ‘The hare said, “If you throw me into the thorns, then our race will multiply abundantly, but if you throw me into the dewy grass, then our entire race will completely die out.”’

In its original context (a folktale) this sentence is immediately followed by one where the particle mè is in a subordinate clause, which is marked in the clause-final position by the subordinate clause markerウェア.

(72) YWM.020
[ttânthebeerá kho? khaa tí ma hîno je pí thînná sóo mè wëri],
your.LOG race finish all SUB

[tí khanná ma hîno.] ‘The panther said, “The place where I can throw you and your race will completely die out, that’s the place I’ll throw you.”’
In this context, *mɛ* does not have GS word finally, and thus we interpret this GS as the same pre-pausal phenomenon after short vowels cited above.

This can be contrasted to the adverb *mɛʔ*, which means ‘like so, in this manner’. For this word, GS does not disappear, but remains in all contexts. Some utterances from an ethnographic text illustrate the contrast between *mɛ* and *mɛʔ*:

(73) SWM.048

[ʔa seerje sí sekóra, pí seerje sí ira, irá sōmi]
we told this to the grandfather they told it to the king the king sent

[nipí wá bée? meʔ?]
people POS all all.EMPH

“We told this to the elder, it was told to the king, and the king sent [to] all the people,”

(74) [ʔi seerje nipí wá bée? me kha? ]
and told people POS all all.EMPH saying

“and told all the people saying”

(75) [ʔi ja ʔi píngín fee ʔi dé meʔ? ná meʔ?ne, ]
you arise and meet together today and do like so and like so

“‘Arise and come together today and do like this and like that…””

In (75) the adverb *mɛʔ* occurs twice, once without suffix and the other with definite and focus suffixes. GS remains in both contexts. We can compare this to the emphatic particle *mɛ* in (73) and (74) where in the first instance, before pause, it manifests a final GS, but in the second instance, where it is followed by another word, it does not manifest a final GS. 18

4. The orthography of GS in Kaansa

To summarize, the five functions of GS in Kaansa are:

- a phonetic delimiter between vowels at word boundaries
- a marker of short vowels before pause
- a word-initial consonant in two personal pronouns
- a marker of diminutive status in noun class suffixes 1-4
- a root-final marker of a lost consonant in nouns and verbs

A committee of Kaansa native speakers and non-native speaking consultants has decided to represent just two of these functions orthographically using an apostrophe: when the GS marks the diminutive, and when it marks a ‘ghost’ consonant. Thus, the original sentence at the beginning of this article repeated in (76) would be written orthographically as shown in (77):

(76) [thuJaʔ arí nipí wá bée? meʔ? ī khaʔ hāʔ ?a jaʔmōʔá jōʔ?
greet we.PFTV people POS all all and say give us water we drink
je pí hāʔ ?a wāʔ?]
but they give.NASP us NEG

“We greeted all the people and said “Give us water to drink”, but they didn’t give it to us.”

(77) Thuyaʔ-arí nipí wá bée’ meʔ i khaʔ hāʔ yaʔmōʔá jōʔ, ye pí hāʔ a wā.”

---

18. This is not the clearest example because in the second instance, the following word begins with a voiceless stop, so even if GS were present in the underlying structure, it may not be audible here because of voiceless assimilation. Nevertheless, this naturally occurring example was too good to not present in this paper.
In this utterance ten GS are pronounced phonetically, but only four are written orthographically. Generally, the predictable, phonetic delimitation functions are not written, while the contrastive markers of ‘ghost’ consonants are written. Thus, our two verbal examples *pha ‘forget’* and *pha’ ‘sweep’* are distinguished orthographically even though pronunciation in some contexts is identical:

(78) pha-urma [phaʔ urma] ‘she forgot’
(79) pha’-urma [phaʔ urma] ‘she swept’

(80) ó ba pha si ya [ó ba pha si jaʔ] ‘she will not forget it’
(81) ó ba pha’ si ya [ó ba pha si jaʔ] ‘she will not sweep them (houses)’

5. Summary

While many languages of West Africa manifest phonetic GS, most often as boundary phenomena, Kaansa, a Gur language of Burkina Faso, also uses GS contrastively to mark root-final lost consonants which, in verbs and nouns, can re-appear as ‘ghost consonants’ when followed by a vowel-initial suffix. This dual phonetic/phonemic role creates a confusing set of phonetic manifestations of GS in changing contexts which only careful morphological analysis has been able to clarify. Phonetic GS only occurs before pause following weak syllables (CV), or at intervocalic word boundaries (…CV##V…) and is completely predictable. Phonemic GS occurs only root- or stem-finally, or, in just two cases, root-initially for two personal pronouns. These GS are ever-present but are assimilated to voicelessness in a voiceless environment (? → / ⊖/ ____ C[-voice]) which GS sometimes creates through spreading of the [-voice] feature to following voiced stops. These cases of GS, we theorize, are remnants of lost consonants, which still appear as ‘ghosts’ when the root is suffixed by vowel-initial suffixes.

References


19 The one exception is for the first and second person plural pronouns a, i, for which we have posited the phonemic forms /ʔa/, /ʔi/. GS is not written in these forms simply because of habit already established after fifteen years of orthography development. While these word-initial GS never reveal ‘ghost’ consonants, they do influence the contextual behavior of the word in ways consistent with their existence as phonemic consonantal segments.