The Representation of Vowel Duration in Civili Dictionaries[*]

Hugues Steve Ndinga-Koumba-Binza, *Stellenbosch University Centre for Language and Speech Technology (SU-CLaST), Stellenbosch, Republic of South Africa (13751719@sun.ac.za)*
and
Justus C. Roux, *Centre for Text Technology (CTexT), North-West University, Potchefstroom, Republic of South Africa (justusroux@nwu.ac.za)*

Abstract: Civili is a developing language spoken in Gabon and in a few neighbouring countries. This article focuses on the representation of vowel duration in Civili dictionaries. The representation in these dictionaries is inconsistent. In the article, it is argued that this inconsistency stems from a twofold phonetic-phonological issue, which has implications for the word writing system of the language. The article provides an assessment of the existing orthography proposals for Civili and offers materials for a new proposal that takes the vowel duration issue into account. Subsequently, it is recommended that vowel duration be represented by a diaeresis above the vowel for both the orthography and the lemmatization in reference works such as dictionaries and school and religious textbooks.

Keywords: VOWEL DURATION, CIVILI, DICTIONARIES, ORTHOGRAPHY, PHONETIC-PHONOLOGICAL ISSUE, WORD WRITING SYSTEM

Résumé: La représentation de la durée vocalique dans les dictionnaires du civili. Le civili est une langue en développement parlée au Gabon et dans quelques pays voisins. Cet article traite de la représentation de la durée vocalique dans les dictionnaires du civili. La représentation est inconsistante dans ces dictionnaires. Dans l'article, il est soutenu que cette inconsistance trouve son origine dans le double problème phonético-phonologique qui a une implication dans le système d'écriture des mots de la langue. L'article fournit une évaluation des propositions d'orthographe existantes pour le civili et présente des éléments pour une nouvelle proposition qui prend en compte la question de la durée vocalique. Ensuite, il y est recommandé que la durée vocalique soit représentée par un tréma au dessus de la voyelle aussi bien pour l'orthographe que pour la lemmatisation dans les travaux de référence tels que les dictionnaires et les manuels scolaires et religieux.

Mots-clés: DURÉE VOCALIQUE, CIVILI, DICTIONNAIRES, ORTHOGRAPHE, PROBLÈME PHONÉTICO-PHONOLOGIQUE, SYSTÈME D'ÉCRITURE DES MOTS

---

[*]   This article is a revised version of a paper 'Vowel-length Representation in Civili Orthography: Implications for Dictionaries' presented at the Thirteenth International Conference of the African Association for Lexicography, organized by the Bureau of the *Woordeboek van die Afrikaanse Taal*, Stellenbosch, Republic of South Africa, 30 June–3 July 2008.

1.   Introduction

Civili, a developing language spoken in Gabon and a few neighbouring countries, has at present three dictionaries published, i.e. Marichelle (1902, 1912) and ILALOK (2008). Ndinga-Koumba-Binza (2005: 138) who identifies different periods of dictionary production in Gabon, classifies the first two dictionaries as belonging to the 'early era' and the last one as belonging to the 'modern era'. Although these three dictionaries deal with language varieties spoken in the Republic of the Congo, they are fully accepted in the Civili community of Gabon.

This article focuses on the representation of vowel duration in these dictionaries. Vowel duration is here understood as the natural time interval of a vowel in the speech production process. The term 'vowel duration' is used as a neutral designation in this article to avoid the labels 'vowel length' and 'vowel lengthening' which have proved to be problematic in Civili studies (cf. Ndinga-Koumba-Binza 2004).

In some languages, this feature is explicitly represented in the spelling of words, and as such lemmatized in dictionaries of these languages. Note the Afrikaans examples from Kromhout and Kritzinger (1998) under (1).

(1) (a)   mak (short)   *tame*   vs   maak (long)   *make*
    (b)   makker (short)   *pal*   vs   maker (long)   *maker*

The representation of Civili vowel duration in existing dictionaries is inconsistent, as can be seen from the examples under (2).

(2)   **Marichelle   ILALOK**
    (a)   bwatu   bwätu   [bʷà:tṳ]   *boat*
    (b)   mbeeli   mbëli   [mbè:lì̥]   *knife*

The following can be perceived regarding the vowel duration:

 (i)   Marichelle (1902 and 1912) is inconsistent with respect to the indication of vowel duration in the spelling of words. In cases where duration is represented, it occurs by doubling the vowel.

(ii)   In the ILALOK dictionary, vowel duration is systematically indicated and represented by a diaeresis above the vowel.

As this article aims to contribute towards the standardization of the Civili orthography, it seeks to answer the following question: How should vowel duration be represented in dictionaries?

The representation of vowel duration in Civili dictionaries is intimately linked to its representation in the Civili orthography, i.e. the word writing system. For this reason, this article commences with an assessment of existing proposals concerning the Civili writing system, with a focus on the representa-

tion of vowel duration. Findings of this assessment suggest that there are various issues to consider in establishing an orthographic alphabet for smaller languages such as Civili.

It is here hypothesized that the inconsistency of the representation of vowel duration in Civili stems from the fact that vowel duration is essentially a phonetic-phonological issue in the language. The views presented here are the results of systematic studies conducted by Ndinga-Koumba-Binza (2000, 2004 and 2008) at various levels (i.e. acoustic, perceptual and phonological). Results emanating from these studies have definite implications for spelling rules in Civili. It is argued that experimental phonetic and phonological considerations should apply when taking these decisions.

2.   Existing Proposals for a Civili Orthography

Orthographic systems for various languages are often founded on the alphabets of these languages, and these alphabets are based on the phonetic and/or phonological systems of the languages (cf. Coulmas 1996; Hombert 1990).

The first record of an orthographic alphabet for Civili appears in Marichelle's dictionaries (1902 and 1912). The representation of vowel duration is seemingly based on the personal perceptions of the compiler.

Proceeding from his description of the language, Ndamba (1977) suggests a phonologically-based alphabet. It should be noted that the aim of Ndamba's work was not to establish an orthographic system for Civili, but to provide a linguistic analysis of Civili. However, the linguistic analysis commenced with a preliminary phonological account which in turn allowed for the transcription of various recorded oral stories into text. The writing system used by Ndamba (1977) is also observed in many of his illustrative texts and examples.

At a workshop held for establishing a scientific alphabet for the Gabonese languages ('Alphabet Scientifique des langues Gabonaises', cf. Hombert 1990a), Blanchon (1990) not only presented an outline of Civili phonology but also proposed an alphabet and orthography for Civili. His work consists of a brief overview of the phonological system of Civili in which he lists consonants, vowels and tones, and then illustrates his proposed alphabet and orthography with a short text written in Civili. Blanchon (1990) does, however, not explain any principles applied in his treatment of vowel length. He uses a succession of two identical segments in each context where it is seemingly possible to perceive long vowels.

Unlike Blanchon (1990), the works of Ndamba (1977), Mabika Mbokou (1999), and Ndinga-Koumba-Binza (2000) were not intended to contribute directly to the establishment of a standardized alphabet and orthography for Civili (cf. Ndinga-Koumba-Binza 2004: 190). These authors do not agree on the representation of vowel duration. For instance, from the Civili texts in Ndamba's (1977) appendices, it appears that he did not intend to indicate vowel length orthographically: the Civili words under (3) have phonetically

audible vowel length; however, orthographically Ndamba (1977), Blanchon (1990) and the dictionary compilers (Marichelle 1902 and 1912; ILALOK 2008) would render them differently.

(3)		**Marichelle**	**Ndamba**	**Blanchon**	**ILALOK**	
	(a)	maama	mama	maama	mäm'	*mum, mother*
	(b)	taata	tata	taata	tät'	*dad, father*
	(c)	saku	saku	saaku	säku	*bag*
	(d)	bana	bana	baana	bän'	*children*
	(e)	mwana	mwaana	mwaana	mwän'	*child*

It should be noted that in places where the vowel is doubled, as Creissels (1994: 37) puts it, it might lead to a long vowel being regarded as a sequence of two distinct syllabic nuclei, i.e. as two syllables. This could pose some theoretical problems as well as practical difficulties in language description.

   To the user, the current orthographic practice seems facultative despite the requirements of the Orthography of Gabonese Languages of 1999 (cf. Idiata 2002 and 2003 for details). In fact, the revised orthographic system for all Gabonese languages requires doubling of the vowel for any vowel duration (Idiata 2002: 55; 2003: 40). However, the writing system of Civili, as for many Gabonese languages, has experienced a number of problems with the implementation of this requirement. Two problems need to be mentioned here:

 (i)   Since 1999, there has not been any campaign to inform the public of the proposed Civili writing system. In fact, the Government has been slow to endorse and implement the 'new' orthography.[†]

(ii)   The practice of different users may be based on that of different views existing among researchers, as demonstrated under (3) above. A number of textbooks and publications reflect the non-standardization or non-harmonization of the orthography with regard to vowel duration in Civili. For instance, Garnier (1903 and 1904) does not consider vowel duration in his textbooks, whereas Marichelle (1902 and 1912) consistently doubles vowels when he has to indicate duration in his dictionaries. For their part, the compilers of the ILALOK dictionary chose to represent vowel duration (wherever it can be perceived) with a diaeresis above the vowel.

Because different researchers model different writing systems for users, it is advisable that the practices of these researchers are reconciled.

   In order to bring about such a reconciliation, Ndinga-Koumba-Binza (2009) suggested that vowels should be doubled even in predictable contexts, in order to make Civili learners aware of vowel duration. However, this proposal is not based on evident phonetic facts.

   Answers to the questions of the physical nature of vowel duration and of the difference between the length and sequence of two adjacent identical vow-

els might help the process of standardizing the orthographic system of Civili.

The next section succinctly presents phonetic-phonological issues regarding Civili vowel duration. The orthographic issue expounded above is a thorough implication of this phonetic-phonological issue.

3.   Phonetic-Phonological Issues

The orthographic problem in representing vowel duration in Civili actually stems from phonological studies of the language. In fact, like dictionary compilers, Civili phonologists disagree on vowel duration. The outcome of this disagreement is reflected in the inconsistency regarding the orthography and the ensuing standardization problem as indicated earlier under (3).

For instance, on the basis of minimal pairs, Ndamba (1977), Blanchon (1984 and 1990) and Mabika Mbokou (1999) admit significant contrasts between long and short vowels in Civili as illustrated under (4).

(4) (a)   losu   *dirtiness*   vs   loosu/lösu   *rice*
    (b)   mbasi   *tomorrow*   vs   mbaasi/mbäsi   *friend*
    (c)   n'tela   *height*   vs   n'teela/n'tëla   *hunter*

However, there are also predictable contexts that allow a vowel lengthening process under certain phonetic and syntactic conditions. This is shown by Ndinga-Koumba-Binza (2000 and 2004) who conducted an autosegmental analysis to describe the vowel duration phenomenon. He postulates that long and/or lengthened vowels are just an outcome of various processes within the underlying system of the language.

The orthographic implication of this claim by Ndinga-Koumba-Binza (2000 and 2004) is that vowel duration should be marked orthographically since long and/or lengthened vowels are predictable. However, this application would have been most appropriate if it were only based on evident phonetic facts.

In view of solving the vowel duration issue in Civili, Ndinga-Koumba-Binza (2008) conducted an extensive experimental study. The study consisted of an acoustic analysis and a perception experiment. The acoustic analysis included vowel duration measurements in various environments: minimal pairs, predictable contexts and syntactic positions. The acoustic analysis was complemented by a statistical analysis.

The perception experiment aimed to determine the perceived duration by means of three perception tests administered to 68 mother-tongue listeners. The 100 prepared electronic stimuli took into account the problematic contexts and environments (minimal pairs and predictable contexts). The perceptual data analysis was also supported by a statistical analysis.

The outcome of this experimental study showed a definite consistency in minimal pairs with respect to the existence of long and short vowels (Ndinga-

Koumba-Binza 2008). This implies that it is a phonetic fact (acoustically and perceptually) that two Civili words can be in significant opposition on the basis of the duration of an identical vowel in the same phonetic environments.

On the other hand, the experimental study showed a certain inconsistency in predictable contexts. This implies that vowels are perceived short or long owing to the phonetic and/or syntactic environment. For instance, a vowel that is perceived short in the word in isolation can be perceived long when the word is in the object position in a sentence.

This is in line with a general phonological rule (in Bantu languages) which assigns duration to the penultimate syllable in a sentence (cf. Watkins 1937: 10; Nurse 1996: 279; Childs 2003: 205). At the same time, a vowel that is perceived long owing to the phonetic environment, e.g. in the environment of nasal or liquid consonants or semivowels, can be perceived short when a word is in the subject position in a sentence (Batibo 1985: 23; Clements 1986: 45; Odden and Odden 1999: 2; Myers and Hansen 2005: 317; Ndinga-Koumba-Binza 2008: 164-168).

4.   Implications for Orthography

The assessment previously made of existing proposals for the Civili spelling system has revealed some inconsistencies. The situation with regard to an acceptable and standardized orthography for Civili is indeed extremely confusing. Ndinga-Koumba-Binza (2008: 170-171) indicates that this is due to the fact that most of these proposals did not comply with certain methodological and social-acceptability principles for orthographic conventions for developing languages as suggested by various scholars (cf. Coulmas 1996; Touré 1990; Capo 2002).

With regard to the specific case of vowel duration in Civili, the following that have already been touched on in the previous section should be recalled here:

 (i)   It has been experimentally found that Civili distinguishes between short and long vowels through minimal pairs (cf. Ndinga-Koumba-Binza 2008).

 (ii)   In many cases, long vowels are predictable owing to either phonetic environments or syntactical positions.

(iii)   Experimental results in Ndinga-Koumba-Binza (2008) have also shown that the phonetic realization in these contexts may vary from speaker to speaker, however less so in minimal pairs.

Given the findings of Ndinga-Koumba-Binza (2008) as discussed in the previous section, the following two recommendations are made with respect to the orthographic representation of vowel duration in Civili.

(i)   Vowel duration should only be orthographically represented in case of minimal pairs to avoid semantic confusion. In fact, long vowels in minimal pairs are basically long and should also be written as long. Note the examples under (5) below.

(5) (a)   mbila   *call*   vs   mbiila/mbïla   *type, kind*
    (b)   mbela   *wrongness*   vs   mbeela/mbëla   *knife*
    (c)   n'totu   *earth*   vs   n'tootu/n'tötu   *tube, pipe*
    (d)   libaku   *clash, stumble*   vs   libaaku/libäku   *fever*
    (e)   mbusa   *back*   vs   mbuusa/mbüsa   *fish-net*

(ii)   Predictable vowel length should not be marked orthographically, i.e. in all other cases a single vowel should be used orthographically. Note the following examples under (6).

(6) (a)   lumbotawu   [lùmbótá:wʊ̀]   *button*
    (b)   mabena   [mɔ̀bé:nɔ̀]   *breast*
    (c)   simpinda   [sìpʰɪ́:ndɔ̀]   *peanuts*
    (d)   mpokongu   [mpʰókò:ŋgʊ̀]   *problems, harassment*
    (e)   sintumbu   [sìtʰʊ́:mbʊ̀]   *needles, syringes*

On the basis of the above recommendations, an alphabetic list of Civili vowels may be presented by means of the following table. Vowel duration is not represented in this list.

	Small	Capital	Examples	
1.	a	A	sabi	*key*
2.	e	E	ndelu	*intestines*
3.	i	I	mili	*intestines*
4.	o	O	bododo	*completely empty*
5.	u	U	ndumu	*reputation*

Alphabetic list of Civili vowels

5.   Conclusion: Vowel Doubling or Diaeresis

On the basis of experimental phonetic-phonological considerations, it has been recommended in the previous section that vowel duration should be represented in the case of minimal pairs. However, the main question to deal with in this section is whether the representation should be to double the vowel or to add diaeresis to indicate a long vowel.

It should be recalled that doubling the vowel is the practice adopted by Marichelle (1902 and 1912) and Blanchon (1990) for the orthography of Civili

words, whereas ILALOK (2008) utilizes a diaeresis above each long vowel (despite the predictable phonetic environments).

The practice of adding a diaeresis on a single vowel symbol to indicate a long vowel as one member of a minimal pair should be supported. An application of this view helps to avoid the confusion of two adjacent syllables. Doubling the vowel could mislead language learners in word syllabification especially when the long vowel is at the initial or final position in the word. Note the following Civili examples under (7).

(7) (a) uuluu   vs   ülü   [ú:lú:]   *bravo*
    (b) voo   vs   vö   [vó:]   *nothing*
    (c) afanaa   vs   afanä   [áfɘná:]   *over there*
    (d) awunaa   vs   awunä   [áwùná:]   *that one*

In these examples, it is clear that the use of diaeresis avoids overloading the word. It should be mentioned that tones are not marked in Civili orthography, thus allowing the use of a diacritic with the vowel. In addition, it should be set as writing and reading rule that the diaeresis represents vowel duration (a long vowel).

Finally, the full recommendation is that Civili vowel duration should be represented in the spelling system with a diaeresis above the vowel only for minimal pairs. If this recommendation is considered within dictionary compilation, e.g. in lemmatization and text examples, it may standardize the orthography of Civili, which already suffers from various inconsistent proposals.

Notes

†   Since Gabon gained independence in 1960, the Gabonese Government has shown little will-power with regard to the development of local languages. Most examples of developmental evidence (writing system, learning and teaching, publications, etc.) are still an inheritance from the colonial era accomplished by the work of missionaries and colonial administrators (Mayer 1990; Raponda-Walker 1998; Idiata and Leitch 2000; Mihindou 2001). In contrast to the Government, for whom these matters seem to bear low importance, Gabonese linguists have taken a number of steps towards the development of the Gabonese languages and the implementation of a proper language policy, as evidenced by a number of publications and workshops during the last two decades. (For details, see Ndinga-Koumba-Binza 2005, 2005a and 2007).

References

Dictionaries

ILALOK (Institut des Langues Locales au Kouilou). 2008. *Dictionnaire vili–français/Mpisukulu bi kum' bi tshi vili ku tshi mputu*. Paris: L'Harmattan.

Kromhout, J. and M.S.B. Kritzinger. 1998. *Mini Afrikaans–Engels woordeboek/Mini English–Afrikaans Dictionary*. Cape Town: Pharos.

Marichelle, C. 1902. *Dictionnaire vili–français*. Loango: Imprimerie de la Mission.

Marichelle, C. 1912. *Dictionnaire français–vili*. Loango: Imprimerie de la Mission.

Other Literature

Batibo, H. 1985. *Le kesukuma (langue Bantu de Tanzanie): phonologie, morphologie*. Paris: Éditions Recherche sur les Civilisations.

Blanchon, J.A. 1984. Présentation du yi-lumbu dans ses rapports avec le yi-punu et le ci-vili à travers un conte traditionnel. *Pholia* 1: 7-35. [Reprinted in Blanchon, J.A. 1999. *Douze études sur les langues du Gabon et du Congo-Brazzaville*: 5-31. München: Lincom Europa.]

Blanchon, J.A. 1990. Civili. *Revue Gabonaise des Sciences de l'Homme* 2: 141-142.

Capo, H.B.C. 2002. The Pan-dialectal Approach of Orthographic Conventions: The Case of the Gbe Languages of West Africa. Prah, K.K. (Ed.). 2002. *Writing African. The Harmonization of Orthographic Conventions in African Languages*: 5-25. Cape Town: The Centre for Advanced Studies in African Society (CASAS).

Childs, G.T. 2003. *An Introduction to African Languages*. Amsterdam: John Benjamins.

Clements, G.N. 1986. Compensatory Lengthening and Consonant Gemination in LuGanda. Wetzels, J. and E. Sezer (Eds.). 1986. *Studies in Compensatory Lengthening*: 37-77. Dordrecht: Foris.

Coulmas, F. 1996. *The Blackwell Encyclopedia of Writing Systems*. Oxford/Cambridge: Blackwell.

Creissels, D. 1994². *Aperçu sur les structures phonologiques des langues négro-africaines*. Grenoble: ELLUG.

Garnier, A. 1903. *Mumbembo kivili ki Mayumbe*. Loango: Imprimerie de la Mission.

Garnier, A. 1904. *M'ambu ma nzambi mo make mu katesisa*. Loango: Imprimerie de la Mission.

Hombert, J.-M. 1990. Problèmes phonétiques et phonologiques rencontrés dans les langues du Gabon. *Revue Gabonaise des Sciences de l'Homme* 2: 97-103.

Hombert, J.-M. 1990a. Présentation de l'alphabet scientifique des langues du gabonaises. *Revue Gabonaise des Sciences de l'Homme* 2: 105-111.

Idiata, D.F. 2002. *Il était une fois les langues gabonaises*. Libreville: Éditions Raponda-Walker.

Idiata, D.F. 2003. *Pourquoi le Gabon doit investir sur ses langues vernaculaires*. Cape Town: The Centre for Advanced Studies in African Society (CASAS).

Idiata, D.F. and M.F. Leitch. 2000. *Histoire du développement des langues gabonaises*. Paper presented at the UNESCO/ANACLAC International Conference on Adult Education, Yaoundé, Cameroon. December 6–8, 2000.

Mabika Mbokou, L. 1999. *Les phénomènes analogiques en civili: étude phonologique et morphologique*. Unpublished Master's Thesis. Libreville: Omar Bongo University.

Mayer, R. 1990. Histoire de l'écriture des langues du Gabon. *Revue Gabonaise des Sciences de l'Homme* 2: 65-92.

Mihindou, G.-R. 2001. Apports des missionnaires à la lexicographie gabonaise: Dictionnaires bilingues fang–français/français–fang; français–yipounou/yipounou–français; français–mpongwé. Emejulu, J.D. (Ed.). 2001. *Éléments de lexicographie gabonaise. Tome I*: 7-37. New York: Jimacs-Hillman.

Myers, S. and B.B. Hansen. 2005. The Origin of Vowel-length Neutralisation in Vocoid Sequences: Evidence from Finnish Speakers. *Phonology* 22: 317-344.

Ndamba, J. 1977. *Syntagme nominal et groupe nominal en vili: langue bantu du Congo*. Unpublished Doctoral Thesis. Paris: Sorbonne Nouvelle University.

Ndinga-Koumba-Binza, H.S. 2000. *Phonologie du civili de Mayumba: langue bantu du Gabon (H12a)*. Unpublished Master's Thesis. Libreville: Omar Bongo University.

Ndinga-Koumba-Binza, H.S. 2004. Vowel Duration Issue in Civili. *South African Journal of African Languages* 24(3): 189-201.

Ndinga-Koumba-Binza, H.S. 2005. Considering a Lexicographic Plan for Gabon within the Gabonese Language Landscape. *Lexikos* 15: 132-150.

Ndinga-Koumba-Binza, H.S. 2005a. Politique linguistique et éducation au Gabon: un état des lieux. *Journal of Education* 4(1): 65-78. Réduit: Mauritius Institute of Education.

Ndinga-Koumba-Binza, H.S. 2007. Gabonese Language Landscape: Survey and Perspectives. *South African Journal of African Languages* 27(3): 97-116.

Ndinga-Koumba-Binza, H.S. 2008. *Phonetic and Phonological Aspects of Civili Vowel Duration: An Experimental Approach*. Unpublished D.Litt. Dissertation. Stellenbosch: University of Stellenbosch.

Ndinga-Koumba-Binza, H.S. 2009. Annexes: Propositions pour l'orthographe du Civili. Hubert, J. and P.A. Mavoungou (Eds.). 2009. *Écriture et standardisation des langues gabonaises*: 191-199. Stellenbosch: SUN PReSS.

Nurse, D. 1996. Prior Pidginization and Creolization in Swahili. Thomason, S.G. (Ed.). 1996. *Contact Languages*: 271-294. Amsterdam/Philadelphia: John Benjamins.

Odden, D. and M. Odden. 1999. Kihehe Syllable Structure. Van der Hulst, H. and N.A. Ritter (Eds.). 1999. *The Syllable: Views and Facts*: 417-445. Berlin/New York: Mouton de Gruyter.

Raponda-Walker, A. 1998. *Les langues du Gabon*. Libreville: Éditions Raponda-Walker.

Touré, A. 1990. Écriture des langues africaines: évolution et principes méthodologiques. *Revue Gabonaise des Sciences de l'Homme* 2: 55-63.

Watkins, M.H. 1937. A Grammar of Chichewa: A Bantu Language of British Central Africa. *Language* 24: 5-158.