

Vowel Length in Moore: Its Phonemic Status
and Its Orthographic Representation*

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1. Introduction

Decisions to represent given sounds or features in an orthography often depend on assumptions about their phonemic status. In current analyses of Moore, a language of the Gur subfamily of the Niger-Congo (Greenberg 1970:8) and mother tongue of the writer, vowel length seems to present both a theoretical problem--in that its phonemic status has not been convincingly demonstrated--and a practical problem because its representation in the orthography remains unsatisfactory. This paper is an attempt to resolve the theoretical problem and to propose a more satisfactory way of marking length.

2. Phonemic status

It has been correctly observed by all writers on Moore that all the vowels of the language may be short or long. This has led many analysts to the conclusion that vowel length is distinctive, 'phonemic' in Moore. It will be argued here that this distinctiveness is but a surface phenomenon. Rather, it appears that length is predictable everywhere by a general rule, and that without such a rule, other facts of Moore could not be accounted for without a loss of generality or vowel length treated in a uniform way across closely related and mutually intelligible dialects.

The phonemic approach is motivated by such pairs as the following:

(1)	pisi	'twenty'	vs.	(1')	pi:si	'sheep'
(2)	kɪse	'give'		(2')	kɪ:se	'scar'
(3)	bese	'a drink'		(3')	be:se	'dissectate'
(4)	baga	'diviner'		(4')	ba:ga	'dog'
(5)	pusi	'sprout'		(5')	pu:si	'sprinkle'
(6)	buge	'divine'		(6')	bu:ge	'lay on'
(7)	boge	'spirit'		(7')	bo:ge	'decrease'

Many other pairs could be found to contrast long and short nasal or oral vowels. (See Canu 1973:49-58 for abundant examples). However, the conclusion that vowel length 'doit être considérée comme pertinente' must be qualified.

It should be observed, first, that long vowels have a more limited distribution than is often thought. In particular, they

do not occur in final position, except in ideophonic formations or in certain verbal forms where a consonant has been deleted, e.g.:

- (8) lik tu: 'pitch dark'
 (9) yamb fã: 'you all, without exception'
 (10) a wa: ka (from: a wa la ka) 'he came here'.

Also, vowel length is automatic, predictable at morpheme boundaries. Compare

- (11) бага (=bag+a) 'diviner' vs. ba:ga (ba+ga) 'dog'
 (12) том (tom+m) 'dust' vs. to:m (to+m) 'bitterness'
 (13) кИdга (kId+ga) 'shallow' vs. kI:ga (kI+ga) 'squirrel'
 (14) сūmди (sūm+re) 'pea' vs. sū:ri (sū+re) 'heart'

The generalization seems to be that the (last) vowel of a root ending in an open syllable lengthens when a suffix of the form -C(V) is appended to it. Vowel length, then, seems predictable by the rule

- (15) V → [+long] / ___ +C(V)

Houis (1960) was the first analyst to make this observation, although the conditioning factor for him was something else. He suggested that such automatic lengthening could be attributed to the effects of stress. Cautiously warning that "l'allongement vocalique est un phénomène dont l'analyse n'est pas encore définitive", he proposed that two functions be assigned to vowel length: a "fonction distinctive" when "des voyelles longues s'opposent à des voyelles brèves pour distinguer des sens" and a "fonction de contraste" when "les syllabes radicales sont accentuées par rapport aux syllabes non radicales et cette position sous l'accent est marquée par un allongement de la voyelle" (1960:52).¹ Observe that by attributing length to the effects of stress he was able to describe the phenomenon in purely phonetic terms, whereas the above rule (15) makes use of a morpheme boundary. It is not clear, however, how Houis' solution accounts for the facts observed. For example, length distinguishes meaning in (11) ba:ga 'dog' as opposed to бага 'diviner'. Stress, if pertinent, would fall on the first syllable in both words. There appears to be no particular reason, then, why the /a/ of ba:ga should lengthen under stress and that of бага should remain short under the same conditions. Thus, the distinction between a "fonction distinctive" and a "fonction de contraste" to account for length is not fully explanatory: while stress may very well be necessary, it is not a sufficient condition for lengthening to take place. The crucial environment, as items (11)-(14) show, is the presence of a morpheme boundary and of a -C(V) suffix immediately after the root vowel. A further assumption, viz. that all surface long vowels arise from the application of rule (15) will be substantiated presently.

Peterson (1971) made the first attempt to use a rule such as (15) to account for all surface long vowels in Moore, thus departing from what will henceforth be referred to as 'the long vowel hypothesis' of Canu, Houis and others. But a difficulty immediately arises, since there are surface stems of the form CVC+ where the long vowel (\bar{V}) of the stem does not appear in the immediate context $___ +C(V)$. However, Peterson also observed that all such stems behave exactly like complex stems with respect to tone.² He argued that 'if we take into account the tonal patterns of the words, we can show that long vowels are not distinctive at the systematic phonemic level... I have found no CVC verbs with a H-H (High-High) tone pattern, nor any verbal nouns derived from such verbs which exhibit a H-H or H-L (High-Low) pattern, which one would expect if these verbs were simplex. From this we can deduce that these words are complex at the systematic phonemic level' (1971:74-75). The proposal is that surface CVC+ stems be assigned the structure CV+C. The vowel length rule (15) would thus be general enough to account for all surface long vowels. This assumption allowed him to keep the vowel length rule in its most general form and to provide an insightful analysis of tone. Some other facts are adduced here to lend additional force to his arguments.

First, independently of any analysis of vowel length there is clear morphological evidence that the stem final consonants of complex stems are to be treated as suffixes. Take for example the word bengre 'bean', which, by every body's standard, is formed on a complex stem and has the structure ben-g+re. It belongs to the re/a noun class and thus has beanga (ben-g+a) as its plural. (The presence of the suffix vowel /a/ in beanga is attributable to rule (16) to be presented below). But it also has a second plural bense (ben+se), where se is the plural suffix in words of the ga/se class. Clearly, the plural form ben-g+a is being reanalysed synchronically as ben+ga; that is, the stem final consonant /g/ is considered as a suffix consonant.

Other examples now involving vowel length are not difficult to come by. Strictly following the 'standard' procedure suggested by Houis and others for isolating stems (cf. fn. 2 above), a word such as wao:ngo would be analyzed as wa:n+go, where go is the class suffix (and the /o/ of waongo is inserted by a copying rule similar to (16)). The word means 'arrival'. The verb 'to arrive' is wa, with a short vowel. Clearly, wao:ngo is to be analyzed as wa+n+go and length accounted for by rule (15).³ And yet, wao:ngo contrasts with waongo (wan+go) 'mask', another piece of evidence which indicates that the distinctiveness of vowel length is but a surface phenomenon.

The above examples were adduced to show that the analysis of CVC+ stems as CV+C is justified, not only on the basis of tone as Peterson has shown, but also on purely morphological grounds. If this analysis is accepted, rule (15) becomes a very general rule that can account for all surface long vowels. It will now be shown that the long vowel hypothesis makes incorrect predictions about possible segment sequences and leads to quite a complex description of vowel length.

Particularly revealing in this respect is the existence of vowel copying phenomena creating diphthongs in some classes of nominal and adjectival stems, and the way in which such diphthongs are reduced to simple vowels across dialects. Only a subclass of the diphthongization rules will be considered here. (Cf. Nikiema 1974 for a more detailed description). A somewhat simplified version of those rules could be formulated as follows:

$$(16) \emptyset \rightarrow \left[\begin{array}{c} \text{V} \\ +\text{low} \end{array} \right] / \left[\begin{array}{c} \text{V} \\ -\text{high} \\ -\text{low} \end{array} \right] \text{--- } C_0 + C_0 \left[\begin{array}{c} \text{V} \\ +\text{low} \end{array} \right] \#$$

More informally, the low vowel /a/ of the suffix⁴ is inserted immediately to the right of a stem vowel if the latter is /e/ or /o/.

- E.g. (17) ben-g+a → beanga 'beans'
 (18) ben-d+a → beanda 'loin cloth'
 (19) sensen+ga → seaseanga 'brochette'
 (20) kōb+a → kōaba 'bones'
 (21) kolnkom+ga → koalnkoanga 'a snap on the head'
 (22) tontolntom+ga → toantoalntoanga 'a long line of objects'

The diphthongs created by the copying rule (16) are reduced in the following way in two important dialects of Moore:

Ouagadougou: ea → ε; oa → wa
 Koupela: ea → ja; oa → wa

In other words, the following rules of glide formation and vowel coalescence must be assumed:

- (23) o → w/___a
 (24) e → j/___a (Koupela)
 (25) ea → ε (Ouagadougou).

Given the above copying rule (16), the processes of vowel reduction (23)-(25) and the forms (26) po:lo:m+ga [pwa:lwa:nga], 'a kind of tree', (27) so:m+ba [swa:mba] 'rabbit', (28) pe:l+a [pɛ:la], [pja:la] 'white', nin-ke:m+a [ninke:ma], [ninkja:ma] 'strong, healthy person', the following derivations suggest themselves:

Ouagadougou (The asterisk identifies incorrect outputs).

	po:lo:m+ga	so:m+ba	pe:l+a	nin-ke:m+a
a. (16)	po:alo:am+ga	so:am+ba	pe:al+a	nin-ke:am+a
b. (23)	pw:alw:am+ga	sw:am+ba	----	----
c. (25)	----	----	pɛ:l+a	nin-ke:m+a
d. Other	*pw:alw:anga	*sw:amba	pɛ:la	ninjke:ma
e.	*pwalwanga	*swamba		

Koupela

	po:lo:m+ga	so:m+ba	pe:l+a	nin-ke:m+a
a. (16)	po:alo:am+ga	so:am+ba	pe:al+a	nin-ke:am+a
b. (23)	pw:alw:am+ga	sw:am+ba	-----	-----
c. (24)	-----	-----	pj:al+a	nin-kj:am+a
d. Other	*pw:alw:anga	*sw:amba	*pj:ala	*ninkj:ama
e.	*pwalwanga	*swamba	*pjala	*niŋkjama

The long vowel hypothesis predicts that V:V sequences (long vowels followed by a (short) vowel) are possible sequences in Moore. (Cf. line (a) in the derivations). However, such sequences do not occur.⁵ To be able to account for the impossibility of V:V sequences and still maintain the long vowel hypothesis it would be necessary to incorporate a rule of the form (15'):

(15') V:V → VV:

In this case, however, at least three rules will be needed to account for surface long vowels: rule (15), rule (15') and another rule in cases where lengthening could be attributed to the deletion of a consonant. The length in wao:ngo (from wa-n+go) would still not be accounted for.

In the course of the same derivations presented above, Glide Formation applies (rules 23 and 24). Whether it is assumed that long vowels also become long glides (line d in the derivations) or, as is more likely, at least in this environment, short glides by some general convention (line 3), the independently motivated rules still yield the wrong results in both dialects, except where Vowel Coalescence (rule 25) applies instead of Glide Formation. Thus, not only does the long vowel hypothesis lack in explanatory power, it also makes incorrect empirical predictions.

Such wrong predictions are not possible in Peterson's analysis. If it is assumed that all apparent CVC stems are in fact complex stems (as their tonal pattern and their morphological shape indicate) and that all surface long vowels are short in their underlying representation, all the observed facts can be accurately accounted for in a very straightforward way. The derivations of (30): no-ga [nwa:ga], 'hen', (31) se-ga [sɛ:ga], [sja:ga] 'back' and of items (26)-(29) would be:

Ouagadougou

	po-lo-m-ga	so-m-ba	no-ga	pe-l-a	nin-ke-m-a	se-ga
(16)	poa-loa-m-ga	soa-m-ba	noa-ga	pea-l-a	nin-kea-m-a	sea-ga
(23)	pwa-lwa-m-ga	swa-m-ba	nwa-ga	-----	-----	-----
(25)	-----	-----	-----	pɛ-l-a	nin-kɛ-m-a	sɛ-ga
(15)	pwa:-lwa:-m-ga	swa:-m-ba	nwa:-ga	pɛ:-l-a	nin-kɛ:-m-a	sɛ:-ga
Other	pwa:lwa:ŋga	swa:mba	nwa:ga	pɛ:la	niŋkɛ:ma	sɛ:ga

Koupela

	po-lo-m-ga	so-m-ba	no-ga	pe-l-a	nin-ke-m-a	se-ga
(16)	poa-loa-m-ga	soa-m-ba	noa-ga	pea-l-a	nin-kea-m-a	sea-ga
(23)	pwa-lwa-m-ga	swa-m-ba	nwa-ga	-----	-----	-----
(24)	-----	-----	-----	pja-l-a	nin-kja-m-a	sja-ga
(15)	pwa:-lwa:m-ga	swa:-m-ba	nwa:-ga	pja:-l-a	nin-kja-m-a	sja:-ga
Other	pwa:lwa:ŋga	swa:mba	nwa:ga	pja:la	niŋkja:ma	sja:ga ⁶

It seems, then, that Peterson's conclusion is correct, and it is claimed here that all vowels are short in Moore and vowel length predictable by general rule.⁷ The problem of how length should be represented in the orthography is taken up next.

3. Orthographic representation

At the beginning of this paper, it was mentioned that decisions to represent a sound in the orthography often depend on assumptions about its phonemic status. In fact, the orthography maker is faced with at least two competing theories. On the one hand, the Summer Institute of Linguistics theory championed by Pike and many specialists working in the structural school of linguistics, advocates a strict phonemic principle, i.e., that all and only the phonemes of a language should be represented in the orthography and 'there should be a one to one correspondence between each phoneme and the symbolization of that phoneme' (Pike 1947:208). This view is either explicitly stated or implicitly assumed in the works of language planners and linguists such as Canu (1967, 1969), Colliet (1965:xiii), Houis (1960:52), Ray (1963:27ff, Ch. 8 et passim, although he does not commit himself too much), Swadesh (1934:35), Tauli (1968:Ch. VI), International African Institute (1962:17), etc. (Notorious dissidents are Haugen (1966:54 et passim) and Joos (1960)). On the other hand, the opposite view has been taken by Chomsky (1970), Chomsky and Halle (1968:49ff) who emphasize the merits of abstract 'conventional spelling', claiming that 'reading will be facilitated to the extent that the orthography...corresponds to the underlying representation provided by the grammar' (50). In other words, the orthography should be emptied of all that is predictable by general rule.

The assumption in both theories seems to be that orthographic representation and phonemic or systematic phonemic representations should be alike as much as possible. Obviously, orthographic representation and phonemic or systematic phonemic representations in formal grammars may have to meet some of the same requirements. Thus an orthography must reflect the structure of the language it is used to represent. Also, it would seem that bi-uniqueness must be respected as much as possible in an orthography. However, an orthography also has different functions from the linguistic functions just mentioned. Thus, it is a tool in the hands of non-homogeneous language communities and must be usable by as many people as possible. In this sense, constraining the orthography to be strictly phonemic and thus failing to accommodate dialectal variation ascertainable at the phonemic level (as recommended in Tauli 1968:129) would seriously jeopardize its usefulness. To be able to integrate dialectal variation as much as possible, then, some degree of abstractness must be allowed. The best orthography is the one that best reflects the structure of the language it is used to represent and is usable by the largest possible number of speakers. Also, because of its social function, an orthography may be constrained by many practical and extra linguistic considerations: it must meet certain aesthetic requirements, it must be easy to use both

in reading and writing, so that it may become appropriate at times to represent sounds or features that are either predictable by general rule or not directly phonemic in the language. The choice of a sound for representation in the orthography may also depend on the availability of symbols on a standard typewriter. (Smalley, 1964a, presents many of the practical problems that may arise in the elaboration of an orthography).

The case of vowel length in Moore may serve as a good illustration of those points. In the face of all the facts exposed above, it seems that three alternatives offer themselves. (1) since length is predictable by general rule it should not be represented in the orthography. It should be observed, in effect, that the analysis of vowel length proposed above is at least defensible within the standard theory of phonology outlined in Chomsky and Halle (1968). If their abstract theory of orthography is followed and this first alternative chosen, then, words would be represented in the orthography in the form they would have in their abstract systematic phonemic representation. In particular, items such as (11) ba:ga, baga, (26) poa:loa:nga, (28) pea:la should, accordingly, be written baga, baga, polonga, pela respectively. (Vowel copy being a general rule, the epenthetic vowel would not appear in (26) and (28)). This alternative offers quite an economical coding system. It is clear, however, that not marking length in the orthography would lead to many confusions (although this remains to be seriously tested on naive native speakers). For example, the sentence 'baga zoeta satâse' would mean either 'the dog dreads thunder' or 'the deviner dreads thunder'; the word for 'white' and that for 'pelvis' would be spelled alike, i.e. pela, etc. Biuniqueness will also be violated in many cases in this approach (for example in those words where the epenthetic vowel is omitted), thus widening the gap between the written and the spoken forms. It thus seems that the 'abstract' solution is not recommendable.

To avoid confusions, the practice presently followed in the orthography of Moore is along the lines of the second alternative: (2) vowel length should be marked only in some environments. The important question is: in what environments? UNESCO (1968) proposed the following guidelines: "Dans l'écriture on ne marque la longueur que lorsqu'elle est indispensable, c'est-à-dire, (a) lorsque l'allongement a une fonction grammaticale: a lui taore 'qu'il passe devant', a lui taore 'il a passé devant'. (b) lorsque l'absence d'allongement entraînerait une confusion ou rendrait difficile la compréhension d'un mot: moagga 'originaire du moogo', moaga 'humide', noaaga 'gallinacé', noaga : pas de sens" (1968:9).

It seems clear, however, that such principles are rather vaguely formulated and hard to apply with any consistency. Take principle (a), for example. It seems rather unlikely that the man in the street will identify with the great precision required the so-called "fonction grammaticale" of vowel length. Principle (b) is even less recommendable. For one thing, no speaker of any language can be expected to know all the words of

his language. Confusion may, thus, arise in many unpredictable ways. Even granting that all the words are known, the reader may very well find ambiguous and thus confusing, a word or even a whole sentence where the writer had seen but one meaning, and it cannot be required of writers that they compute all cases of ambiguity before deciding whether to mark length or not. In fact, if this principle is taken literally, there is no guarantee that the same word will be spelled the same way by two different speakers or even by the same speaker in different contexts. This principle, then, cannot be applied rigorously by anybody. (See Smalley 1964:41 for similar criticisms).

As an illustration of the arbitrariness to which those principles may lead, take the word taore 'front' where the diphthong, whether rendered as [aw:] or [ɔ:] is long. Principle (a), if it is correctly interpreted, is inapplicable since taore is not a verb. Applying principle (b) one may write taore, because there is not, in contrast, a word taore with a short diphthong. But the very same situation arises in the case of noaga 'hen'. This word could be spelled noaga and no confusion would arise, there being no word noaga with a short vowel. (noag a 'take it' is written in two words and the tonal pattern is quite different). In short, the decision to write taore instead of taoare, noaga instead of noaga, as advised by UNESCO, is utterly arbitrary.

It thus seems impossible or, rather, difficult and impractical to try to isolate those cases where length should be marked and those where it could be dispensed with. The 'phonemic' approach advocated by UNESCO has, thus, also failed in coping with the situation. To avoid all arbitrariness and allow an unambiguous marking of length by all speakers, then, the third alternative becomes imperative: (3) vowel length should be noted in all instances of its occurrence.

But a practical difficulty immediately arises. It was suggested in Burssens (1969:24) and International African Institute (1962: 13) that 'long sounds be represented by doubling the letter'. This leads to an accumulation of vowels in the representation of long diphthongs.

E.G. (32) waongo 'mask' vs. (32') waoongo 'arrival'
 (33) beaaga 'mean' vs. (33') boeaaga 'he-goat'

The graphic shape of (33') clearly lacks in aesthetics and would impair reading considerably. However, to be able to capture dialectal variation as much as possible and allow most speakers to read in their own dialects, it was suggested in Houis (1960) and Nikiema (ms.) that the diphthongs rather than the result of their contraction be represented in the orthography. Another means of marking length should, thus, be sought. It is proposed here that /h/ be used for that purpose⁸ under the following conditions: /h/ marks length (a) immediately after a vowel and before a consonant, (b) immediately after a vowel in word final position. /h/ is a regular (fricative) consonant in all other

contexts, i.e., word initially, in intervocalic position or immediately after a consonant. For the sake of clarity this convention is formalized as (34) below:

$$(34) \quad h \rightarrow \left\{ \begin{array}{l} [:] / V _ \{ \# \} \\ h / \left\{ \begin{array}{l} \{ \# \} _ \\ V _ V \end{array} \right\} \end{array} \right\}$$

([:] stands for length, C for any consonant, V for any vowel and # for word boundary. The curly brackets express the notion 'either or'.)

In other words, /h/ when marking length just spells out the morpheme boundary that appears in the vowel length rule (15).

This convention takes advantage of the fact that long vowels are in some kind of complementary distribution with /h/. As was observed above, long vowels are not followed by another vowel, so that in intervocalic position, /h/ cannot represent length. Also, /h/ does not occur word finally (except in some cases as an allophone of /s/, which does not pose a problem for the orthography since only /s/ will be represented in those environments in the orthography). Finally, it turns out that /h/ as a distinctive (fricative) sound occurs only in words borrowed from Arabic (cf. Canu's 1968 study on loan words) and even there its distribution is limited to the contexts specified in rule (34).

The adoption of this convention would help circumvent all the difficulties mentioned above: vowel length would be unambiguously marked in all instances of its occurrence, thus making unnecessary the arbitrary decisions criticized above. The problem of piling up vowels as in boeaaga would no longer arise, as the new system allows a maximum of three vowels in a row (and three vowel sequences are permitted in the present orthography). Finally, dialectal variation may now be accommodated in the orthography and all words containing a long vowel assigned one and the same graphic representation for speakers of various dialects. Below is a sample list of words to illustrate how the convention may be applied.

	<u>Phonetic shape</u>	<u>Orthographic representation</u>
(26)	pwa:lwa:nga	poahloahnga
(27)	swa:mba	soahmba
(28)	pɛ:la, pja:la	peahla
(29)	niŋkɛ:ma, niŋkja:ma	ninkeahma
(32')	wɔ:ŋgo, waw:ngo	waohngo
(33)	bɛ:ga, bja:ga	beahga
(33')	bwɛ:ga	boeahga
(35)	halha:le	halhahle
(36)	lohorẽm	lohorem
(37)	hahaha:	hahahah
(38)	nwa:ga	noahga
(39)	tɔ:re, taw:re	taohre

Footnotes

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¹Canu (1973) did not take notice of these facts pointed out by Houis and relied solely on the results of the commutation test as well as some acoustic data that he adduces to support his points. It is interesting in this respect to notice that in his excellent analysis of Kasim (a language very closely related to Moore), E. Bonvini (1974) working within the same theoretical framework as Canu and Houis chose to ignore the results of the commutation test and to conclude (persuasively) that vowel length is not phonemic in Kasim (cf. Bonvini 1974:65). It is apparent, then, that the comparison of minimal pairs alone is not sufficient to establish phonemic status.

²The standard analytical procedure followed in isolating stems in nouns and adjectives (reference to verbs will be limited in this paper) is to analyse noun-noun and noun-adjective compounds (cf. Bunkungu 1971:5 and Houis 1972:16). In such compounds only the last member retains its class suffix and the other members appear in their 'integral' root form. However, the procedure is not fully reliable and recourse is often had to other means. For example, the noun yöbgre 'shrinking' belongs to the re/a class and its stem would be yöbg+. However, the verbal stem from which it is derived is yöb+. Consequently, yöbgre is analysed as yöb-g+re. On the basis of similar analyses a distinction is made between complex and simple stems. Simple stems are of the form CV(C)+ (e.g. the verbal stem yöb- or the stem of wäka 'hoe': wäg+ga). The majority of nouns formed on a simple stem have the tone pattern High-Low, Low-High (cf. Peterson 1971:49-50). Complex stems are of the form (CV(C)-C₁+; (e.g. yöb-g+; sab-l+go 'black'; tib-s-d+ba 'curers', etc.) and only words derived from them may exhibit a 'non-automatic down-step' tone (i.e. a mid tone, roughly speaking) or different tone patterns in their singular and their plural forms (Peterson 1971:56).

³Interestingly enough, the last consonant in so-called CVC stems is either a nasal or l, s, d or g, i.e. the very same set of consonants found in complex stems. It often figures there for purely euphonic purposes and so does not have or add any meaning. Both Bunkungu (1971) and Houis (1972) agree on this fact: Bunkungu writes: 'il est possible, dans certains cas, que cette consonne soit seulement une consonne de soutien' (12); and Houis (1972:19): 'il semblerait en effet dans certains cas que la consonne figure plus pour des raisons d'euphonie, comme consonne de soutien (épenhèse), que comme dérivatif proprement dit ajoutant une nuance sémantique'.

⁴In Moore the only low vowel with phonemic status is /a/. Rule (16) also applies in verbs under more restricted circumstances.

⁵Such spellings as kâaongo 'Guinea fowl', paaongo 'gain' gaaongo 'mixing', etc. in Bunkungu (1972:41) for words that have undergone a copying rule comparable to (16) reflect more of an attempt to preserve the alleged long vowel phonemes of the root in the orthography rather than actual pronunciation.

⁶In the derivations proposed earlier, the words pe:l+a and nin-ke:m+a have been analysed as they would be if the procedure mentioned above (cf. fn. 2) is followed and the long vowel hypothesis maintained: [pɛ:la] 'white' contrasts with [pɛla] 'pelvis', and [kɛ:ma] with [kɛma] 'a musical instrument'. However, there are reasons to believe that they in fact come from pel-l+a, (nin)-keg-m+a respectively, and that the root final consonant was lost. In effect, the verb 'to whiten' is pel+ge with a short vowel, and the verb from which ke:m+a is derivable is keg+m+e. Root final consonant deletion feeds rule (15) in Peterson's analysis, so that there is no need to advocate a different principle, say, compensatory lengthening, to account for length in any of these words. Also, the choice of poa:loa:nga is not particularly felicitous: a comparison with what is said in other dialects suggests that it is primarily an idiophone formed by some kind of reduplication, so that the sliced parts do not have any specific meaning. It is very probably the problem of meaning that caused Houis' reluctance to hypothesize that length is predictable everywhere in Moore. The assumption seems to be that if the stem final consonant of CVC stems is isolated as a suffix, the remaining CV- may not always have a meaning. From the observations in fn. 3, however, it is clear that this consonant often contributes nothing to the meaning of the stem, since it itself is meaningless in most cases.

⁷The problem of how idiophones should be treated is left open.

⁸Smalley (1964c) reports that 'there was considerable discussion' as to how vowel length should be marked in the orthography of Moore 'some of the group (supported by Houis) wanting to write Vh'. (124). Unfortunately, he does not give the reasons why the proposal was finally dismissed.

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