

MORPHOLOGY OF THE GERUND IN DEĞEMA
AND ITS RECONSTRUCTION IN PROTO-EDOID

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The gerund in Değema (Delta Edoid) is derived by affixing a discontinuous morpheme to the verb stem. Verb stems ending in a vowel take a shorter form of this morpheme while stems ending in a consonant (even if such a consonant is derived from an underlying close vowel by glide formation) have the longer allomorph affixed to them. Cognates of this morpheme are identified in the three other branches of Edoid, and an attempt is therefore made to reconstruct the segmental shape of the gerund morpheme in Proto-Edoid; it comes out as *U...AmhI with vowel harmony rules determining the alternants. Although the tones of the morphemes are not reconstructed, various issues involved in the reconstruction of its segmental shape are discussed.

1. Introduction*

A brief sketch of the internal classification and geographic spread of the Edoid languages is given in Elugbe [1980]. The Edoid languages fall into four co-ordinate branches: Delta Edoid (DE); South-western Edoid (SWE); North-central Edoid (NCE); and North-western Edoid (NWE). DE languages are spoken in the Rivers State of Nigeria on the eastern side of the Niger Delta. SWE languages are spoken in the western Niger Delta in Bendel State. NCE languages are spoken in the central parts of Bendel State north of the Delta and west of the so-called "western Igbo" area. NWE languages are spoken in the northern fringes of Bendel State and across the border in the Akoko and Owo parts of Ondo State.

Değema is closely related to the other DE languages Egeṅe (Engenni) and

*A brief sketch of this paper was first given at the 2nd Annual Conference of the Linguistic Association of Nigeria (LAN) held at Bayero University, Kano, July 26-29, 1981. The present version is much revised, especially in the light of evidence from South-western Edoid.

Epie(-Atisa). Dɛgɛma is the most southerly Edoid language and is well-known for having retained some of the more interesting morphological aspects of Proto-Edoid (PE), such as noun classes defined to a large extent by semantic characteristics [Elugbe 1976; in press]. Dɛgɛma also has CVC stems (derived from earlier CVCV) in which the second consonant is not necessarily a nasal. The morphology of the gerund in Dɛgɛma is by itself quite interesting and will be briefly presented below (section 2.1). However, our main interest will be in the reconstruction of the gerund in Proto-Edoid. In order to do that, we shall examine some languages from other branches of Edoid: Uvbię and Isoko from SWE; Ẹdo (Bini) and two Yẹkhee dialects (Ẹkphẹli and Auchi) from NCE; and Emhalhẹ (Somorika) from NWE.

2. The Gerund in the Edoid Languages

A typical PE verb stem was of the shape CV((C)V). It is still not clear if PE classified its verb stems tonally: most studies of individual Edoid languages so far analyze the verb as being inherently toneless, acquiring its tone only from the (syntactic) context in which it occurs. Elugbe [1973] made this a general Edoid observation which has been confirmed in some cases. Welmers [1973:119] states clearly that "Urhobo ... has no lexical tone in verbs ..." Amayo [1976:230] tells us that "... Ẹdo (Bini) verb stems exhibit exclusively grammatical tone ..." Although Thomas [1969] (for Eḡeḡe) and Elimelech [1976] (for Yẹkhee) do not discuss this problem, it is clear from their examples that verb stems differ only segmentally. Thomas does not mark tone in underlying verb forms while Elimelech postulates high tones for all verb stems. To my knowledge, no Edoid language in which data are available makes a lexical use of tone in verbs.

Hence, in the following discussion, I will cite verb stems without any tone. In an earlier version of this paper where I sought to derive the gerund from the imperative, I cited verb stems in their imperative form which, although it has no overt segmental markers, certainly has its own tonal shape in the different Edoid languages. Since the tone of the imperative is itself derived, and there is no proof that the tonal shape of the gerund in any of the Edoid languages is derived from that of the imperative or any other derived form, it seems unnecessary and potentially misleading, in our analysis,

to derive the gerund form from the imperative. Individual Edoid languages have their own (derived) tone pattern for the gerund just as they do for nouns, for example. And just as we can reconstruct the segmental shape of a noun without necessarily being able to reconstruct its tones at the same time, so we shall attempt to reconstruct the segmental shape of the gerund morpheme in PE by comparing its reflexes in the Edoid languages. Problems of tonal reconstruction will therefore not occupy us unduly.

What we are here calling the "gerund" is a kind of verbal noun which also translates the infinitive in English. We shall stick to the term gerund throughout our discussion.

2.1. The gerund in Dɛgɛma (DE). Dɛgɛma operates a ten-vowel harmony system based on pharynx width, expanded or otherwise.

(1)	EXPANDED ¹		NON-EXPANDED	
	i	u	ɪ	ɔ
	e	o	ɛ	ɔ
	ə		a	

This fact should be borne in mind in examining the Dɛgɛma data in the following discussion.

The gerund in Dɛgɛma is a discontinuous morpheme $\bar{U} \dots (\bar{A})_m$,² where U summarizes the vowel harmony-determined alternation between u and ɔ and A, whose presence is contextually determined, summarizes the alternation between ə and a. These facts are exemplified in (2), with the data arranged according to the final segment of the stem: (2a) end in a non-close vowel; (2b) in a consonant; (2c) in a closing vowel sequence, i.e., one in which the second vowel is the closer; and (2d) end simply in a close vowel.

¹All through the paper, phonetic symbols carry IPA values.

²The tone system of Dɛgɛma has not been fully worked out. My own preliminary investigation agrees with Thomas and Williamson [1967] who see it as an orthodox two tone system plus downstep. In all Dɛgɛma examples, though, the downstep will be represented phonetically with a macron. High is marked ' , Low ` . High-Downstep falling is ´ . In examples from Edo, downstep is indicated with a raised exclamation mark, ! .

(2)	verb stem	plus gerund	surface	
a.	tatane	U-tatane-Am	ò-tátánē-m	'answering'
	fofo	U-fofo-Am	ù-fófō-m	'blowing (with mouth)'
	dā	U-dā-Am	ò-dā̄-m	'drinking'
b.	hir	U-hir-Am	ù-hír-ēm	'surrounding'
	sól	U-sól-Am	ò-sól-ām	'jumping'
	tev	U-tev-Am	ò-téV-ām	'descending'
	mim	U-mim-Am	ù-mím-ēm	'wringing'
	són	U-són-Am	ò-són-ām	'choosing'
c.	voi	U-voi-Am	ù-vóy-ēm	'fetching'
	kól	U-kól-Am	ò-kóy-ām	'being heavy'
	suu	U-suu-Am	ù-súw-ēm	'ironing'
	kótɔɔ	U-kótɔɔ-Am	ò-kótów-ām	'getting'
d.	fi	U-fi-Am	ù-fy-ém	'germinating'
	kureri	U-kureri-Am	ù-kúréry-ēm	'ending'
	kreru	U-kreru-Am	ò-kréry-ām	'hanging'
	ku	U-ku-Am	ù-kw-ém	'closing'
	bɔ	U-bɔ-Am	ò-bw-ém	'being big'

As the examples in (2) show, there are two basic alternants of the gerund in Dɛgɛma, each with two possible variants as in (3):

(3) Alternants of the gerund morpheme in Dɛgɛma:

- a. full form (U...Am): realized as u...əm if the vowels of the verb stem are expanded and as ɔ...am with non-expanded vowels
- b. short form (U...m): realized as u...m with expanded vowels and as ɔ...m with non-expanded vowels

The form in (3a) is used with verb stems ending in a consonant (or in a close vowel—see below), as in (2b-d). The short form in (3b) occurs with stems ending in a non-close vowel, as in (2a).

It should be noted at once that the tone pattern is the same for all the examples: a low tone on the prefix and a downstepped high on the suffix. In monosyllabic verb stems, a high tone on the verb stem combines with the downstepped high on the suffix to form a high-downstep glide (see surface realiz-

ations in the third column of (2)).

We have next to determine which of the forms of this morpheme is the base: the longer form in (3a) or the shorter one in (3b). Whichever of the two we postulate as the base, it must be the one which allows us to explain the other and derive all surface forms in a natural way. My suggestion is therefore that the full form is the base form in (4a) and that the derivation of the gerund follows the set of ordered rules in (4b-d):

- (4) a. For every verb stem, affix U...Am ,
 b. let all pre-vocalic close vowels become non-syllabic (glide formation);
 c. delete ...A- after (non-close) vowels;
 d. let affix vowels agree in pharynx width with stem vowels (vowel harmony).

The base form in (4a) gives us column 2 in example (2) above while (4b-d) together give us the surface forms in the third column in (2).

As can be seen from comparing columns 2 and 3 in (2) above, the determining factor in the choice of the full form as opposed to the short form is the phonological question whether or not a verb stem ends in a consonant, irrespective of whether or not the consonant is underlying or derived (perhaps we should say "derivable"?). Therefore, any phonological process which is likely to create verb stem-final consonants must apply before the general rule (4c) applies to give the shorter form.

One process which can create stem-final consonants in Dəgəma is glide formation. The glide formation rule is very productive in Dəgəma. It converts any close vowel (expanded or otherwise) into its approximant (glide) counterpart if that close vowel is immediately followed by a non-close vowel or a close vowel from which it differs in respect of the roundness feature. As seen from (5), this rule applies across morpheme boundaries as well as within morphemes:

- (5) /kɪɛ/ → [kʏé] 'give!'
 /təɛsɛ/ → [tʷɛsɛ] 'warm!'
 /óswō/ → [óswō] 'God'
 /úkɪē/ → [úkʏē] 'egg'

/ò nó ènì/ → [ò nwânì] 'he beat us'
 he beat us

We can now see that the examples in (2c,d) meet the conditions for the application of the glide rule (4b), so that rule (4c) can only apply in the case of examples (2a). Rule (4d), the vowel harmony rule which makes all affix vowels agree in pharynx width with the vowels of any stem to which they are affixed, applies last and in all cases.

As will be shown below, cognate forms of the Dëgëma gerund morpheme are identified in all the other branches of Edoid.

2.2. The gerund in Uvbië and Isoko (SWE). In SWE, only Uvbië (Uvwië) has cases which enable us to directly link the gerund forms in other SWE languages with the Dëgëma example. In Uvbië, the gerund is derived as follows:

(6) UVBIË

mi	'wring'	→	èmjômú	'wringing'
ri	'eat'	→	èrjômó	'eating'
ru	'do'	→	èrwômú	'doing'
so	'sing'	→	èswômó	'singing'
dɛ	'buy'	→	èdɛ̀̀mó	'buying'
da	'drink'	→	èdáàmó	'drinking'
co	'steal'	→	ècòòmú	'stealing'

The gerund morpheme is thus È...òmú, the actual realization being determined by vowel harmony rules to give the two forms è...òmú and è...ômó. When this gerund morpheme in Uvbië is used with stems involving the close vowels I (for i and ɪ) and U (for u and ɔ) the close vowel becomes non-syllabic by glide formation, leaving the suffixal part of the gerund morpheme intact. On the other hand, if the vowel of the stem is not close, it assimilates that vowel of the gerund with which it is contiguous—i.e., ...O... The examples in (6) are thus derived as in (7):

(7)	E-mi-OmU	>	E-my-OmU	→	èmyômú	'wringing'
	E-ri-OmU	>	E-ry-OmU	→	èryômó	'eating'
	E-ru-OmU	>	E-rw-OmU	→	èrwômú	'doing'
	E-so-OmU	>	E-sw-OmU	→	èswômó	'singing'

E-dɛ-OmU	>	E-dɛ-OmU	→	èdɛ̀émó	'buying'
E-da-OmU	>	E-da-OmU	→	èdáàmó	'drinking'
E-co-OmU	>	E-co-OmU	→	ècòómú	'stealing'

See Omamor [1973] for a discussion of verbal nouns and vowel harmony in Uvbiɛ.

In other SWE languages, shorter forms of this morpheme are attested. In Isoko, for example, the final syllable has dropped out altogether leaving us with the form E...O with stems having the close vowels I or U :

(8) ISOKO

si	'pull'	E-si-O	→	èsyó	'pulling'
si	'refuse'	E-si-O	→	èsyó	'refusing'
fu	'swell'	E-fu-O	→	èfwó	'swelling'
so	'sing'	E-so-O	→	èswó	'singing'

If a stem ends in a non-close vowel, though, the suffixal part of the gerund morpheme is absent altogether:

(9) dɛ	'buy'	E-dɛ	→	èdɛ̀	'buying'
ra	'fly'	E-ra	→	èrá	'flying'
gbe	'dance'	E-gbe	→	ègbé	'dancing'
ko	'sew'	E-ko	→	èkó	'sewing'

It is quite easy to prove that Isoko has generally reduced second syllables and that Uvbiɛ ...OmU and Isoko ...O are cognate. Elugbe [1982] presents such evidence, and we will not repeat it here.

2.3. The gerund in Èdo and Yèkhee (NCE). In North-central Edoid, we have evidence from Èdo, the language of Benin City and its environs:

(10) ÈDO

bi	'open'	ùbí!βè̀	'opening'
de	'fall'	ùdɛ̀!βè̀	'falling'
dɛ	'buy'	ùdɛ̀!βè̀	'buying'
da	'drink (alcohol)'	ùdá!βè̀	'drinking'
do	'weave'	ùdó!βè̀	'weaving'
mu	'carry'	ùmú!βè̀	'carrying'

In this language, there is no vowel harmony and both high and low tones may be downstepped after high. A lost low tone is assumed to be the historical (often recoverable) cause of downstep [Amayo 1976]. The gerund appears to be formed by affixing the morpheme $\acute{u}\dots\beta\acute{\epsilon}$ to a high-tone form of the verb stem.

Data on various dialects of the Yekhee (Etsakɔ) language in Elimelech [1976] show that the gerund is formed typically by affixing the discontinuous morpheme $\acute{u}\dots mh\grave{i}$ to the verb stem.

(11) EKPHELI (Yekhee)

le	'eat'	úlémhì	'eating'
de	'fall'	údémhì	'falling'
dɛ	'buy'	údémhì	'buying'
da	'drink (alcohol)'	údámhì	'drinking'
pi	'shoot'	úpímhì	'shooting'
du	'carry'	údúmhì	'carrying'
lumhi	'pound'	úlúmhmì	'pounding'

As can be seen from (11), there is no vowel harmony and the occurrence of a second syllable in the last item does not affect the derivation of the gerund form. On the other hand, in Auchi (the central Yekhee dialect spoken in Auchi, the Etsakɔ Local Government headquarters), only the low tone of the second part of this morpheme remains so that the morpheme is $\acute{u}\dots\grave{}$:

(12) AUCHI (Yekhee)

le	'eat'	úlé	'eating'
dɛ	'buy'	údê	'buying'
da	'drink'	údâ	'drinking'
pi	'shoot'	úpî	'shooting'
du	'carry'	údû	'carrying'
lumhi	'pound'	úlúmhmî	'pounding'

The discrepancy between the suffixal part of this morpheme in Ekpheleli as opposed to Auchi can be explained in terms of the tendency for Auchi and some other Yekhee dialects to reduce second syllables if they were later additions to the stem. An example of this is in Elugbe [in press] where it is shown

that although Auchi retains -IV as a second stem syllable, it reduces the syllable if it was a later addition by suffixation. Thus we have (13) (from Elimelech [1976]):

- | | | | |
|------|----------|---------|----------|
| (13) | ẸKPHẼLI | AUCHI | |
| | úkwìlì | ùkùlì | 'bundle' |
| | éywlìlì | éywlìlì | 'death' |

By contrast, Auchi reduces the -li syllable in the following:

- | | | | |
|------|----------|-------|---------|
| (14) | ẸKPHẼLI | AUCHI | |
| | ékèlì | ékèè | 'egg' |
| | èkòlì | èkòò | 'tooth' |

Elugbe [in press] proves (convincingly, I think) that this -li suffix in (14), which is reduced in Auchi and some other dialects ($\text{ekeli} > \text{ekɛi} > \text{ekɛɛ}$), is a class-marking suffix acquired at a post-PE stage. Similarly, -mhV as a suffix is reduced in Auchi, but second syllable -mhV's which are part of the stem are not similarly reduced. In this respect, compare the last items in (11) and (12).

2.4. The gerund in Ẹmhalhẹ (NWE). In North-western Edoid, there is evidence of this morpheme in Ẹmhalhẹ (Somorika) and Ọlọma. The following examples are from Ẹmhalhẹ.

- | | | | |
|------|---------|------------|-------------------|
| (15) | ẸMHALHẸ | (Somorika) | |
| | ri | 'do' | úrîmhì 'doing' |
| | ku | 'pour' | úkûmhù 'pouring' |
| | so | 'sing' | ósômhò 'singing' |
| | ze | 'fall' | úzêmhì 'falling' |
| | zo | 'weave' | úzômhì 'weaving' |
| | re | 'eat' | órêmhì 'eating' |
| | ko | 'plant' | ókômhì 'planting' |

Here, again, the morpheme is easily identified as $\acute{U}...mh\grave{I}$,³ the actual form

³Or, possibly, $\acute{U}...mh\grave{I}$: unlike in the Ẹdo case, it is not clear what is responsible for the fall here—a floating low or some tonal process as yet unidentified.

depending on vowel harmony. We note here, too, that stems with U (for u or o) have the final vowel of the morpheme completely assimilated to that of the verb stem as we have in the case of 'pouring' and 'singing'.

The preceding examples show that the Dɛgɛma gerund has cognates in every other branch of Edoid.

3. Reconstructing the Gerund in Proto-Edoid

There is, therefore, no doubt that the gerund, which is identified in all four coordinate branches of Edoid, should be reconstructed for PE. However, even leaving out tonal aspects of this morpheme, we still have to resolve one or two issues in reconstructing its segmental shape.

First of all the prefix has two general shapes in the Edoid languages. It is U- (for u and o) in DE, NCE, and NWE. On the other hand, it is E- (for e and ɛ) in SWE. So we must decide what the shape of the prefix was. The languages showing an U- reflex for this part of the morpheme come from three of the four Edoid branches and are geographically far apart: from Dɛgɛma in the eastern Delta to ɛmhalhɛ in the hills of northern Bendel. One would be justified, therefore, in suggesting that the original shape of this part of the gerund morpheme in PE was *U-. In that case, we assume the innovation PE *U- > Proto-SWE *E-. The problem is that it is not easy to explain this, and we return to it below.

We should, perhaps, tackle the question of the suffix before returning to that of the prefix. This part of the morpheme was obviously of the shape vowel-nasal-vowel. The nasal was a lenis bilabial nasal *mh which normally has a non-lenis m- reflex in Dɛgɛma (DE) and in Isoko and Uvbiɛ (SWE) but has lenis reflexes in North-central and North-western Edoid (see Elugbe [1980]).

The final vowel (the one after the nasal) was *I. In Dɛgɛma, it is already lost. In ɛdo and Yɛkhee (NCE) and in ɛmhalhɛ (NWE), the evidence points to PE *I. In Uvbiɛ, it points to U. However, we can easily explain the Uvbiɛ case by assuming that the close *I became rounded and back after the suffixal *mh. We may compare this with the partial case in ɛmhalhɛ where the same process is observed in verb stems with u or o.

We are now left with the vowel before the nasal. There seems little doubt

that there was a vowel between the verb stem and the nasal. Dëgëma has a vowel there in environments after a stem-final consonant; Uvbië has it all the time; and Èdo has some tonal evidence of it. The question of its shape, though, is less straightforward.

In Dëgëma, it is A, realized as ə or a (see (3) above). In Uvbië and other SWE languages, it is o or ɔ. I suggest that the vowel before the nasal was A (for ə or a) and that it became O in SWE. This position is supported by the fact that PE *ə has a varied set of reflexes all over Edoid and these reflexes include o and ɔ (see Elugbe [1982]). In this case, the shift from A to O may have been encouraged by the presence of a following bilabial nasal.

We thus come to the conclusion that the suffixal part of the gerund morpheme in PE was *...AmhI. If the prefixal part were *U- as I suggested above, the full morpheme was *U...AmhI in PE. It was realized as u...əmhi with expanded vowels and as ɔ...amhu with non-expanded vowels.

Our postulation of U as the first vowel of this morpheme receives some support from a study of noun prefixes in PE. There is a small class of abstract nouns with an unpaired prefix U-. It includes nouns such as 'fear' and 'sleep'. There are also singular ghU- and U- prefixes which pair with A- plural (Elugbe [in press]). Since the effect of affixing the morpheme U...AmhI to a verb stem was to change it into a verbal noun, U- is a more likely vowel prefix for it than I- (which in PE generally marked the plural form of some given classes of nouns) or E- (which had nothing to do with abstract nouns). Another point in favour of U- is that, according to Elugbe [in press], PE *ghU- and *U- are cognate with PB 15 *ku which includes infinitives.

Since PE is assumed to have employed only prefixes to mark noun classes [Elugbe, in press], the possibility that the class-marking U- prefix was originally different from the suffix ...AmhI cannot be discarded. In that case, the function of AmhI would probably have been to derive noun stems from verb stems. Thus while AmhI was used after the verb stem to de-verbalize it, U- was prefixed to the same stem to mark it for a particular class. One might go further and say that, perhaps, the actual morpheme was mhI

while A- was a concord element attached to it. For example, most Edoid languages still use concord elements (mostly for the number category) with qualifiers such as demonstratives (see Elugbe [in press]).

Within the scope of the data available on the Edoid languages, it is difficult to be very definite about this last point. What seems obvious is that throughout Edoid and, therefore, in PE, both the suffixal -AmhI and the prefixal U- were added to a verb stem to form the gerund.

The question of the motivation for PE *U- > PSWE *E- remains unanswered, and it appears we cannot answer it satisfactorily here. In any case, it has no direct bearing on our main argument. However, one possible explanation would be that U > E when the A of the suffixal part of the gerund became O in SWE. It is probable that the shift to E was via I, so that the whole process was U > I > E. Shifts like u > e or ε are well-attested in the Edoid languages. The effect of the prefix becoming E- in SWE was to make it and the first vowel of the suffixal part agree in terms of tongue height.

If in fact this was not the case, i.e. the change PE *U- > PSWE *E- is not to be explained in terms of sound change, there is still the possibility that some kind of class shifting has taken place such that PSWE moved gerunds from the U- class to the E- class. Donwa [forthcoming] actually treats Isoko gerunds under an unpaired E- class. The implication of the class shifting hypothesis would be that PSWE *E- in the gerund is not a reflex of PE *U- in the same morpheme.

5. Conclusion

I have given a brief account of the phonological aspects of the gerund in Dɛgɛma. In addition, I have shown that the Dɛgɛma gerund has cognates all over Edoid, enabling us to compare and reconstruct the gerund for PE.

Although the actual reconstruction of the morpheme raises a number of questions, we are relatively sure that it was something like *U...AmhI. The SWE form contains vowels that have to be explained in the light of our reconstruction and an attempt is made to account for them; but even if our explanation has not been absolutely convincing, it at least allows us to account for the form of this morpheme in the three other branches of Edoid.

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