# VOWEL HIATUS RESOLUTION IN EWE

**MOTTE, MERCY**

In Partial Fulfilment of Master in Philosophy in Linguistics

At the Norwegian University of Science and Technology (NTNU),

Department of Language and Literature.

December, 2013

**DEDICATION**

I dedicate this thesis first to my God Almighty! He alone determines our lives' course. He has been my guide through life and will continue to shield and guard me even onto death.

Also to my wonderful husband, Emmanuel Kwabla Kpeglah and my two adorable children, Melike and Medudzi. You are simply amazing!!

**ACKNOWLDGEMENTS**

My heart is filled with great joy towards my creator, God Almighty for the strength and sound mind to be able to do a master's programme amidst many challenges.

This achievement is also partly due to the Norwegian government's funding through the Quota Scheme Scholarship.

To my indefatigable supervisor, Jardar Eggesbø Abrahamsen, I say a big thank you. You have demonstrated to me that you did not only care about my academic work but my precious health as well as my stay in Norway. You saw a great potential in me and as such groomed me for higher heights. I just cannot fully express my heartfelt appreciation for all your kind gestures and motivational comments! They speared me on! God bless you!

To all who have ever lectured me in the Linguistics Department of NTNU, I am most grateful to you all for bringing the best out of me even in this short period.

To all my colleagues in the department, I really appreciate our being together as course mates. It was fun and very educative to have been sandwiched in different cultures.

To you Professor Felix Ameka, you have been a wonderful resource person. Thank you for all the emails we shared and the books you generously released to me with regards to this thesis. You have been amazingly helpful. Dr. Agbedor, God bless you for your assistance in finding Stalkhe's Doctoral thesis. It has been of enormous assistance.

Oh! My wonderful nuclear family – Emmanuel Kwabla Kpeglah (loving and ever helpful husband- your immense contributions are simply awesome!), my two amazing and lovely children- Melike and Medudzi, your presence in my life has been tremendously fulfilling! I can never stop loving you!! To my big family in Ghana, I say God bless you all for always checking on me.

To all my friends, I say I appreciate our friendship and the maximum support I always receive from you.

I sing a posthumous appreciation and salute to my late father and mother. George Kwasi Akabuo Motte and Bertha Yawa Asima Motte! Though you are nowhere on earth to see the result of your labour, posterity will continue to sing your praises for how far I have come in life because of your tireless efforts. Continue to rest in the bosom of our creator.

Thank you all!!!

**ABSTRACT**

Vowel hiatus (two adjacent vowels or a sequence of two vowels in different syllables) is one phonological phenomenon that is seen in many languages including Ewe a Kwa language found in Ghana and a few other countries. Environments for vowel hiatus as discussed in this thesis are the juxtaposition of different lexical categories (noun, verb, adjective and possessive marker 'ɸé') and compounds (noun+noun).

In a context as this, languages depend on several mechanisms to break the cluster which Ewe is no exception.

The methodology used included recordings of naturally occurring spoken data collected as native speakers went about their daily activities. Other few examples were taken from literatures, my knowledge of the language as a native speaker also gave lots of insights. Again, interviews on the subject were carried out. The study is built around two theories – Autosegmental theory and Optimality theory as these theories helped in the discussions found in the thesis.

The study resulted in the following discoveries:

1. Resolving vowel hiatus in Ewe is always by deleting one of the two adjacent or juxtaposed vowels.

2. Deletion though the best in the resolution process results in resyllabification as syllables are affected.

3. The deletion of the vowel does not always result in the loss of its tone too. Very often tones especially high tones are preserved which finally dock on new preferred neighbouring hosts. The tonal stability pattern seems to indicate that high tones are present underlyingly while low tones are quite often not.

4. With the juxtaposition of different lexical categories as seen in the thesis such as verb+noun, adjective+noun and possessive particle ɸé+noun, in the case of elision, the target is very often other categories other than nouns. However, there were a few cases where prefixes of nouns dropped instead. Meaning that positional faithfulness in the category noun as argued cannot always be the case.

5. When two juxtaposed vowels /e+a/ that is the final /e/ of a verb and the initial /a/ of a noun (in this order), the target in the event of deletion is always the final /e/ of the verb.

## ORGANISATION OF CHAPTERS

This thesis is divided into nine chapters. Chapter one contains an introduction to the thesis and also covers areas such as the theoretical framework of which two theories are presented namely Optimality Theory and Autosegmental Theory. These two theories form the basis of the entire thesis. Again, this chapter also presents an overview of the Ewe language, previous research into the topic, problem statement and the method and empirical sources.

Chapter two is an embodiment of the various literatures that have been reviewed in connection with the thesis.

Chapter three generally discusses syllables and the effects of deletion in syllables with regards to the Ewe language.

Chapter four looks at positional faithfulness in general, the types as discussed in the thesis like positional faithfulness in initial syllables, phonological behaviour of Ewe lexical categories/ positional faithfulness in the category noun. This chapter also discusses vowel hiatus resolution in Ewe.

Chapter five presents and discusses vowel quality especially of the vowels /e/ and /a/.

Chapter six looks at noun prefixes and adjacent final vowels of syllables in context.

Chapter seven is mainly a discussion of the behaviour of tones that is tones found in single nouns and also compounds.

Chapter eight presents and discusses two level tones in Ewe. They are the high and the low tones.

Chapter nine closes the thesis. It summarises the main points in the thesis then again highlights the findings arrived at in all the discussions.

**TABLE OF CONTENTS**

**CHAPTER EIGHT**



**CHAPTER NINE**

# CHAPTER ONE

## 1.0 INTRODUCTION

## 1.1 PHONOLOGICAL ACCOUNT OF VOWEL LOSS IN EWE

The heart of this study is to examine vowel loss when two vowels stand juxtaposed or adjacent one another and its impact on tones, syllables and grammar in general. To scrutinize elision with such a curiosity is to admit the problem of clustering of sounds either vowel or consonants in different syllables without intervening consonant or vowel. This deadlock according to Harris (2011) is a phenomenon most languages detest and naturally every language finds room of escape.

"Vowel sequences lacking an intervening consonant are cross-linguistically dis-preferred, and wherever morphemes concatenation threatens to create a hiatus configuration of this sort, languages can take various measures to resolve it,'' Harris (2011:1600-1601). To break the cycle of hiatus, elision or deletion has become the major vehicle most languages including Ewe adopt. Elision in general terms is sound lost in speech process. The loss could be a vowel, consonant, syllable which makes way for easy articulation. As stated, all languages in the linguistic community of the world try to resolve this situation. Ewe as one of the languages in the linguistic community of Ghana will be mirrored with amazing expectations that may be unique to it.

## 1.2 THE EWE LANGUAGE

It is needful we inform readers that Ewe is properly pronounced [eβe] with a voiced bilabial fricative. Writing it as Ewe is a convenient way in English spelling. Ewe is one of the major

clusters of languages under Gbe or Tadoid. The other clusters include Gen, Fon, Aja and Xwla-Xweɖa. Ewe belongs to the Kwa family of Niger-Congo.

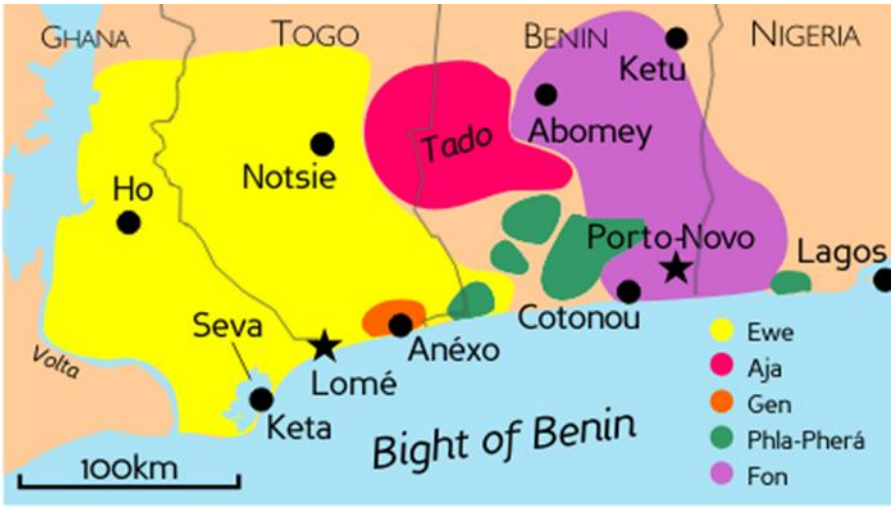
The language is spoken in the Southeastern parts of the Volta Region of Ghana across to parts of southern Togo and across the Togo-Benin border. Speakers of the language are over three million.

The breakdown of places where the language is spoken is as follows: coastal and inland Volta Region of Ghana which include, Aŋlɔ, Avenɔ, Vɛ, Tɔŋu, Aveɖakpa, Awudome, Peki, Ho, Aŋfɔɛ, Kpando, Fodome, Gbĩ and Danyi. Other places include coastal and inland Togo made up of Kpɛlɛ, Danyi, βli (written Ùli), Agu, Nɔtsie, Waci, Vo, Kpesi, Adangbe and Be, Duthie (1996:2)

Ewe is bordered to the West by Ga-Dangme and Akan, and to the North by the Ghana-Togo-Mountain languages, for example, Siwu, Siya, Likpe etc., all Kwa languages and some Gur languages such as Kabiye. To the East are the Gbe dialects – Gen, Aja and Xwla- all of which have degrees of intelligibility with Ewe.

The language is studied as a subject at all levels of education in Ghana up to and including the tertiary level and increasingly so in Togo. Ewe is thus used for radio and TV broadcasting and in some community newspapers in both Togo and Ghana. It is also used in adult literacy programmes leading to an increasing number of publications in the language on topics of health, agriculture, and child rearing, among others. Ameka, Felix & Dorvlo, Kofi (without year).

Below is a map showing the distribution of Ewe (in yellow) and the other Gbe languages in Ghana, Togo, Benin, and Nigeria.




http://www.let.leidenuniv.nl/verba-africana/ewe/c-ewe-language.htm

### 1.3 PREVIOUS RESEARCH

Duthie (1996) has some work done in the area of vowel hiatus and mentions that because in some contexts it is avoided the language prefers deleting one of the clustering vowels rather than having both of them. According to him ‘‘vowel prefixes of nouns may drop out, sometimes leaving their tone behind, when they are preceded by another noun or sometimes by a verb. If the vowel of the verb is e, then that e may drop instead.’’ Duthie (1996:25). Examples he provided in line with his assertion include the following:

- koko agble = kokogble

  ‘cocoa farm’

- te etɔ = tetɔ

  ‘yam three’

- édé àhe = édáhe

  ‘he is poor’

With the examples and explanation above we see that Duthie only spells out his observation of the language which lacks indepth details of the reasons this happens. Again, his description is not built around any theory. There are several other things that need to be explained which are not and there are some phonological ways of representing things now, that were not so in his work. These are explained in the problem statement. Thus, his work serves as a springboard for this thesis because it looks further into the phenomenon being described by Duthie (1996).

Among many other things Stalhke (1971) describes in his doctoral thesis is vowel hiatus in Ewe. He also asserts that this is avoided and the way to deal with it is by deleting one of the adjacent vowels. His style of looking at tones in this phenomenon needs modification as far as present day phonological practice is concerned. Areas that need further explanation like the treatment of tone and a few others are captured in the problem statement which has also been discussed if not thoroughly in this thesis. His work is also one such springboards for this thesis.

## 1.4 RESEARCH PROBLEM

This study investigates vowel loss in Ewe and what impact it has on tones, syllables, lexical categories and Ewe grammar in general.

This investigation will be carried out under the following questions:

1. How vowel loss does affect syllabification?

2. Does elision of segments also result in tone loss?
3. Does elision affect grammatical categories in question?
4. Does the category ‘noun’ resist elision?
5. What vowels are most affected by elision and why?

## 1.5 THEORETICAL FRAMEWORK

### 1.5.1 Introduction

This thesis is framed on two theories - Autosegmental Theory and Optimality Theory commonly known as OT. It is extensively descriptive of the phenomenon in question and as a result is not very much rooted in lots and lots of theories. However, the two theories utilized are very much needed as they help describe, illustrate and discuss the phenomenon of vowel hiatus resolution in Ewe as well as all the angles of discussions that rise with it.

### 1.5.2 Autosegmental Theory

Autosegmental phonology is a theory that involves more than one linear sequence of elements with each linear sequence constituting a separate tier. It allows a close connection between analysis of segments into distinctive features of which each feature in a language appears on exactly one tier. Goldsmith (1976:28-42) who propounded the theory views these segments and their features as distinctive and as a result the two are described as being parallel meaning that the features are not inherent in the segments but are considered as their properties or attributes of which they are associated. For example, this thesis has a great deal of discussions in the area of deletion as a way of avoiding vowel hiatus. In some cases when a vowel deletes it does not go with its tonal feature; the tone lives on and is accounted for

somewhere else. This is exactly what is meant by segments and features constituting separate tiers so that a disadvantage or an advantage of one does not affect the other; they individually bear their 'consequences'. In other words as Odden (1995:444) puts it of tones, ''there is no one-to-one relationship between the number of tones and the number of segments in a string.'' This further means that independence of segments and their features is key when we talk of autosegmental phonology.

The theory also provides a means to analysing phonological generalizations and enables their interpretation as restructuring or reorganizing the autosegments in a representation.

One of the classical problems of tonology which autosegmental phonology resolves is the representation of contour tones. They are multiple tones linked to one vowel. Odden (1995:444). Discussion with illustrations in this domain is dealt with later in the thesis.

A further 'classical puzzle' which autosegmental phonology solves is tone preservation also known as stability as stated earlier with regards to the thesis topic. In resolving vowel hiatus in Ewe a vowel is made to delete; very often this vowel does not elide with the tone meaning that the tone is preserved in this instance. Whatever the tone decides to do next with itself is another thing altogether.

Another 'evidence for autosegmental theory is that it allows abstraction of tonal patterns which are comprehensible only when viewed independently of the syllables and segments bearing the melody' Odden (1995:446).

In addition, autosegmental phonology solves the problem of the treatment of floating tones that is tones which are independent of vowels. This aspect is also captured in the study.

Finally, most of the analysis using this theory will be done in the analysis chapters of the thesis.

### 1.5.3 Optimality Theory – OT

Optimality Theory holds the view that all languages draw their rules from a core of fixed universal properties (principles) - Universal Grammar (UG) plus a specification of limited number of universal binary choices (parametres).

The suggestion is rooted in two evidence – language typology and language acquisition (Kager 1999:1). Series of linguistic investigations confirm that core properties of grammars reflect a set of universal properties. On the other hand, a common grammar principle is identified from a universally recurring pattern of first language acquisition (Kager 1999:1) and indicates that children acquiring their first language dwell on remarkably similar traits as they progress through their development stages that are independent of the language being learnt.

OT is different from earlier generative models in that it assumes that constraints are violable and it is a theory of constraint interaction independent of what the constraints are (Dresher, 1996:8). It is 'an input-output mechanism that pairs an output form to an input form (such that each input has precisely one output)' Kager (1999:18-19). This means that a surface form/output form can only be one when the full process (components of the OT grammar) has been duly followed as illustrated below:

Stage 1. Input (which is fed into a component of the grammar)

↓

Stage 2. Generator (it is a function that when applied to some input, selects a set of candidates, all of which are possible outcomes from the input)

↓

Stage 3. Evaluator (set of ranked constraints or a function when applied to a set of output candidates, determines an output, the optimal candidate)

↓

Stage 4. Optimal candidate/outputform/surface form.

Optimal candidates are necessarily not flawless because very often they violate at least the least or lowerly ranked constraints in a given language. Kager (1999:3) notes that 'violation of a constraint is not a direct cause of ungrammaticality, nor is absolute satisfaction of all constraints essential to the grammar's outputs. Instead what determines the best output of a grammar is the least costly violation of the constraints.' Note that though constraints are considered to be universal, ranking of them vary from one language to the other; that is to say ranking of constraints is language specific and it is this hierarchical way of looking at the constraints that finally churns out the desired optimal candidate.

**Constraints**

In natural phonology (as in Stemp1972 and Hoper 1976) all types of linguistic structures have two values – marked and unmarked. The marked values are cross-linguistically avoided used in grammars only for the purposes of contrasts while the unmarked are cross linguistically preferred values basic in all grammars, (Kager 1999:3).

Constraints are linked with markedness (cross-linguistically avoided values) used in the grammar of various languages to create contrasts. Markedness is built into grammars in the form of universal output constraints which directly specify marked or unmarked patterns, (Kager 1999:3). Languages to some extent are tolerant to marked structures but universal markedness cannot literally exist in the output of the grammar of the language ibid. Violation

of constraints is deemed negative as they may assume ungrammatic structures based on Universal Grammar but "what determines the best output of a grammar is the least costly violations of the constraints," (ibid). Since Constraints conflict according to Kager (1999), every logically possible output of any grammar will necessarily violate at least some constraint. Grammars he noted must be able to regulate conflicts between universal constraints in order to select the most harmonic or optimal output form. An example each has been given for markedness and faithfulness constraints below:

→Markedness constraint = *voiced-Coda (obstruents must not be voiced in coda position)

→Faithfulness contraint = Ident-IO(voice) (The specification for the feature [voice] of an input segment must be preserved in its output correspondent), Kager (1999:14).

**Ranking of constraints**

Conflict reconciliation efforts consist of calls for ranking of the universal constraints. This is language specific as higher ranked constraints are forcefully avoided than lower ranked constraints which bring elements of relativity in well formedness in various languages.

**Relevance of Optimality Theory (OT) in discussing the thesis topic**

As already noted earlier, this thesis looks at vowel hiatus resolution in Ewe of which the appropriate mechanism for the resolution is deletion of one of the adjacent vowels. Four environments are looked at namely, noun+noun compounds, verb+noun, adjective+noun and possessive particle, ɸé+noun. Arguments regarding which vowel of what lexical category that is likely to drop have been discussed and tones too.

Languages make use of a universal grammar but that does not make all languages the same. The uniqueness of each language is in the way they select and rank these universal constraints. As said earlier, vowel hiatus is a phenomenon many languages avoid and as a result have their unique ways of remedying the problem. Ewe chooses to delete, some other language may prefer epenthesizing and yet another language will go for neutralisation of a sort. The means by which all these are achieved is in the universal grammar. This is why special ranking of the universal constraints is needful for each language.

Using Optimality Theory as a framework for this thesis makes us see the uniqueness of the Ewe grammar in this regard. In other words, we see that Ewe is different from other languages which use other means in solving the same problem of vowel hiatus. The work of Smith (2011) is quoted later in the thesis demonstrating how other languages prefer to solve a similar problem. Observe an illustration of one Ewe example of a /verb+noun/ below.

me‘grill’ -verb + akpa ‘fish’ -noun’

| /me + akpa/ | *VV | Max-noun(V) | Max(V) |
|---|---|---|---|
| meakpa | *! | | |
| ☞makpa | | | * |
| mekpa | | * | |

*VV means that two clustering vowels are not allowed, Max-noun (V) says do not delete a vowel in the category noun and Max (V) states that do not delete a vowel.

In the tableau above, out of three surface forms gotten from the underlying form /me+akpa/ only one [makpa] is deemed harmonic or optimal. This example for instance among others

are well analysed using the optimality theory. Several other tableaux can be seen later in the thesis.

### 1.6 Method and Empirical Sources

Examples that have been used in the thesis are recordings of naturally occurring spoken data collected as native speakers went about their daily activities. These recordings were done among speakers of the language both in Ghana and Trondheim. Other few examples were taken from linguistic works such as Duthie (1996) and Stalhke (1971). In addition, my knowledge of the language as a native speaker also gave lots of insights into the discussions. Again, in-depth discussions on the subject matter with linguists such as Professor Ameka Felix (Leiden University) and Dr. P. K Agbedor (University of Ghana) aided the work greatly.

## CHAPTER TWO

## 2.0 LITERATURE REVIEW

When sounds interact in speech, they produce many features some of which trigger thorough phonological, morphological and in some cases dialectical investigations. The curiosity about the diversified results of these association lead to new discoveries about many languages across the world. Take for example what happens when a vowel precedes another vowel or both vowels occur in adjacent syllables in a particular language with no intervening consonant.

In a situation like this, a sound or sounds (weaker one) surrender/s to another (a stronger one) to create what is called elision. Harris (2011) describes the phenomenon as whole-segment deletion and broadly associates it with terms such as elision, loss, drop and truncation. He points out that these terms somehow out-lived their usefulness to modern approach to deletion yet useful for descriptive purposes as they "retain a strong flavour of the philological tradition within which they were conceived."

It is in this vein he cautions that the following connotations must not form basis in the present day approach of "synchronic deletion."

"First there is a procedural flavour of the terminology deletion might suggest that a phonological form is derivationally altered by irretrievable of a sound."

"Second there is an implication that what gets deleted is a phoneme-sized unit – an impression undoubtedly reinforced by the practice of using alphabetic transcription to present the relevant data."

Neither of these connotations according to him "accurately reflects how deletion is treated in modern phonological theories." This means approach to linguistic investigations must be

determined with an open mind without the effort to prejudge the outcome as each language could respond to same linguistic process differently with amazing outcomes.

Many modern linguistic discoveries strengthen Harris' caution especially when it is considered under autosegmental tone analysis which argues that tonal segments in each linear sequence establishes a separate tier and allows distinctive analysis of each tonal feature.

**Vowel deletion**

Deletion in generic terms is a cross-linguistic measure languages adopt to simplify the complexities that arise when two or more vowels cluster without intervening consonants. This complexity which is called hiatus is not a preferred phenomenon as a result many languages find a way of remedying it. For instance in Ewe vowel prefixes of nouns may drop out sometimes leaving their tone behind when they are preceded by another noun or sometimes by a verb, Duthie (1996).

For example,

- koko 'cocoa' + agble 'farm' →*kokoagble →kokogble (cocoa farm)
- aha 'liquor'+kpa 'to tap'+ehe 'knife'→ *ahakpaehe→ ahakpahe (a knife used in tapping liquor)
- kpɔ 'to see + enu 'something' → *kpɔenu→ kpɔnu (to see something; an image)

In spoken Ewe, one easily notices that vowels like u and o sound like w and vice versa. Similarly, vowels like i and e sound like y and vice versa Duthie (1996.)

woezɔ → wezɔ

wuieve →wieve

deviwo →devio

In the views of Harris (2011) this depends largely on the language in question. Dwelling on some examples from French, Karok and Ganda, Harris argued that some of the lost morphemes are compensated with a lengthening as in Ganda below.

For example:

| | | | | |
|---|---|---|---|---|
| French | lə ami | lami | the friend | (masc) |
| | la ami | lami | the friend | (fem) |

Karok

| | | |
|---|---|---|
| Ni-axjar | nixja | fill (1sg) |
| Ni-uksup | nikʃup | point (1ps) |

Ganda

| | | |
|---|---|---|
| Ba-ezi | be:zi | sweepers |
| Ba-ogezi | bo:gezi | speakers |

Contrary in Ewe, there is a total loss of the deleted segment ‘shortening’ the pronunciation instead of lengthening it as seen from some of the Ewe examples above.

Harris identifies the term an alternant in analysing linear segmental deletion which he noted is two sided – alternant that retains a segment and the other that lacks it. He provides a link between the two in an approach he defines derivational.

"The alternant are derived from a single underlying form that contains the segment which is then removed under certain phonological conditions by some mechanism that typically recapitulates historical deletion."

Talking about the impact the deletion mechanism has on the representations it operates on Harris prescribes modelling as a principle "that transforms an underlying or input form containing a given phoneme into a surface or output form that lacks it."

Writing on nonlinear analysis of deletion, Harris argues that alternations are not the only source of proof that can be used to regain deleted segments. He explains that a segment could leave its mark on output forms even in its absence and makes it clear that in such situations "deletion of the segment does not completely undo the effects of the influence." One of his illustrations is centered on the Ganda language in which deletion is followed by a compensatory lengthening of the remaining vowel. However, in the case of Ewe the deleted segment leaves no trace of its presence behind. (Example stated above)

Nevertheless, we can agree with Harris when he claims: "The deletion is thus only partial. A similar effect is witnessed in tonal stability where a tone that is cut loose by deletion of the vowel which is initially associated survives by attaching itself to a neighbouring vowel."

When a vowel is deleted there is an increase in syllabic marked-ness, however, there is only one pattern of vowel deletion that can be directly viewed as reducing syllabic marked-ness in the type of hiatus stated in French, Karok and Ganda above, (ibid). Mentioning apocope (loss of one or more sounds and the end of a word especially unstressed vowels) and syncope (loss

of one or more sounds from the interior of a word especially unstressed vowels) as conditions for deletion which involves the structure of the word, Harris states that the target of the two types of deletion in terms of positions is seen to be prosodically weak, as the processes are not always sensitive to stress (ibid).

**The effects of hiatus on tones**

In Mòbà Yoruba, vowel hiatus across certain morpheme boundaries causes one of the vowels to be deleted, Turner (2006). He identifies two phenomena where a vowel final verb is followed by a vowel initial noun and where a vowel final proposition is followed by initial noun as recipe for deletion in Yoruba, (ibid). "Phonetically there are three levels of tones in Yoruba, high, mid and low," (ibid). This truth is not far from tone levels in Ewe as they all belong to the Niger –Congo family and the nine possibilities he identified as sequences of two underlying vowels could also be similar in Ewe. These possible sequences include LL, LM, LH, ML, MM, MH, HL, HM and HH. This analysis will be dealt with into details in the analysis.

**Some issues in consonant deletion**

Though the concentration of this work is on vowels, it is important to look a little beyond the focus and examine how consonants also react to elision process in relation to Ewe language. Using Samoan language as an example, Harris indicates the effect deletion can have on consonants especially in the bid to bar any consonant from appearing word finally. In some languages according to him, such as, Lardil, the only type of consonant allowed in the elision situation is apical.

Jukarpa – jukar ‘husband’

Wuluŋka – wulun ‘fruit’

Kantu-kantu – katukan ‘red’

In the examples above it could be established that cluster simplification could affect any type of consonants including the apicals.

Similar examples could also be seen in Ewe:

dɔgbedelawo → dɔgbedeawo ‘ emissary’

kaletɔwo → kaleawo ‘the brave’

nugbedelawo → nugbedeawo ‘travelers’

This means that Ewe also resists restricted form of the process which shows affinity to the type of consonant involved.

In Calatan language according to the reports of Harris, “final cluster simplification targets coronals” only.

| Masculine | Feminine | |
|---|---|---|
| əskerp | əskerpə | shy |
| orp | orpa | blind |
| l’ark | l’arɣə | long |
| al | altə | tall |

| | | |
|---|---|---|
| for | fortə | strong |
| san | santə | saint |

Harris' evidence suggests that simplification also affects non-final consonants but give more credence to simplification of onset cluster.

| Sanskrit | | Pali | |
|---|---|---|---|
| Prati | – | pati | 'against' |
| Traana | – | taana | 'protection' |
| Kramati | – | kamati | 'walk' |

Harris's notion that "if however, the juxtaposition of two morphemes creates a consonant sequence other than partial germinate, the first consonant is deleted," cannot be doubted.

| | |
|---|---|
| let-ku-jaw- lekujaw | 'they won't go' |
| ujk-ja – ujuja | 'if you see' |
| kobkoben – kokoben | 'yearn' |

## CHAPTER 3

## 3.0 THE SYLLABLE

### 3.1 INTRODUCTION

This section captures the definition of the syllable and also looks at the structural types according to Duthie (1996:9-10). A general discussion on the effects of deletion in syllables is also looked at.

### 3.2 SYLLABLE DEFINED

The syllable is defined as a prosodic category organising segments in sequences according to their sonority values. Each syllable has a sonority peak (nucleus), usually a vowel, possibly surrounded on both sides by margin segments of lower sonority, usually consonants (onset, coda) Kager (1999:91).

This definition implies that nuclei in syllables are obligatory while the employment of onsets and codas is language specific. According to Kager, the syllable plays a number of roles which one of them is ‘**’governing patterns of epenthesis and deletion’’.**

It is for nothing that this thesis makes reference to Kager’s definition and exposition of the syllable; the reason for quoting the author is to help discussions on contextual deletion in Ewe as being looked at by this thesis and especially when there is the mention of one syllabic role and that is governing patterns of epenthesis and deletion. More or less it serves as one of the various springboards to discussing the phonological process – deletion.

## 3.3 STRUCTURAL TYPES OF EWE SYLLABLES

### Duthie's version

Duthie (1996:9-10) mentions that there are three basic structural types and all of these types necessarily have their accompanying tones.

Syllable type 1

- Tone and nucleus only for example, é (he/she/it), è (you-SG), ò (not)

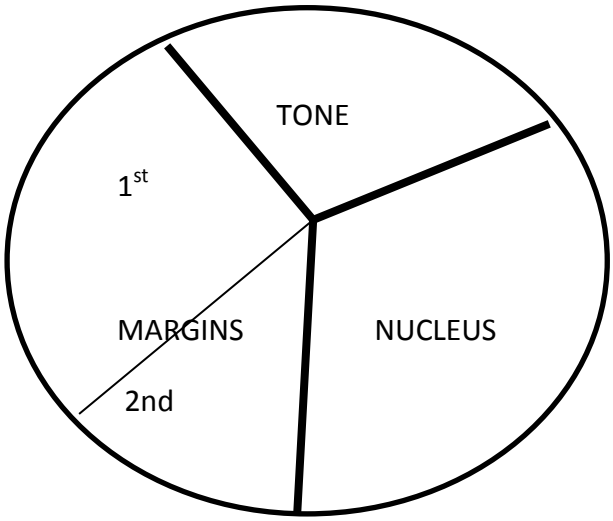
Syllable type 2

- One margin, tone and nucleus for example, tó (pound), fì (steal), gbɔ̃`(goat)

Syllable type 3

- Two margins, tone and nucleus for example blè (deceive), dzrá (sell), *f*lè (buy), gblɔ` (say)

The diagram below is Duthie's presentation of all three types of syllables.



## 3.4 PROBLEMS WITH DUTHIE'S ANALYSIS

Duthie's account has some problematic sides to it. For example, he does not tell whether these parts of the syllable have autonomy or are boxed together. My observation and understanding of his diagram as well as his explanations is that all the segments including tones are inseparable. The problem with this analysis is that we are unable to tell the behaviour of these individual segments and tones in context. For example, how do we account for deletion of the different entities (segments and tones) which is the focus of the thesis, epenthesis etc?

This shortcoming is the problem that autosegmental phonology addresses where it looks at features independently.

Again, he does not say what the margins represent whether they are onsets or codas. It is only by observing some of his examples that one is able to tell. A careful observation reveals that they are onsets afterall.

## 3.5 EWE STRUCTUAL TYPES OF SYLLABLES: ASSUMPTION OF THIS THESIS

As shown earlier, Duthie proposes that there are three basic structural syllable types in the Ewe language which this thesis does not doubt. We however need to keep in mind that a segment may be complex so what may seem as two consonants may actually be one as in /**dz**á/ (slice/butcher-verb) in type two and /**gb**lɔ̀/ (say) in type three. Note that the /dz/ segment is an affricate and is counted as one segment. The same is said of the /gb/ segment. The only difference is that /gb/ is a plosive.

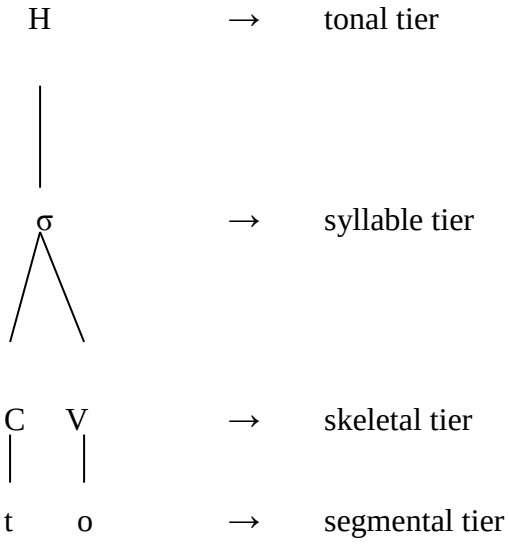
The presentation below is also different from Duthie's in that it does not tie up all the features including tones together. It treats all features as individual entities or autosegmentally.

1. V – nucleus only eg. é (he/she/it), è (you-SG), ò (not)
2. CV – an onset and a nucleus eg. tó (pound), fì (steal), dzá (butcher-verb)
3. CCV- two different consonants representing one onset and a nucleus eg. blè (deceive), dzrá (sell), gblɔ̀ (say).

Note that all the three syllable types have an associated tone to them. The fact that the tone is specified on the vowels does not mean that they are inseparable because they are!

### 3.6 AUTOSEGMENTAL PERSPECTIVE OF THE SYLLABLE

Autosegmental theory looks at segments as occupying autonomous tiers as represented with an Ewe example below. This makes it easier to explain certain phonological processes such as deletion, epenthesis, tone behaviour etc.



‘’pound’’

### 3.7 CODAS IN EWE

Discussions so far have no mention or representation of codas. This however does not mean the language does not employ codas at all. Codas are only found in what Duthie 1996:11, describes as ideophones or picture words and some words of non-Ewe origin. They are however, perceived as less basic to the language and so do not necessarily fit into any of the three basic types. Examples include: krantɛ´ (cutlass), atám (oath), aprim´ (cannon), kpàm (slap), góŋgóŋ (tightly).

### 3.8 DELETION AND RESYLLABIFICATION IN CONTEXT

Deletion generally is the elimination of an item. In our context of discussion the focus is on deletion of segments (one of two adjacent vowels) and its effect on syllables. When two different word classes or same lexical categories are put together such that one of them ends with a vowel and the other begins with a vowel the result is a hiatus situation. In cases where this is avoided, one of vowels is made to elide. Syllables that are affected in this regard become short of a segment and very often, this happening unleashes resyllabification. Consider the examples below:

- /akadi ‘light’(noun) + ati ‘stick’ (noun)/ → *[akadiati] →[akaditi] ‘lamp stand’ (compound noun)
- /ble ‘deceive’ (verb) + ame ‘someone’ (noun)/ → *[bleame] → [blame] ‘deceive someone’

In the examples above only one of the two adjacent vowels made it into the final output.

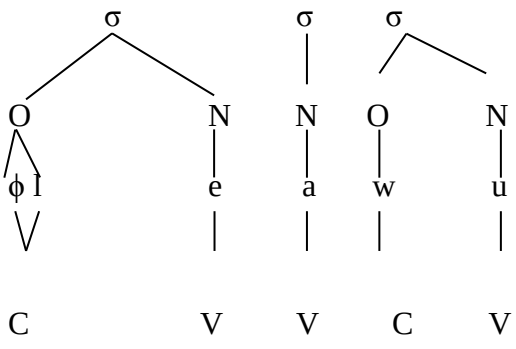
The illustration below further looks at the phenomenon. It demonstrates or illustrates the deletion in syllables and how they are reduced after any elision process.

The example used for the illustration below consists of two morphemes /ɸle/ ‘buy’ (verb) and /awu/ ‘dress’ (noun). In utterances the vowel cluster is seen to be resolved as in /ɸle/ + /awu/→ *[ɸleawu] → [ɸlawu]. Observe the sentences below:

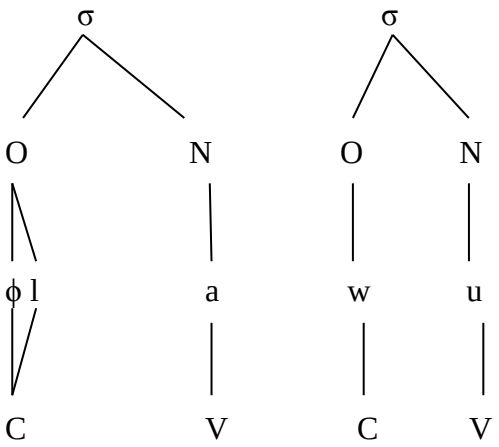
| | | | | | |
|---|---|---|---|---|---|
| (Written) | ‘Kofi | ɸle | awu | egbe’ | ‘Kofi bought a dress today’ |
| | Kofi | bought | dress | today | |
| | | ↓ | | | |
| (Spoken) | ‘Kofi | ɸlawu | egbe’ | | |

**Further illustration of deletion using the syllable**

**Before deletion**



**After deletion**




The syllabic illustration above reveals that before deletion the syllables numbered three but reduced to two after the process. This happening gives rise to resyllabification, an effect of deletion of a vowel. Resyllabification also in the sense that the original syllable type is altered giving way to a new syllable type which is different from the original or the underlying form. ‘‘A vowel forms a local sonority peak and thus projects its own syllable nucleus, so removing it inevitably unleashes resyllabification’’, Harris, (2011:1614). This means that anything (in our case a vowel) short of the expected shape of a syllable automatically reshapes the original especially when the nucleus which is a local sonority peak elides.

## 3.9 EFFECTS OF DELETION

Most words in Ewe begin with consonants except for cases where the V syllable type has to do with pronouns such as è (you SG), é (he, she, it) and some special particles such as ò (not). These pronouns and special particles are not prefixes neither are they suffixes. They are independent components. Their positions or environments in sentences are such that they could not be affected in the case of deletion. Their analysis is more syntactic than phonological. They could be looked at as words which belong to the group, ‘exception to the rule’.

The need for a contextual onset is achieved by deleting a segment; an adjacent vowel. In this case the assumption with its corresponding expectation is that the deletion affects syllables with no onsets in other words vowels that have no preceding margin (onset) as in:

ɸle.a.wu

↓

ɸle,~~a~~.wu

↓

ɸle.wu

The deletion is supposed to affect syllables with no onsets because onsets in this case are preferred. This is exactly what happens as we observe the final output, ɸle.wu. However, sticking to the final candidate or accepting it as the preferred choice will amount to accepting a 'false truth' in the language. What I call 'false truth' as far as this thesis as well as this context is concerned is that the language has no accepted form as ɸle.wu but rather ɸla.wu.

The question then is, why should it be ɸla.wu and not the glaring final output ɸle.wu? The reason could be positional faithfulness of the category noun. I assume this is so with regard to the behaviour of nouns as compared to their counterparts belonging to other word classes, Smith (2001).

/a/ which is made to elide belongs to the noun 'awu' (dress). Nouns are believed to be positionally faithful than the other categories. Φle (buy) is a verb which is likely to succumb to deletion. Further discussion on positional faithfulness will be seen later in the discussions.

Another crucial reason the /a/ should necessarily survive is that it is a needed prefix because bare roots are not permitted in most nouns in Ewe. Some other segment must drop instead to

make way for its survival. It survives and takes on or accepts the margin of the ‘dead’ segment.

This phenomenon is in line with the principle below:

1. Minimal Onset Satisfaction – which prefers Onsets, meaning that there should at least be an onset even if it is one segment if possible (Roca, 1994:145)

## 4.0 POSITIONAL FAITHFULNESS

### 4.1 INTRODUCTION

This section looks at positional faithfulness in general and also discusses hiatus resolution in Ewe, positional faithfulness in initial syllables and phonological behaviour of Ewe lexical categories.

### 4.2 POSITIONAL FAITHFULNESS IN GENERAL

Positional faithfulness is an aspect of phonology that is mentioned in this thesis. The motivation for this presentation is to serve as reference for the previous mention of the subject and again for later discussions.

Positional faithfulness in itself as the name implies has to do with loyalty in some defined positions. Loyalty in the sense that they tend to preserve feature values of segments and these segments occupying the positions try to stay steadfast to them. In other words they are 'phonological positions that maintain their original shape; they do not allow neutralization of any kind and they resist change'. Kager (1999:408) refers to these positions as salient or prominent because they are positions where contrasts are best realised.

Some of the privileged occupants of this position include word-initial consonants (onsets), prevocalic (or released) consonants, root segments, stressed vowels, and vowels in initial syllables. There are other salient positions as lexical categories especially nouns which do everything possible to safeguard the whole of the category which means that comparatively, they tend to resist any phonological process or processes that may affect them negatively than do other categories such as verbs, adjectives etc. Nouns are known to occupy a strong

position in grammars. This is a theory proposed by Jennifer Smith in her article "Lexical Category and Phonological Contrast" which will be looked at in the later discussions.

In actual fact, some of these positions act as triggers of phonological processes such as vowel harmony, assimilation, dissimilation, metathesis, deletion etc in the world's languages where appropriate.

Beckman (2004:311) outlines some psycholinguistic reasons for making certain positions such as root-initial/word-initial positions prominent. Some of these include:

i. Utterance-initial portions make better cues for word recognition and lexical retrieval than either final or medial portions.

ii. Word onsets are the most effective cues in inducing recall of the target word in tip-of-the-tongue states.

iii. Mispronunciations are detected more frequently in initial positions than in later positions.

In the world of Optimality Theory, though faithfulness constraints count a lot or is key to positional faithfulness, specific positional faithfulness constraints dominate general faithfulness constraints in the bid to satisfy segments in these 'all special' positions. This is important because it helps to properly analyse 'the distribution of segmental contrasts'. 'Positional faithfulness constraints protect the integrity of prominent positions by blocking alterations between input to output in these positions, Beckman (2004:369).'

Kager (1999:408) explains that 'a faithfulness constraint for a feature [F] referring to a prominent position dominates the general faithfulness for [F]. This according him, 'allows a 'sandwiching' of markedness constraints in between positional and general faithfulness constraints, producing positional neutralization.' In other words, this sort of ranking that is

'IO-Faithfulness ( prominent positions)>> Markedness>> IO-Faithfulness (general)' renders segments which are supposed to be positionally faithful to remain non-aligned, non-affected, stoic and more or less adamant as well as not budging to any form of phonological pressure. It is highly ranked.

## 4.3 HIATUS RESOLUTION IN EWE

Hiatus is the situation where vowel clusters are observed in context. Very often when different lexical categories are compounded they give rise to this phenomenon. Languages, the world over have varying ways of resolving the problem of hiatus. Some of these correction mechanisms include deletion of one of the vowels and epenthesizing in order to break the cluster. Which material is deleted or is epenthesized is language specific.

In resolving hiatus in Ewe as per this thesis, a vowel is deleted. Which of these vowels succumbs to deletion? Is it the final vowel of the first syllable or the initial vowel of the second? As will be seen shortly, argument for positional faithfulness in initial syllables poses problems as far as the language and the context of discussion are concerned. On the other hand, noun faithfulness may be a good explanation to which vowel elides and which survives.

I must say that depending on the focus of the repair an appropriate repair mechanism is utilised though they all have one main aim which is breaking a vowel cluster (a final and an initial vowel). If the focus is on syllables, deleting one of the adjacent vowels in order to necessarily have an onset satisfies that need as discussed earlier. Then again, if our focus for the elision is on the grounds that Ewe in this context generally frowns upon vowel-vowel clusters, then when that is achieved the language is again satisfied. Both foci I believe are on the same path although one has a specific task of breaking the cluster (having an onset) and

the other only states that 'I do not like the pattern.' It is this 'I do not like the pattern (*VV)' that is driving this thesis to attempt finding suitable reasons that satisfy the statement. Some of these reasons may remain speculations nevertheless.

In optimality theoretic perspective, both constraints (ONSET and *VV) would fulfil the same purpose in this thesis and that is breaking the vowel cluster. Onset on one hand would address all onsetless syllables while *VV on the other hand focuses its attention only on vowel hiatus resolution that is where the onsetless syllable is preceded by a vowel.

However, there arises an interesting situation that needs mentioning and this has to do with the final optimal candidate with regard to satisfying the syllable need that is ONSET and the constraint that in this context *VV is not permitted. Observe the tableaux below:

Tableau 1

| /ɸle+awu/ | ONSET | MAX(V) |
|---|---|---|
| Φleawu | *! | |
| ☞ɸlawu | | * |
| ☠ɸlewu | | * |

Tableau 2

| /ɸle+awu/ | *VV | MAX(V) |
|---|---|---|
| Φleawu | *! | |
| ☞ɸlawu | | * |
| ☠ɸlewu | | * |

The observation from the two tableaux shows that either ways gives rise to two optimal candidates which should not be the case. (the correct winner has a finger pointing to it while the illicit winner has a skull).

The only way to resolve the problem is to critically look at what pertains in the language. What does the language accept as the proper output form? Is it [ɸlawu] or [ɸlewu]? This occurrence launches us to discussing the hypothesis on positional faithfulness in the noun category. This is to say that MAX-noun (V) >> ONSET >> MAX(V) or MAX-noun (V) >> *VV >> MAX(V). By this ranking [ɸlawu] will finally be the only optimal candidate.

It is worth stating that though this thesis is in a way trying to find reasons for the avoidance of vowel-vowel clusters it also has as an objective to paint a true picture of the Ewe language with regards to what is accepted as an output form and what is not. I say this with respect to discussions on syllables needing onsets. In as much as that prevents the VV clusters, it is equally imperative we tell the whole world the truth about the language. Meaning that ONSET will in some cases break the cluster but will not always give us the right output forms. Also *VV does not give the correct output form always, as seen in tableau 2. Again, *VV and Onset do not tell us which one of those two output candidates should win, i.e. they do not tell us how to resolve the hiatus situation. They only say that something must be repaired. The proposed repair strategy is in the domain of positional faithfulness.

In what follows I illustrate nouns' resistance to elision in the domain of hiatus resolution as discussed above.

1. Verb+noun

Tableau 1.

| /ɸle + awu/ | Max-noun(V) | *VV | Max(V) |
|---|---|---|---|
| Φleawu | | *! | |
| ☞ɸlawu | | | * |
| Φlewu | *! | | ** |

Possessive particle+Noun

Tableau 2

| /ɸe + afɔkpa/ | Max-noun(V) | *VV | Max(V) |
|---|---|---|---|
| ɸeafɔkpa | | *! | |
| ☞ɸafɔkpa | | | * |
| ɸefɔkpa | *! | | ** |

Adjective+Noun (composite words)

Tableau 3

| /koklo+ astu/ | Max-noun(V) | *VV | Max(V) |
|---|---|---|---|
| kokloatsu | | *! | |
| ☞koklotsu | | | * |
| Koklatsu | *! | | ** |

The three tableaux above indicate how nouns are able to resist deletion but the other categories do not. That is to say that in hiatus resolution, verbs, adjectives and the possessive particle resolve hiatus by deleting their final vowels. This however would be only one of more possible analyses which are yet to be unearthed but are not part of this thesis.

## 4.4 POSITIONAL FAITHFULNESS IN INITIAL SYLLABLES

We return to discussions on positional faithfulness and more specifically faithfulness in initial syllables. Walker (2011:18) talks about segments which are in initial positions in syllables as occupying a prominent or strong position. This means that they are unaffected by deletion. Deletion in any form must occur elsewhere other than the initial position. And that is to say that we would expect vowels in those positions to be preserved while vowels of non-initial syllables are not. This discussion is particularly interesting and worth looking at because of some interesting revelation and observation as per our language in question which is the Ewe language. In as much as this assertion may be true for other languages, it is not the case for Ewe as far as this context is concerned.

With reference to the afore discussion on the effects of deletion, it is seen that the example used does not fall in line with what is generally known for initial syllables in literatures as referred to by Walker. This is because it is the initial syllable of a.wu (dress) that is lost as is seen in the repeated compound below:

ɸle.a.wu

↓

ɸle.~~a~~.wu

↓

ɸle.wu

↓

ɸla.wu

We expected /ɸleawu/ to surface as [ɸlewu] in the third outcome but as already mentioned it never did. Even if that was the case it still would not align itself to what is known of initial syllables because then, the initial vowel which must not drop, elides. As per the language what comes up finally is [ɸlawu]. The reason for showing *[ɸlewu] in the derivation process though it is not the actual optimal candidate is to illustrate systematically from start to finish how we finally arrive at the actual harmonious candidate [ɸlawu].

Going back to the issue of initial syllable, what then is happening here with special regard to Ewe is that they remain unfaithful in that they allow themselves to drop easily. When an initial syllable is unfaithful, it may be that the special faithfulness of initial syllables is simply lower ranked in optimality theoretic terms than other relevant constraints in the language.

As per the problem of /ɸleawu/ surfacing as [ɸlawu] (the optimal candidate) and not *[ɸlewu], the reason we attempt to assign to this dramatic shift is positional faithfulness in the category noun as mentioned before looking at what is generally known in literatures for the category noun. This shows that it will be a lot more prudent to look at the phenomenon as positional faithfulness in nouns and not in initial syllables. Looking at it from Optimality Theoretic perspective, there is a higher and stronger constraint than just positional faithfulness in initial syllables. This constraint would be positional faithfulness in noun (Max-

noun (V)). This constraint simply says, do no delete anything in the noun as far as vowels are concerned whether initially, medially or finally.

However, if our aim is to churn out millions of outcomes that satisfy the Minimal Onset rule and not necessarily the real truth about the language then we could maintain the known characteristic of the initial syllable but that is certainly not what this thesis is about. We need to know exactly what goes on in the language. And that is to say that if one hypothesis does not work another will certainly fit.

Other examples showing that there is some level of unfaithfulness in initial syllables are given below. This also strengthens the fact that Positional Faithfulness in the category noun can be upheld.

- /ɸe/ (Possessive marker) + /aɖu/ (tooth-noun)

/ɸe.a.ɖu/→/ɸe.ɖu/→**[ɸa.ɖu]**

- /te/ (press) + /anyi/ (clay-noun)

/te.a.nyi/→/te.nyi/→**[ta.nyi]**

## 4.5 CONCLUSION

We have noticed as per the discussion that what is known in literatures as that of Beckman, Walker et al that initial syllables are positionally faithful could be the case for other languages but certainly not for Ewe especially in our context of discussion. We came to this conclusion based on predictions that emerged as a result of testing the hypothesis. This thesis therefore proposes that positional faithfulness in the category noun works better for the language especially when it comes to what vowel elides and which one is made to survive.

We have also seen that the minimal onset satisfaction rule cannot always produce correct forms permitted in the language.

Now that we have realised that one hypothesis does not fit we will go further to look into other hypotheses. In what follows, I discuss the phonological behaviour of Ewe Lexical categories with respect to positional faithfulness in the category noun.

## 4.6 PHONOLOGICAL BEHAVIOR OF EWE LEXICAL CATEGORIES

Lexical categories considered in this thesis are nouns, verbs, possessive particle and adjectives (nouns that play the role of adjectives in the case of composite words). One hypothesis which will be tested is one that claims that the category noun has greater phonological freedom in that whatever phonological process that affects lexical categories be it deletion, epenthesis, neutralisation etc, these processes will always target other lexical categories other than nouns. Using this hypothesis is needful for this discussion especially when our previous discussion dismissed one claim but made strong a case for the category noun.

Jennifer L. Smith in her paper 'lexical category and phonological contrast'(*PETL 6: proceedings of Workshop on the Lexicon in Phonetics and Phonology. Edmonton: University of Alberta, 61-72)* hypothesises that nouns resist deletion of any sort meaning that they occupy a strong position in positional faithfulness. Among the languages she looked at is the Sinhala language. According to her in Sinhala verbs prefer to resolve hiatus through deletion as shown below:

/teere$_{[v]}$+ilaa/ ‘understand, past part.’

| /teere[v]+ilaa/ | $MAX_N$ | ONSET | DEP | MAX |
|---|---|---|---|---|
| a. Teere<u>w</u>ilaa | | | *! | |
| ☞ b. teerilaa | | | | * |

When we come to the language in focus, Ewe, a careful observation reveals that Ewe nouns resist deletion of any sort too in our context of discussion. The other categories always have a segment of theirs deleted when in combination with nouns. This means that ‘‘nouns have greater phonological freedom’’ than do other categories like verbs, adjectives and the possessive particle as in the examples below:

- /ɸle/ ‘buy-verb’ + /agbe/ ‘life-noun’

/ɸleagbe/→[ɸlagbe]

- /koko/ ‘cocoa-noun’ + /agble/ ‘farm –adjective’

/kokoagble/ →[kokogble]

- /ɸe/ ‘poss marker’ + /akadi/ ‘light – noun’

/ɸeakadi/→ [ɸakadi]

In optimality theoretic perspective, the ability of nouns and for that matter Ewe nouns to resist deletion is attributed to them occupying a strong position which will be analyzed as a case of positional faithfulness; the position of belonging to a class of lexical category called nouns. Smith Jennifer explains that nouns generally, ‘‘show privileged phonological behavior

compared to words of other categories. That is nouns may license more phonological contrasts than other words or resist phonological processes that apply to other words.''

## 4.7 GENERALISATION

The generalization therefore is that in the event of deletion in the situation of hiatus where one vowel necessarily must elide, the target is almost always other lexical categories other than nouns. Nouns tend to keep their input features making those features same as what is realized in the output forms.

In order to capture this for Ewe in optimality theoretic terms, the grammar must necessarily consist of noun-specific faithfulness constraints which when highly ranked will permit nouns to be free from deletion but targets other word classes.

## 4.8 CONSTRAINTS AND THEIR RANKING

A constraint is ''a structural requirement that may be either satisfied or violated by an output form''( Kager 1999:8). Ranking of these ''structural requirements'' leads us to an expected output.

Constraints to consider include:

a. Faithfulness (F) : Max-noun(V) Input segments have output correspondents with regards to nouns (= 'No deletion of vowel in nouns')

This is a noun-specific faithfulness constraint which makes sure that there is absolute preservation of the vowels in the noun as per the discussion.

b. Markedness (M) :*VV - Vowel-Vowel clusters are ungrammatical: one violation for every pair of adjacent vowels in the output.

The motivation for making use of this constraint stems from the fact that the examples or data being considered in the thesis always have some elision of a kind: the type that occurs when there is a vowel cluster. The grammar seems to frown upon pairs of adjacent vowels and the only way it avoids this is to delete one of them.

ONSET (onset requirement constraint) could be another possible alternative to hiatus avoidance (the *VV constraint). This is because the moment there is an insertion of onset it could break the *VV cluster. However, I do not include this constraint though it could be an option because the focus is to implement the analysis as a hiatus repair strategy.

c. Faithfulness (F) : Max(V) - Input segments have output correspondents (= 'No deletion of a vowel') This is a general ''No deletion of a vowel'' constraint since deletion in itself is observed in this context or in the language.

It has no specific target but only tries to penalize any candidate in the output that undergoes deletion in any form or takes out a vowel.

## 4.9 RANKING

In Optimality Theory, the presence or absence of a phonological contrast depends on the relative ranking of faithfulness and markedness constraints (Prince & Smolensky 1993). As per the discussion, it is needful that the Ewe grammar includes position-sensitive constraints that favour nouns since they securely possess their positions.

Constraints chosen as seen above are a combination of Faithfulness constraints (F) which requires that output forms should resemble input forms along some particular or specific dimensions and Markedness constraints (M). The latter prohibits or bans a particular marked structure from surfacing in output forms. In other words, Markedness constraints require that output forms meet some criterion of structural well-formedness (Kager 1999:9).

Before we rank the considered constraints let me be quick to comment on an interesting observation as far as the constraints are concerned.

There seems to be some conflict between constraint (a) - Faithfulness and (b) - Markedness. The conflict here is that whiles the language favors no deletion especially in nouns it is also faced with a situation where deletion is unavoidable. Constraint (a) specifically states that there should not be any erasure in nouns however, when we put lexical categories together side by side such that there is a cluster of vowels, it is the same language that quickly would want to avoid such occurrence.

According to Kager 1999:6 this is expected since Markedness and Faithfulness are inherently conflicting. Whenever some lexical contrast is being preserved, there will be some cost associated in terms of markedness since in every opposition one member is marked.

### 4.10 HOW THEN IS THIS PROBLEM RESOLVED FOR EWE?

The resolution is by way of hierarchical ranking.

First, since the discussion is one that is favouring nouns phonologically, constraints generated and how they are ranked hierarchically should be able to preserve all underlying features of nouns in the output form. This will therefore mean that the candidate that does the preservation must not fatally violate the highest ranked constraint else it will cease from

being the most harmonic or optimal candidate. This again means that the specific constraint must dominate all others as shown below.

Max-noun(V), *VV >> Max(V)

| /ɸle‘buy,verb’+ awu‘dress,noun/ | Max-noun(V) | *VV | Max(V) |
|---|---|---|---|
| ɸleawu | | *! | |
| ☞ ɸlawu | | | * |
| Φlewu | *! | | ** |

Further, if the focus is shifted generally onto the conflict in Max-noun(V) and *VV then we can postulate that since these two constraints are very important and needed in the grammar of the language though in our case they conflict, maintaining both of them at the same level could be a possible solution which of course then means that they both dominate Max(V) which also does not favour deletion of a vowel but its scope is general.

From the above tableau and discussion it is observed that whichever way we decide to rank the two constraints (Max-noun(V) and *VV) there emerges only one optimal candidate. This candidate is [ɸlawu] which is exactly the result the grammar of the language wants to achieve. *[ɸleawu] and *[ɸlewu] fatally violate the two most crucial constraints hence their inability to appear optimal.

Positional faithfulness in the category noun approach as has been discussed though to a very great extent can be upheld for the language, it also cannot explain everything especially with examples below that drop elements in their nouns.

- ta (make-verb) + emɔ (way/path-noun)

ta + emɔ →taemɔ→tamɔ

- agba (plate-noun) + eto (edge-adj)

  agba + eto → agbaeto→agbato

With the inadequacy of the positional faithfulness in noun approach, I go further to look at another approach which is vowel quality.

## 5.0 VOWEL QUALITY

### 5.1 INTRODUCTION

This discussion is a further dig into reasons of avoiding vowel-vowel clusters in other words hiatus resolution and which vowel gives way to this repair is determined by the language. As seen throughout the discussions, the repair strategy is always deletion of one the vowels. Earlier discussions have attempted to provide reasons for the drop of one of the vowels and the retention of the other. This section continues to advance reasons for the pattern and this time it is in the domain of vowel quality. I first present the vowel system in Ewe. The idea behind this presentation is to be able to give a vivid and visual description as well as comparison of vowels involved in the discussion of vowel quality.

### 5.2 EWE VOWELS

| | | |
|---|---|---|
| i ĩ | | u u˜ |
| e e˜ | | o õ |
| ɛ ɛ˜ | ə ə˜ | ɔ ɔ˜ |
| | a ã | |

Duthie (1996:12)

The above make up the oral and nasalised vowels found in Ewe. Those to the left are front vowels, their extreme rightward counterparts are rounded back vowels and the two in the middle are central vowels. In terms of height, ( i ĩ, u u˜) are close, (e e˜, o õ) are half-close, (ɛ ɛ˜, ə ə˜, ɔ ɔ˜) are half-open and (a ã) are open and low.

## 5.3 VOWEL QUALITY OF V-V ie /a/ AND /e/

This discussion is centered around verbs (restricted to /e/ ending verbs ) and noun (with prefix /a/) environments. Verbs ending with /e/ usually delete the vowel when they precede prefixed /a/ of nouns as in the example below:

- /Φl**e/** (buy) +/ **a**wu/ (dress) → [ɸl**a**wu]

/e/ is a front, mid-high/half-close vowel and /a/ is a central low vowel.

## 5.4 REASONS FOR THE DROP OF /e/ AND SURVIVAL OF /a/

Walker, (2011:29) explains that in patterns that delete unstressed vowels, often high vowels or all non-low vowels are prone to deletion. These set of vowels are also difficult to perceive because of the compression of the height dimension in the absence of stress.

Walker relates this pattern to stress which for me will be difficult to say same for the Ewe vowels in question because this thesis has not established that the language has stress. However, my argument for looking at Walker's assertion vis à vis the pattern in Ewe is that we assume the pattern is independent of the motivation for deletion whether that is stress, hiatus resolution or something else. In other words, non-low vowels are more prone to be deleted, whatever the reason.

With this established, we can advance reasons for the drop that is observed for /e/ as:

1. It is in a weak position in its own right and not because it is found in a particular word class.
2. It is mid-high in other words a non-low vowel.
3. It is not easy to perceive it because of the compression of the height dimension.

**Survival of /a/**

The same exposition given above holds for the survival of /a/.

1. It is in a strong position in its own right and not because it is found in a particular word class as in a noun. Else, it will be difficult to explain its loss in some nouns as illustrated under 'sonority as a vowel quality' and earlier discussions on positional faithfulness in the category noun.
2. It is a low vowel.
3. It has the lowest height as compared to vowels of other heights. This however, makes it have the greatest intrinsic amplitude and duration and perceiving it is less difficult.
4. Again, as in Latin, it is the only low vowel and this makes it lack a minimally contrastive vowel paired for backness/rounding or height.

## 5.5 SONORITY AS A VOWEL QUALITY

In what follows I discuss sonority as a vowel quality. Sonority is amplitude or loudness of vowels. Among vowels, the low vowels have more sonority than the high vowels. This is to say that all low vowels belong to one class and share a common feature i.e high sonority. High vowels on the other hand also belong to one class and the common feature they share is low sonority. This is to say that there exist some level of sonority harmony as far as high and low vowels are concerned.

Sonority differs for /a/ and /e/ and in general from one vowel to the other. On the sonority scale, /a/ is more sonorous than /e/. The reason being that it is low and low vowels are most sonorous as compared to other vowels.

Observe the sonority hierarchy below.

- Low vowels > mid vowels > high vowels rewritten as: a > ɛ, ɔ > e, o > i, u > ə

Moira Yip ( 2007:178)

Though low vowels are also marked at one point in time they still are preferred. The ranking below shows that the low vowel in the nucleus position is the lowest ranked and so in the event of fatal violation it is safe as compared to the other high vowels. For them they will easily be the target for fatal violation because they are highly ranked.

- *Nuc/i,u>>*Nuc/e,o>>……*Nuc/a

From another angle the question to ask is, 'is it always the case that the vowel with the highest sonority survives? What if instead of /e+a/ as in /ɸle+awu/ we have /a+e/ where the verb ends with /a/ and the noun begins with /e/? The /a+e/ examples are below as a way of testing further if it is always /a/ that is more sonorous and so will survive.

- dza (slice-verb) + ela (meat-noun)

  dza + ela →dzaela→dzala
- ta (make-verb) + emɔ (way/path-noun)

  ta + emɔ →taemɔ→tamɔ
- agba (plate-noun) + eto (edge-adj)

  agba + eto → agbaeto→agbato

The observation above clearly shows that /a/ always survives. This however means that /a/ is the best and will be preferred above all others especially /e/ in our context of discussion. So for which vowel is likely to drop and which survives by way of vowel quality with regards to sonority it is always /e/ eliding and /a/ surviving.

The examples above with the switch in positions of the vowels /e/ and /a/ could in a way mean falsification of our earlier hypothesis of positional faithfulness of nouns. However, this cannot be entirely the case because in some contexts we find initial vowels of nouns faithful and in others unfaithful. With the examples above we can say that when the verb ends with /a/ it is the initial of the noun that drops but when it ends with /e/ this /e/ rather elides.

## 6.0 NOUN PREFIXES AND ADJACENT FINAL VOWELS OF SYLLABLES IN CONTEXT

### 6.1 INTRODUCTION

This section looks at prefixes and adjacent final vowels of syllables. The focus is to observe and discuss their behaviour in two ways. (a) How either prefixes and final vowels of an adjacent syllable behave when they do not interact with each other in other words when they stand alone. (b) How they behave when they interact that is when they are put side by side or adjacent each other as in the case of COMPOUNDING - (noun+noun compounds). Tone behaviour is discussed as well.

Noun prefixes in Ewe indicate singularity. To indicate plurality of these nouns with or without the prefix, the suffix ‘wo’ is attached. The language is not a noun class language as with some other Kwa languages as Akan which mark singularity and plurality with prefixes. The choice of a particular prefix is primarily dependent on the individual noun and not on a group of noun words and therefore it will be difficult to look at them as a kind of a noun class prefix.

### 6.2 EWE NOUN PREFIXES

The language has two main noun prefixes all said with low tones. These are a- and e- . These prefixes are overtly present with their roots in most if not all Ewe nouns. This is so because bare roots are not permitted except for cases where a noun stem loses its prefix because it is involved in a compounding situation or the prefix is not overtly expressed. Illustration of this is seen below.

1. è-gbè ‘grass/bush’ + à-vù ‘dog’ → ègbèvú ‘bush dog’

2. è-kpé ‘cough’ + è-dɔ̀ ‘sickness’→ èkpédɔ́ ‘cough ailment’
3. à-bà ‘bed’ + à-tí ‘stick’→ àbàtí ‘bed’
4. à-kùtsá ‘sponge’ + à-gbà ‘bowl’→ àkùtságbá ‘sponge dish’
5. à-tádí ‘pepper’ + è-zè ‘pot’→ àtádízé ‘pepper pot’
6. fɔ́ŋlí ‘dawn’ + à-vɔ̀ ‘cloth’ → fɔ́ŋlívɔ́ ‘dawn cloth’
7. dètsí ‘soup’ + è-zè ‘pot’ → dètsízé ‘soup pot’

### 6.2.1 OBSERVATIONS

All hyphenated words are nouns made up of prefixes and roots except for 6 (fɔ́ŋlí) and 7(dètsí). These are a few of the nouns that have no overt prefix.

The individual nouns have also been put together as compounds and the observation is that all the prefixes belonging to roots of the second element in the compound elide.

## 6.3 ELISION IN THE SECOND ELEMENT IN NOUN-NOUN COMPOUNDS

As observed earlier, in noun-noun compounds vowel prefixes of the second noun drop. Some reasons for the drop have been given below.

Morphology – one reason we would attribute to this occurrence could be that in the domain of Ewe morphology though this will not be a strict reason but a kind of springboard into discussing a reason in phonology. More explanation is given below.

Every language is governed by some set of rules which includes morphological rules. The case for Ewe may be that as separate lexemes, the language necessarily requires a noun to appear as one that has a prefix attached to its root except for nouns which in themselves come

with no prefix. On the other hand when separate lexemes interact in a compounding situation the requirement is that one of the two lexemes must give its prefix away to deletion. The element or lexeme that succumbs to this pressure is the second constituent.

By this both roots share a single prefix or in other words the prefix that stays finally belongs to the entire compound. If in the case that the first constituent in the compound has no expressed prefix then the whole compound finally shows no prefix on the surface. This is represented in the two examples below.

| Separate Lexemes | | | | | Compounded Form | | | |
|---|---|---|---|---|---|---|---|---|
| **Prefix + root + prefix + root** | | | | → | **prefix + root + root** | | | |
| a | kutsa | a | agba | | a | kutsa | gba | ‘sponge dish’ |
| Ø | detsi | e | ze | → | Ø | detsi | ze | ‘soup pot’ |

The illustration above in the second example shows that its prefix is not a case of it being deleted but that it is not overtly expressed or present in the underlying form to begin with.

The reason for assuming that morphology could be one factor for the elision in one vowel is the use of words as prefix, root, stem, lexemes, compounded words etc and it is also in this domain that words are broken down in varying units as to see what the words are made up of as in whether they have any affixes or they are just roots or stems or whether there is a compounding situation etc.

Let me add that focus on hiatus means that the analysis may be more of phonological than morphology or any other linguistic field. Morphology is mentioned because it is a kind of a

preparatory ground in which we see clearly what happens phonologically. This is to say that morphology puts together these two sounds (vowels) to start with and then paves the way for a phonological analysis. We can look at it as a springboard into phonology. This is more or less an interface between morphology and phonology (morpho-phonology).

Ansre (1961:62) on the other hand claims that syntax is the reason for the deletion. He affirms that the deletion is as a result of a syntactic rule. He assumes that all nominals in Ewe have what he calls 'vocalic prefixes' whether overtly or covertly expressed and at a point in time they all drop from the nominal however, during compounding they are the first to drop. He further gave these examples.

- àdè 'hunt' + àvùú 'dog' → àdèvú 'hunting dog'
- gbèé 'bush' + àfí 'mouse' → gbèfíí

Ansre's assertion cannot be ruled out entirely judging from the linguistic lenses he uses to view and make his argument or claim. I may hazard a guess for his claim and this is since syntax looks at the study of the rules whereby words or other elements of sentence structure are combined to form grammatical sentences, allowing a vowel to live on even in compounds may be deemed incorrect. Using his own example above, àdè 'hunt' + àvùú 'dog' → **àdèvú** 'hunting dog', this outcome is exactly what the compound word should look like in a syntactic structure as in a phrase or sentence and not the vowel cluster unresolved as in àdè '+ àvùú ' → ***àdèàvú.** I further put these two outcomes in a syntactic structure as shown below:

Outcome 1

| | | |
|---|---|---|
| é | ɸle | adevu |
| 'He/she' | 'bought' (a) | ' hunting dog' |

Outcome 2

é ɸle *adeavu

‘He/she’ ‘bought’ (a) ‘ hunting dog’

As stated above this explanation may not be accurate entirely but it is a guess with regards to the definition of syntax.

So, with this approach, even the sonority analysis would not be sufficient ( ade +avu → adevu not *adavu). The latter would be expected but it is not so. This may be due to the morphology of noun compounds, where the noun prefix of the second stem may be absent already in the underlying form.

Phonology – Another reason for the deletion is phonological with respect to syllabification. As discussed earlier, syllables are universally required to have onsets or begin with a consonant which the second constituents of the compounds violate. Observe the example below:

- a.ku.tsa./a.gba → a.ku.tsa./gba ‘sponge dish’

There is a critical observation which needs to be explained as per the example above. The problem is that if the phonological reason for deleting /a-/ of /agba/ is syllabification (the need for an onset), then why is the /a-/ of /akutsa/ still surviving? Why doesn’t it fall out with its defaulting counterpart because clearly it also has no onset?

In this context the rule for compounding in Ewe favours /a-/ of /akutsa/. It is the first constituent not second in the compound therefore it necessarily needs to be preserved. This means that the noun/compound as a whole needs a prefix.

Another reason why /a/ survives is that the initial syllable is a strong position in positional faithfulness. Note that this is a single noun not one that is involved in a compounding situation where an initial vowel of the second element is made to elide. So we can say that in single nouns there may be some kind of first syllable faithfulness but this may be difficult to establish when words are compounded.

On the other hand, there may also be a third possibility and that is for some reason a glottal stop is used as an onset in the initial syllable in order to break the hiatus. I say this because research has it that in many languages that do not allow a sequence of vowels, such as Persian, the glottal stop may be used to break up such a hiatus. http://en.wikipedia.org/wiki/Glottal_stop. This connection between a glottal stop and hiatus resolution for Ewe is one that needs more research into in order to say for sure that it is exactly what happens in the language though it cannot be ruled out as a possibility.

We therefore could state a generalisation that in the case of resyllabification that may occur in a noun-noun compound which is as a result of satisfying the onset rule the target is always the second constituent of the compound.

Discussions so far borders on elision of the prefix belonging to the second element. One of the reasons which is in the domain of phonology is tone preservation (discussed later in the thesis).

However, the other way round could be a possibility. This is where we argue that the prefix belonging to the second element is actually absent even in the underlying form and so the surface structure is merely a mirror reflection of the underlying form as represented below.

/ami 'oil' + gba 'bowl'/ → [amigba] 'oil bowl'

This way of looking at the problem though is an option shows a distorted truth that pertains in the language from a native speaker's point of view. It falsifies an already mentioned claim about bare roots in the language as with /gba/ instead of /a- (prefix) gba/. They are simply avoided except for cases where their prefixes are not overtly expressed.

## 6.4 COMPOSTION OF NOUN-NOUN COMPOUNDS

As per the explanation above, I therefore assume that making of noun-noun compounds in Ewe is a merger of roots with root number two having its prefix lost to deletion during a compounding process and if the first root is one that has an overtly expressed prefix, this eventually becomes the prefix of the entire compound.

## 6.5 ATTRIBUTE OF THE TWO CONSTITUENTS

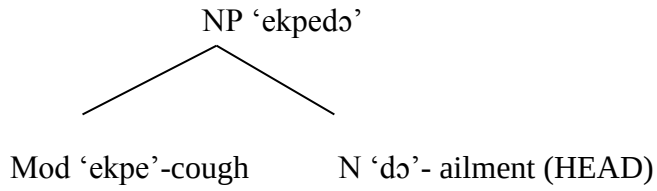
In relation to the make up or inner strengths of the two elements in a noun- noun compound, Geert Booij (2005, 2007:176) observes that one element is strong and the other weak. He asserts that for this to be true, the relationship between the constituents should be that of sisters which one of them is the head of a prosodic category such as the foot. He then states that in the case of N + N compounds, the first phonological word is the strongest (for English).

### 6.5.1 THE CASE FOR EWE

Based on the explanation given by Booij, I go on to look at what pertains in the Ewe language with regards to which element is suspected to be the strongest in the compound as well as which of the two constituents in the compound qualifies as head. One language may prefer the first element of the compound to be the strongest as indicated by Booij for English and which of the members is given the headship depends on language specific analysis. This discussion is tailored in the area of finding answers for Ewe as per the above questions.

Take for instance, the N+N compound, /ekpe + edɔ/ → [ekpedɔ] 'cough ailment'

This example syntactically is a noun phrase (NP) with two daughters, one a modifier and the other a noun as illustrated below.




The modifier and the noun share the same mother node or are offsprings of the NP. This therefore qualifies them to be sisters and the head of the two is 'dɔ' as seen in the syntactic structure above.

Note that looking at the example as a noun phrase does not rule out the fact that it is a compound (one word consisting of two elements). It is only a break down in order to know the compound's constituents.

### 6.5.2 SEMANTIC EVIDENCE SHOWING STRENGTH IN THE SECOND WORD

The first parts or elements of the compound are all descriptions or modifiers of the second though they are all nouns. A common way of arriving at compounds in the language is through description. The words could actually be replaced by other descriptive words to form other compounds with different meanings. This makes them unstable. For instance, the first part of /detsi/ 'soup' + /eze/ 'pot' → [detsize] 'soup pot'(found in the table) could be replaced by /etsi/ (water) to become [etsize] (water pot). Meaning that [detsize] is some kind of a pot not some kind of soup and [etsize] is also some kind of a pot and not some kind of water. It is possible to alter the meaning by substituting the second element as in /detsi/ 'soup' + /agba/ 'bowl' → [detsigba] 'soup bowl'. It is no longer a soup pot but a soup bowl however, in all these instances it is a kind of pot or bowl we are looking at and not the content they bear.

With the explanation given, I assume the first constituents belong to the weaker side and the second constituents wielding much strength. Ironically, the second constituents which double as heads all delete their prefixes. This is because 'when a noun becomes the head of a nominalisation its prefix is deleted and the tonal alternations it conditions are absent'. Herbert Frederic Walter Stahlke (1971:186)

The table below captures strong and weak constituents of N+N compounds. I compare two languages that is Ewe and English. The highlighted portions of the prosodic word are the supposed strong words.

| SOME EWE COMPOUNDS | SOME ENGLISH COMPOUNDS |
|---|---|
| ekpe**dɔ** 'cough ailment' | **Chalk**board |
| aba**ti** 'bed' | **Honey**moon |
| detsi**ze** 'soup pot' | **Bath**room |
| atadi**gba** 'pepper/chilli bowl' | **Finger**nail |

Looking at the discussion the other way round that is making the first element the strongest as mentioned above could also be a possibility. This is because they also could be replaced by other nouns and at the same time be descriptions of the second constituents. However, they cannot pass for semantic heads. It is only the second element that enjoys that privilege. And so the conclusion is this: we have made the second constituent the semantic head and so why not add strength to it? Obviously, anything that is made head should be allowed power and strength.

### 6.5.3 PHONOLOGICAL EVIDENCE SHOWING STRENGTH IN THE SECOND WORD

Harris, John 2011. Deletion. In: Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice (eds.): The Blackwell Companion to Phonology. Volume III. Wiley- Blackwell, pages 1597–1621 explains that the two types of deletion (apocope and syncope) affect certain targeted positions. These positions can be broadly identified as **prosodically weak or non-prominent.** Adding that the deletion processes are not always sensitive to stress meaning that with or without stress their effect will still be felt. This is particularly interesting since as per this thesis nowhere have we established that the language is a stress one. If this assertion is

true then we can comfortably say that the vowel that gives in to deletion occupies a prosodically weak or non-prominent position.

### 6.5.4 CONCLUSION

As has been discussed above for Ewe N +N compounds, the observation is that both elements could be seen as strong in themselves however, it is only the second that can take on the semantic headship role as per our discussions. Again, we see that phonologically the vowel which succumbs to elision occupies a prosodically weak or non-prominent position. Therefore, for convenience sake we give strength and semantic headship privilege to the second constituent in the compound.

## 7.0 BEHAVIOUR OF TONES IN SINGLE NOUNS AND NOUN-NOUN COMPOUNDS

### 7.1 INTRODUCTION

In this section I discuss the behaviour of tones in both single and compounded nominals. Examples in 6.2 under noun prefixes shall be used extensively however, more examples could be found in the final pages of the thesis that is in the appendices.

### 7.2 TONES IN SINGLE NOUNS

Tones on prefixes of single nouns as seen in the examples in 6.2 are always low. Final vowels of the noun stems on the other hand behave differently depending upon their environment. When the vowel is preceded by a voiced obstruent[1] , its tone is realised as low and when it is preceded by a voiceless consonant its tone is high. The first part is captured as a rule in Herbert Frederic Walter Stahlke (1971:177)'s doctoral thesis as:

$$\begin{bmatrix} V \\ -H \end{bmatrix} \rightarrow [+L] \,/\, \begin{bmatrix} +voiced \\ -sonorant \end{bmatrix} \quad \underline{\quad} \quad \text{CV}$$

For example, 'gbè' ('bush/grass' – bare root)

This rule I interpret as a vowel which has the feature –High or in other words mid or Low tones remain low into the next stage that is if its starting tone was low on one hand and if the starting tone was a mid tone, it changes to a low tone when it is seen to be preceded by a voiced obstruent not a sonorant. The CV is a syllable structural type that is a consonant and a vowel.

One observation that need mentioning which also need further explanation is the difference between –High and +Low as used by Stahlke. The issue is this: if the segment has a –high

[1] Ewe voiced obstruents include: z, h, v, dz, dzy, ʊ, ɖ, d, g, gb, b

tone feature, it means that it is either a mid or a low tone and judging from his matrix, two things are observed and these are:

(1) The –high tone vowel is either a mid tone which changes to a +low tone in the environment of a voiced obstruent or

(2) The –high tone vowel is a low tone vowel which does not change this feature but holds on to it even into the next stage where it surfaces as having a +low tone.

Based on this explanation the example he provides above could be represented as shown below:

(a)/gbē/ → [gbè] (bush/grass' – bare root) – in this context it is as though the underlying tone associated with /gbe/ is mid which finally surfaces as low.

(b) /gbè/ → [gbè] ('bush/grass' – bare root) – this context already has an underlying low still surfacing as low.

There is one more thing that needs mentioning which has to do with the representation of segments (vowel) and tones. This style of representation bundles segments and tones together (SPE approach) which is weird today. The reason is that probably Autosegmental Phonology was not in use at the time.

Moira Yip (2002: 33) citing Smith (1968) says that it is not only obstruents' environments that the low is found in Ewe but sonorants[2] too. They are a class of consonants that are produced with continuous, non-turbulent airflow in the vocal tract. This assertion as cited by Moira Yip needs to be investigated in order to say that the low tone is found in sonorant environments in Ewe.

[2]Ewe sonorants are all voiced. They include: nasals – /n, ny,ŋ, m/ , Approximants- /ɣ, l, y, w/ and Trill-/ r/

Based on the explanations above the assumption is that laryngeal features of these preceding consonants have some role to play with regards to whether their following vowels should appear low or high. It is as though there is some transfer of a voicing feature from the consonants to the vowels.

If this is the case then I agree with the Laryngeal Tone Theory spoken about by Odden, David (1995:451) which says that 'tone interacts with laryngeal features in synchronic phonologies.' Meaning that 'phonetically expected interaction is for voiceless obstruents to ''act like'' they have H tone, and for voiced obstruents to ''act like'' they have L tone.

Moira Yip (2002:33-38) agrees with this theory by observing that consonants interact with tone where historically voiced obstruents are often cross-linguistically associated with low tone and they cause lowering of neighboring tones or in other words they lower the pitch of the following vowel. Such consonants she refers to as Depressor Consonants in the sense that they are able to trigger straightforward lowering, downstep and sometimes may also block H tone movement or spread. Voiceless obstruents on the other hand may raise the tone. This accounts for tonogenesis[3].

This phenomenon is attributed to the work of the vocal folds. When the vocal folds slack and the larynx lower the result is voicing in obstruents. Voiceless obstruents on the other hand have tenser vocal folds which as a result raises the pitch on the following vowel. Moira Yip (2002:57) captures the relationship between laryngeal properties and tone as a feature system. This is illustrated below. The motivation for showing this diagram/table stems from the fact that Ewe makes use of three level tones that is low, mid and high which the suggested feature system portrays though it is obstruents-specific and does not show the nature of the vocal folds in the production of sonorants. However, since our concern is with voicing, the nature

[3] The birth of tones. See full history in TONE -Moira Yip (2002)

of the vocal folds for obstruents could pass for sonorant consonants because they are equally voiced. This however, needs further investigation. I stick to low and high tones since I have no mention of mid in any of the discussions.

| | | | |
|---|---|---|---|
| [stiff vocal folds] | - | - | + |
| [slack vocal folds] | - | + | - |
| Realisation on C | Contextually voiced C | Voiced C | Voiceless C |
| Realisation on V | Mid tone V | Low tone V | High tone V |

The matrix above in a way paints a picture of depressor consonants spreading the feature

[+ slack vocal folds] onto vowels that follow them. Voiceless consonants on the other hand spread the feature [+ stiff vocal folds] onto their vowels realising H tone on them.

### 7.3 TONEGENESIS: THE CASE FOR EWE IN CONTEXT

Although to a very large extent the laryngeal tone theory holds for Ewe as I assumed at the start of this discussion which Moira Yip lends support to, there are cases where this is not the observation in Ewe. Some lexical items and even noun+noun compounds reverse the usual and phonetically expected connection between voicing and low tone and voicelessness and high tone. You may have high tones after voiced obstruents and vice versa. Observe the examples below:

- gbé - ‘to refuse –verb’
- ŋé – ‘to break –verb’
- lé – ‘to catch’

The examples above are but a few of the lexical items that exist in the language which do not follow the expected pattern. Noun + noun compounds also behave in the same way. This is discussed later.

The observation is however, not against the theory simply because the theory says how a tonal system may have emerged at some point in time: Low after voiced obstruent, High after unvoiced obstruent. When the obstruents change due to historical sound change, the tones may remain, and this would be the exact moment when you get a tone language. The term "tonogenesis" means "the historical genesis of the language as a tone language", and does not refer to a synchronic stage, only to the historical process that turned the language into a tone language.

## 7.4 SOME ASSUMED REASONS FOR THE IRREGULAR PATTERN

First of all Ewe to a very large extent is a lexical tone language whose semantics of words is dependent on tone contrast. Meaning that for one particular lexical item, we can have two or more meanings depending on tone change. Observe the examples below:

Eg 1.

gbé – ‘to refuse’ versus

gbè – ‘to pluck’

Eg. 2

lé – ‘to catch’ versus

lè – ‘to bath’

lè – ‘present tense marker’

From the examples above we see that tone contrast triggers the meaning of the words. Nevertheless, this does not conform to the expected pattern of the relationship between consonants and tone. The onset consonants made up of obstruents and sonorants are all voiced yet in some cases high tones are realised on their vowels.

We can smartly assume that the irregularity in a way satisfies correct meanings of words in one sense and that is to say whether regular or irregular, what the word means contextually must be taken into consideration.

Again, going by tonogenesis, it is possible to speculate that Ewe obstruents and sonorants that conform to the laryngeal tone theory belong to a class called ‘historical consonants’ so that they account for the regular pattern. Those same obstruents and sonorants that disagree with the theory could be viewed as consonants that arose after the birth of tonogenesis so that for example, the obstruent **‘gb’** in gbè – ‘to pluck’ is historical while the same sound in gbé – ‘to refuse’ is a later developed sound.

The above could be possibilities in the language but as yet they remain speculations as far as this thesis is concerned.

## 7.5 TONES IN NOUN-NOUN COMPOUNDS

As discussed for single noun stems, the nature of the tones of final vowels is conditioned by the type of consonant they follow. Interestingly, this assertion contradicts what is expected in compounds. Examples which agree with the first rule that is lowering the final vowel because the vowels follow voiced obstruents or sonorants violate this rule in that in compounds the tone of the second constituent's stem does not lower. It is realised as high. Observe the examples below:

1. è-gbè 'grass/bush' + à-vù 'dog' → **ègbèvú** 'bush dog'

2. è-kpé 'cough' + è-dɔ̀ 'sickness'→ **èkpédɔ́** 'cough ailment'

The voiced fricative 'v' in ègbèvú 'bush dog' of example 1 and the voiced plosive 'd' in èkpédɔ́ of example 2 all contradict the expected pattern of realising a low tone after voiced obstruents.

### 7.5.1 RESOLVING THE CONTRADICTION

Herbert Frederic Walter Stahlke (1971:177-178) argues that the rule where the conditioning low is as a result of an initial class of consonants is not the case instead it is a 'rule of progressive assimilation from the low of the prefix, and when the conditioning low is absent, as in an instrumental nominalisation or a noun compound, the stem tone does not lower. With the syntactic deletion of the noun prefix, the underlying tone of the stem remains unchanged in the phonetic output'.

This way of looking at the problem has a question to address and this is: how then do we account for their high tone counterparts such as 'à-ɸé' 'house'? Note that the tone on the

prefix is low and that of the bare root is high. If the argument is that the tone on the vowel after the voiceless bilabial fricative 'ɸ' is acquired by way of a progressive assimilation from the low of the prefix and not a class of consonants, why then does it stand high when in actual fact it should look like the tone on the prefix?

The speculated justification could probably be that this way of resolving the problem is specific to roots with voiced obstruents. Again, his argument may not necessarily be in the domain of tonogenesis.

### 7.5.2 CONCLUSION

This thesis lends support to the fact that the consonant type is the determining factor for the tone type on the vowel that follows Ewe obstruents and sonorants especially for single nouns but does not hold for compounds. Compounds in my opinion determine their own shape. They choose which tone best suits them on the final stem. If the assertion for single nouns is true, then that will mean that –High as used in Stahlke's thesis is actually low and not mid. This is because a tone appears as high after voiceless consonants and as low after their voiced counterparts. There is no middle way.

## 8.0 HIGH TONE

## 8.1 INTRODUCTION

This section is a discussion on the general high tone behaviour in a given context.

## 8.2 HIGH TONE BEHAVIOUR IN CONTEXT

In our context of discussion, the high tone as we will see is usually preserved a process known as ‘stability’. The unit on which it is found elides which causes it to spread onto a neighbouring segment. The high tone may lose its original host in a hiatus situation and generally, when this happens the high tone rather than being deleted also spreads onto another preferable host which gives a perfect outcome or result in the language. Observe the examples below:

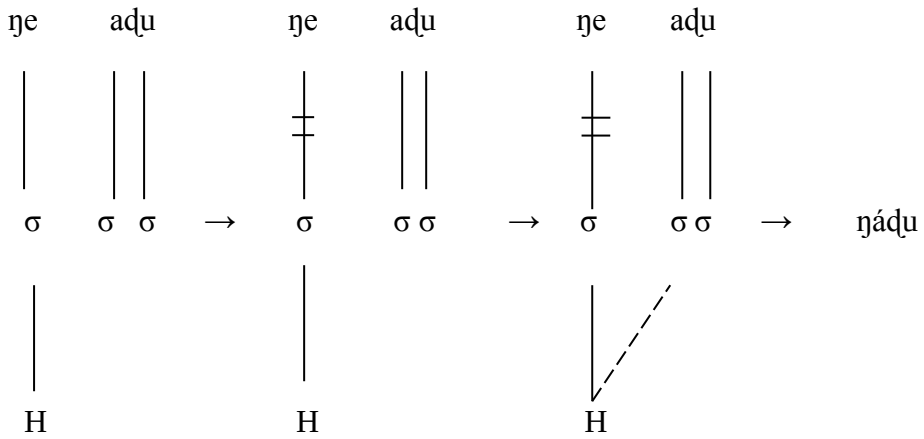
- ŋé + aɖu → ŋéaɖu → ŋáɖu ‘to break one’s tooth’

  break tooth

- ɸé + awu → ɸéawu → ɸáwu ‘his/her/its dress’

  Poss dress

## 8.3 AUTOSEGMENTAL ILLUSTRATION OF A HIGH TONE SPREAD




## 8.4 NON-SPREAD OF THE HIGH TONE

In another vein, it is also possible for one to say that in some cases elision does not occur especially in the possessive marker ‘‘ɸé’’ context where it precedes a noun prefixed with the vowel /e/). In other words in these cases the high vowel is not elided, but the low vowel is, and the low tone is deleted with it. What happens is that the whole of the ‘‘ɸé’’ construction including its high tone is carried into the output form meaning that the prefix of the following noun drops instead. This is clearly not a case of a high tone spread.

Some verb-noun combinations also follow this pattern. Observe the examples below (it is the case where the noun prefix is not specified for a tone. A discussion of it being with a tone or toneless is discussed under low tones)

- ɸé + etú → ɸéetú → ɸétú ‘his/her/its gun’

  poss gun-noun

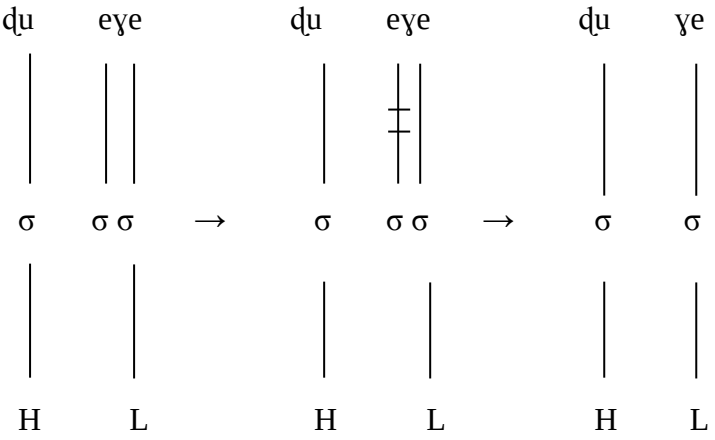
• ɖú + eɣè → ɖúeɣè → ɖúɣè ‘to dance’

dance-verb dance-noun (a particular type of dance)

• tó + edè → tóedè → tódè ‘to pound palmnut’

pound-noun palmnut-noun

### 8.4.1 AUTOSEGMENTAL REPRESENTATION OF PATTERNS IN LINE WITH NON-SPREAD HIGH TONE




I however, need to make a quick observation here where we assume that the segment bearing the high tone is not deleted but they (H tone and its segment) both surface in the output form and the sufferer of the deletion is the prefix of the noun. This thesis has strongly supported the phonological freedom nouns have over other categories and therefore wish to state again that though it is possible to argue for the retention of the segment bearing the high tone for the possessive /ɸé/ we should also bear in mind that accepting this assumption will eventually make our claim for positional faithfulness in the category noun, shaky. Therefore, in this context we say it is rather the vowel of the possessive marker that drops instead and not the

initial vowel of the noun. Moreover, the possessive is just a particle competing with a strong category. This will automatically unleash spreading of the high tone onto the initial vowel of the noun. Observe a repeat of the verb-noun context below,

- ɖú + eɣè → ɖúeɣè → ɖúɣè

  dance-verb dance-noun (a particular type of dance)

- tó + edè → tóedè → tódè

  pound-noun palmnut-noun

The observation still is that nouns lose their prefixes. Note that the vowel combinations are different. It is ‘u-e’ and ‘o-e’. The truth is that the outcomes of these combinations are perfect forms in the language. In order to maintain our argument for positional faithfulness in the category noun we need to reiterate again that in noun+noun compounds there is no prefix in the second element even in the underlying form and so there is no prefix to preserve. This means that the unexpressed prefix of the second element in the surface form does no harm to Positional Faithfulness in the category noun.

We also can assume that vowel quality also plays a role in what is retained and what drops. In the ‘u-e’ example, one is a back vowel /u/ and the other a front vowel /e/. The other combination ‘o-e’, also has one back vowel /o/ and the other being a front vowel /e/. The observation is that it is the back vowels that stand the test of deletion. In this context there is no spread of the high tone because its bearer lives on anyway. What is seen in the underlying form is exactly what comes out on the surface especially with regards to the position of the high tone.

## 8.5 THE CASE OF ILLICIT CONTOUR CREATION

There are cases where if care is not taken a situation of illicit contours are created. Observe the example below:

ŋé + àɖu → ŋéàɖu → *ŋâɖu or *ŋ`a´ɖu

break tooth

This example shows the specification of the low tone on the noun prefix /à-/. When the verb and the noun all with their specified tones come together in a compound, a contour is created. Note that the host of the low tone is lost but its tone lives on. As already stated when this happens either a high-low or low-high contour is the result depending on where the spreading high tone decides to attach itself on the new host and whether this is true or not it will be difficult if not impossible to establish the correctness of either of these two outcomes for the language. Simply put they are non-existent in the language. This then shows that it is not every context that the low tone is preserved when its host elides. The observation then is that the low tone is not preserved. It goes away alongside its host as correctly exemplified in 8.2 and 8.3.

As per the observation it is possible to hypothesise that the low tone is not present in the underlying form meaning that this may be a result of underspecification.

However, there are genuine situations where proper Ewe contours are created as a result of deletion. But before this is discussed there is the need to look at what this thesis terms, ‘low tone and underlying form’.

## 8.6 UNDERLYING LOW

As stated earlier it is imperative to look at the low tone vis à vis the underlying form contextually. There are two things that need to be explained and these are:

In one instance, whether the low tone is present even in the underlying form which survives and finally presents itself in the surface output. This in a way will account for the proper Ewe contours or

In another light we say the low tone is totally absent in the underlying form meaning that whatever the outcome, this is not dependent on what is in the underlying form. And so with regards to the example used earlier where there emerged two outcomes which we explained that it will be difficult to establish their existence in the language, this will be a far-fetched example and will mean that we are specifying low tones where there is no need for them to be present and that creates problems for the language. This way of looking at it sometimes churns out wrong outcomes as earlier stated.

## 8.7 PROPER CONTOUR TONE CREATION

Now we return to the discussion on proper contour creation as a result of deletion. This is where we argue that the noun prefix /e/ bears a low tone which is specified and is present in the underlying form. In this instance, the noun prefix drops but its low tone thrives. It then spreads backwards onto the preceding syllable which already has a stable high tone creating a high-low contour as a result as in the example below:

- dí + èkpé → díèkpé → dí`kpé ‘to look for a stone’

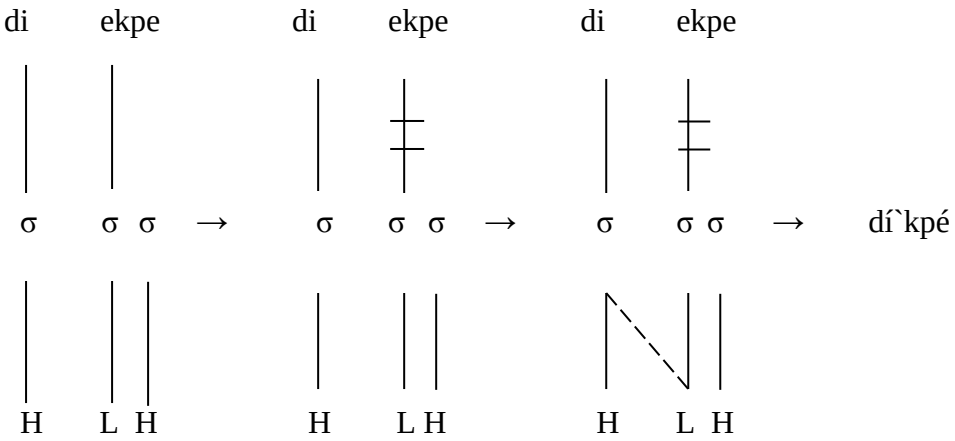
  search-verb stone-noun

- lé + a`tí → léa`tí → lá`tí ‘to hold a stick’

  hold-verb stick-noun

Considering examples in 1a under ‘the case of elision of the high tone’s host’ and 1b also under ‘proper contour tone creation’, a clear difference is observed. This lies in the tonal specification of the low. For 1a, the low tone was unspecified and the reason for this occurrence is explained in the discussion. Examples in 1b all have the low tone specified which in a way portrays exactly what pertains in the language with regards to proper contour creation. Below is the autosegmental derivation of proper contour tones.

### 8.7.1 AUTOSEGMENTAL DERIVATION OF CONTOUR TONES




We then can conclude that some words may indeed have an underlying low tone, as shown in the figure above. When there is a low tone, it survives to help form a contour tone.

### 8.8 HOST PREFERNCE FOR THE HIGH TONE

The observation so far shows that high tones in Ewe carefully choose their hosts especially in the situation where spreading or migration takes place. Moira Yip (2007) indicates that high

tones generally are attracted to “prominent positions” such as stressed syllables, word-initial segments and word edges. The prominent position that works better as per our discussion is word-initial segments.

Duthie (1996:25) indicates for Ewe that the high tone, especially of the possessive ‘ɸé’, may spread to the following syllable changing it to high. This means that it is not only the possessive ‘ɸé’ that could spread its high tone onto a neighbouring syllable but other word combinations that show this phenomenon.

As observed from the examples provided, the high tone sometimes makes a settlement on the word-initial segment given two words which one precedes the other. The settlement of the high tone is observed on the word-initial segment of the second word to the right. Examples with this description are those nouns with /a/ and sometimes /e/ as the word-initial segment. Other times, the settlement of the high tone does not involve the case of migration. The segment that bears it maintains the carriage even into the output form. This is a case of the high tone preferring the edge of a word. In all these two cases it must be clearly stated that the high tone does not just land on the segment because it is a word-initial segment or is a word-edged segment. The preference also targets the unique nature of these segments. One of it is that the segments belong entirely to the root.

Another way of looking at it is to find out what the tone bearing unit is and since the tone bearing unit is the syllable, the tone settles on it. Below is an example of a high tone settling on the word-initial segment or syllable.

ɸé + awu → ɸéawu → ɸáwu

poss dress

The word-initial segment in the example above is /a/ belonging to the root /awu/ (dress) though syllable-wise the /á/ belongs to the first syllable.

The next example is one that shows a high tone on a word-edge segment. This is not a case of spreading of the high tone as observed before but it is a total lifting of everything into the final stage. The result of this is the deletion of the initial vowel (prefix) which belongs to the noun as indicated below.

- tó + edè → tóedè → tódè

  pound-noun palmnut-noun

## 8.9 LOW TONE

### 8.9.1 INTRODUCTION

This section borders on the low tone with regards to a given context.

### 8.9.2 LOW TONE BEHAVIOUR IN CONTEXT

The examples below are a combination of the possessive marker ‘ɸé’ and nouns. Some of the nouns have word initial vowel (prefix) /e/ and others /a/. Both prefixes are said with a low tone. The assumption is that the low tones of the prefixes are not specified underlyingly for some suspected reasons I shall explain. Again, observe that in the final output form a vowel is deleted to avoid a hiatus situation.

- ɸé + (e)kpé → ɸéekpé → ɸékpé

  Poss stone his/her/its stone

- ɸé + (e)kluví → ɸéekluví → ɸékluví

  Poss servant his/her/its servant

- ɸé + (e)tú → ɸéetú → ɸétú

  Poss gun his/her/its gun

- ɸé + (e)dù → ɸéedù → ɸédù

  Poss country his/her/its country

- ɸé + (a)ŋè → ɸéaŋè → ɸáŋè

  poss rubber band his/her/its rubber band

As stated earlier, one of the two adjacent vowels elide and which of the vowels elide especially of the/ é + e /→ [é] is yet to be determined yet it is obvious in the last example that it is the vowel belonging to the possessive marker that drops. Note that in all of these examples the high tone is steadfast; it survives in the surface form.

### 8.9.3 TONE OF THE DELETED SEGMENT

#### 8.9.3.1 Unspecified Situations

The low tone in the possessive 'ɸé' context as shown in examples above is unspecified by this thesis' assumption. If they were, a situation arises which I explain below.

Clements and Ford (1979, p. 207, n. 18) advances that "given two related levels (tiers) Lj Lk, a segment of level Lj that is 'set afloat' due to a process affecting the segment of level Lk with which it was associated, reassociates to the segment of Lk that conditioned the

deletion.'' For this assertion to hold for the examples provided above, the low tone of the noun prefix need to be represented or specified. This occurrence creates a contour tone on the possessive marker in the final output which alters the pronunciation and also affects the semantics. In order to avoid this situation an argument for non-specification of the low tone is appropriate and most preferred. Meaning that Clement's and Ford's assertion would not hold in our context of discussion since we are actually arguing for the non-specification of the low and more importantly it falsifies the outcomes.

#### 8.9.3.2 Specified low tones

There are instances where the assertion of Clements and Ford perfectly works for the Ewe language. These are situations where we say that low tones are specified. We are able to tell the behaviour of the tone and an advantage of this is the preservation or stability of the low tone because it reassociates itself to another preferred segment at the loss of its original segment. Observe the example below:

- kpɔ́ + èmú → kpɔ́èmu → kpɔ̀mu
  see mosquito
- tsɔ́ + ètú → tsɔ́ètú → tsɔ̀tú
  take gun
- ŋé + àtí → ŋâtí
  break + stick

- dí + èkpé → díèkpé → dí`kpé

  search stone

**8.9.3.3 Problem with low tone specification in context**

**Consider the examples below:**

ɸlè + àwù → ɸlèàwù→ ɸlàwù

buy dress

blè + àmè → blèàme→ blàmè

deceive someone

gbè + àkɔɖu → gbèàkɔ`ɖú→ gbàkɔ`ɖú

pluck banana

It is observed from the examples above that the first of two vowels in a row deletes or is delinked but as to whether its tone does not delete or delete with the segment is yet to be established.

An argument could be that the tone does not elide with its segment but appears to be floating then reattaches itself to the initial vowel belonging to the noun. The problem then is that a contour is not created because these tones are of the same kind – low (level tone). The final output bears two low tones on /a/ as in:

ɸlè + àwù → ɸlèàwu → ɸl`àwu→*ɸläwu

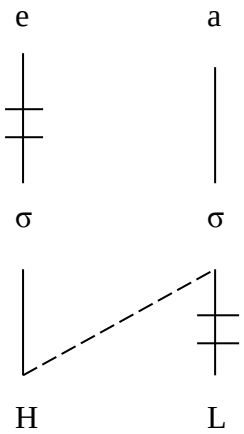
buy dress

To listen to the outcome above pronounced will sound nothing different from that of [ɸlàwu] which is the actual output. In other words when L+L is pronounced as a low tone, we cannot know if it is only L or actually LL.

A second argument says that the tone and its segment all elide. They do not surface in the output form. This argument could be the real thing in that if it is difficult to establish the output form *[ɸlàwu] then it means that elision actually affects both the segment and its tone to be able to realise the correct form being talked about. Observe another example with a corresponding autosegmental representation below:

ɸé + àwu → ɸéàwu → ɸáwu → ɸáwu

poss dress




It is interesting to note that deletion occurs side by side in this example. The vowel /e/ of the possessive particle elides but its high tone is preserved whereas the /a/ of the noun survives but its low tone drops.

This is the reason H+L→H as in /ɸé ‘poss’ + àta/ ‘thigh’ → [ɸáta] ‘his/her/it thigh’ is so important because it makes us suspect that the L is actually not present in the underlying form

at all in this context. Observe a repeat of the example above: /ɸé ‘poss’ + ata/ ‘thigh’ → [ɸáta] ‘his/her/it thigh’.

Again, the combination L+L→L though has L tones present it is only one L that is present in the underlying form just so we avoid the problem of having LL in the actual output form as has been contextually discussed earlier.

### 8.9.4 OPTIMALITY THEORETIC REPRESENTATION OF H+(L) →H AND L+(L)→L

Note that the phonological tone environment in focus is the one that shows the hiatus situation.

Tableau 1

1. H+(L)→H where L is not in the underlying form.

Constraints for this analysis include:

- Max (H) – Do not delete a high tone. This constraint safeguards the high tone making sure it surfaces in the output form.
- No Spread (H) – There should be no occasion where the high tone spreads that is from one point to the other. This constraint is used because we realise the high tone in this context spreads onto another host.
- Dep (L) – Do not insert any low tone.

These constraints have been carefully selected in order to see the behaviour of the involved tones as well as which candidate finally emerges optimal. The competition is between ɸáwu and ɸàwu .

| Φé ‘poss’+awu ‘dress’ | Max (H) | Dep (L) | No Spread (H) |
|---|---|---|---|
| ☞ϕáwu | | | * |
| Φàwu | *! | * | |

From our discussions of the high tone very often it is preserved hence the highest ranked constraint Max (H). No Spread (H) is lower in ranking than Dep (L) because as said of the high tone very often it is preserved and it subsequently spreads unto a preferred neighbouring host. It being lowest ranked safeguards the high tone and Dep (L) outranking it means that inserting a low tone is unnecessary, not a need because that does not help the candidate in any way. It rather pushes it away from being the optimal candidate. From our discussions the low tone is either deleted with its host or is not there underlyingly to begin with unless its presence has to do with contour tone creation. This however means that to maintain a high tone or to a spread a high tone is better than inserting a low tone.

The candidate [ϕáwu] is seen to be optimal though violates the constraint No Spread (H). This is not the highest ranked and our discussion so far does with spread of the high tone. The losing candidate [ϕàwu] fatally violate Max (H) and Dep (L). These two constraints are higherly ranked than the constraint No Spread (H).

I have omitted the output candidate that is identical to the input because I limit myself to candidates where the possessive marker vowel has been elided, since this is a chapter on what happens to tones in exactly that situation.

Tableau 2 - Constraints

2. L+(L)→L where there exist only one L in the underlying form. This representation is one that also looks strictly at tones and not segments involved in the hiatus situation hence there will be no such candidate on the surface that shows the hiatus problem. Constraints involved are:
    - No Spread (L) – low tones must not be seen to spread from one point to the other. Yet we see a low tone spread in order to realise the correct output form.
    - Dep (L) – there should be no insertion of a low tone. This constraint actually makes sure we never realise the problem of two low tones crowding on one syllable because already there is a natural spread of a low tone from one position to the other. Observe the tableau below:

Tableau 2

| Φlè 'buy'+awu 'dress' | Dep (L) | No Spread (L) |
|---|---|---|
| ☞Φlàwu | | * |
| ɸlàwu | *! | * |

The optimal candidate is [Φlàwu] because it violates the lowest ranked constraint. The losing candidate fatally violates both the highest and even the lowest constraints.

## CHAPTER NINE

## 9.0 SUMMARY/FINDINGS

This thesis investigates vowel hiatus resolution in Ewe and defined the phenomenon as a sequence of two vowels in different syllables. Four environments namely, noun+noun compounds, verb+noun, adjective+noun and possessive particle, ɸé+noun were the focus. Some examples provided by way of illustrating the phenomenon included the following:

1. koko 'cocoa' + agble 'farm' → *kok**oa**gble → kokogble

2. Φé 'poss particle' + awu 'dress' → *Φ**éa**wu → Φáwu

The forms bearing the asterisks are illicit forms in that they contain the unresolved problem of vowel hiatus. The forms to their immediate right are correct forms. There is no sequence of two vowels found in them. In other words, the cluster has been broken.

One other thing worth mentioning again by way of summary is the correct form [Φáwu] found in example 2. The vowel /a/ initially bore no tone not to talk of a high tone, the tone was on the vowel /e/. It inherited the high tone as a result of the elision of the vowel /e/. There was a spread of the high tone from one host (deleted host) to another (surviving host). One reason we attributed to this occurrence has to do with the preferred landing site for the high tone.

The work of two researchers by name Duthie (1996) and Stalhke (1971) served as springboards for the discussions in the thesis. There were areas to be strengthened in other words, problem areas identified that needed a little more work. These problem areas mainly were on tones where this thesis with the two theoretical frameworks especially the Autosegmental theory addressed. It was as if tones and other phonological features have no autonomy. In their work, these features were bundled together. Autosegmental theory helped

to see that features are independent entities and that in our scope of discussion when a tonal host elides very often its tone does not die also. We are able to tell what becomes of the tone after the elision process. The other theory used in the discussions is Optimality Theory. This theory makes us know exactly what the correct grammar is for Ewe as constraints are ranked and the optimal candidates chosen.

The thesis has discussed a number of issues including syllables and the effects of deletion in syllables with regards to the Ewe language, positional faithfulness in general, the types as discussed in the thesis like positional faithfulness in initial syllables, phonological behaviour of Ewe lexical categories/ positional faithfulness in the category noun and vowel hiatus resolution in Ewe.

Other areas looked at are vowel quality especially of the vowels /e/ and /a/, noun prefixes and adjacent final vowels of syllables in context, the behaviour of tones that is tones found in single nouns and also compounds and discussion on two level tones in Ewe - high and the low tones.

Based on these discussions the following findings were arrived at. These findings basically revolve round the research problem/questions found in chapter one. The findings are:

1. Resolving vowel hiatus in Ewe is always by deleting one of the two adjacent or juxtaposed vowels.
2. Deletion though the best in the resolution process unleashes resyllabification as syllables are affected.
3. The deletion of the vowel does not always result in the loss of its tone too. Very often tones especially high tones are preserved which finally dock on new preferred neighbouring hosts. The tonal stability pattern indicates that high tones are present underlyingly while low tones are quite often not.

4. With the juxtaposition of different lexical categories as seen in the thesis such as verb+noun, adjective+noun and possessive particle ɸé+noun, in the case of elision, the target is very often other categories other than nouns. However, there were a few cases where I observed that prefixes of nouns drop instead. Meaning that positional faithfulness in the category noun as argued cannot always be the case.
5. As asserted by Duthie (1996:25) and also very much explored and exemplified in this thesis, when the two juxtaposed vowels /e+a/ that is the final /e/ of a verb and the initial /a/ of a noun (in this order), the target in the event of deletion is always the final /e/ of the verb. One reason we attribute to this occurrence is in the domain of vowel quality. We explain that /a/ is the only low vowel. /e/ on the other hand is a non-low vowel and all non-low vowels are prone to deletion whatever the reason. Another reason /a/ is preserved is that it has the lowest height as compared to vowels of other heights. This makes it have the greatest intrinsic amplitude and duration and perceiving it is less difficult. The opposite is said of /e/ which is the reason it drops. It is not easily perceived because of the compression of the height dimension.

## 9.1 APPENDICES

It is important to clearly note and explain that not all tones are marked in Ewe as has been done below. Native speakers of the language can correctly pronounce a given word, phrase or sentence without all the marked tones. The reason this is done this way is for non-speakers of the language who chance upon this piece of work to be able to appreciate and pronounce clearly and correctly Ewe words, phrases and sentences.

### 9.1.1 APPENDIX 1

**NOUN+NOUN COMPOUNDS SHOWING ELISION OF INITIAL VOWEL IN THE SECOND NOUN**

1. àblàdzò ‘plantain’ + ètsró ‘peel’ → àblàdzòtsró ‘plantain peel’
2. èkpé ‘stone’ + èxɔ̀ ‘house’ → èkpéxɔ́ ‘stone house or house built with stones’
3. èdzò ‘fire’ + àfí ‘ash’ → èdzòfĩ ‘ash’
4. súklì ‘sugar’ + ètsì ‘water’ → súklìtsì ‘sugar solution’
5. èmú ‘mosquito’ + àtíkè ‘medicine’ → èmútíkè ‘mosquito spray’
6. àɖìbá ‘pawpaw’ + àmàkpà ‘leaf’ → àɖìbàmàkpà ‘pawpaw leaf’
7. àfɔ̀kpà ‘ shoe’ + èkà ‘thread’ → àfɔ̀kpàkà ‘ shoe lace’
8. ègbɔ̃̀ ‘goat’ + èkpó ‘a housing place for goats or animals in general’ → ègbɔ̃̀kpó ‘pen’
9. èzã̀ ‘night’ + èɣlí ‘shout/noise’ → èzã̀ɣlí ‘night noise’
10. àvùvɔ̀ ‘cold’ + àwù ‘dress’ → àvùvɔ̀wù ‘ sweater-like dress worn during winter’
11. dzàtá ‘lion’ + èxɔ̀ ‘house’ → dzàtáxɔ́ ‘ lion’s cage/den’
12. kòkló ‘fowl’ + èmí ‘faeces’ → kòklómí ‘fowl faeces’

13. àtí ‘stick’ + àɖákà´ ‘box’ →àtíɖákà´ ‘wooden box’

14. kòkló ‘fowl’ + èvì ‘child’ → kòklóví ‘chick’

15. ègà ‘metal’ + àbàtí ‘bed’ → ègàbàtí ‘metalic bed’

16. ègà ‘metal’ + èkpó ‘cage’ → ègàkpó ‘metalic cage’

17. àgbàlẽ` ‘paper/book’ + àɖákà´ ‘box’ → àgbàlẽ`ɖákà´ ‘paper box’

18. àsí ‘hand’ + àwù ‘dress’ → àsíwùí ‘hand glove’

19. sìká ‘gold’ + èkɔ`gà ‘necklace’ → sìkákɔ`gà ‘golden necklace’

20. ètú ‘gun’ + èkpé ‘stone’→ ètúkpé ‘bullet’

21. àfɔ` ‘leg’ + àwù ‘dress’ → àfɔ`wùí ‘socks’

22. àdzè ‘witch’ + èxè ‘bed’ → àdzèxè´ ‘owl’

23. ètà´ ‘head’ + èɖà ‘hair’ → ètà´ɖà´ ‘hair’

24. àfɔ`kpà ‘shoe’ + èkà ‘rope’ → àfɔ`kpàkà ‘ shoelace’

25. ètɔ` ‘river’ + èβù ‘car’ → ètɔ`βú ‘canoe’

26. àbólò´ ‘bread’ + èkpó ‘cage’ → àbólókpó ‘oven’

27. ètà ‘head’+ àgbà ‘load’ →ètàgbà ‘head load’

28. àmè ‘human’ + èlã` ‘meat’ → àmèlã` ‘human flesh’

29. àmè ‘human’ + ètà ‘head’ → àmètà ‘human head’

30. èhà ‘pig’ + èlã` ‘meat’ → èhàlã` ‘pork’

31. àhà ‘drink/liquor’ + èzè ‘pot’ → àhàzé ‘drink/liquor pot’

32. àmè ‘human’ + èmò ‘face’ → àmèmò ‘human face’

33. sìká ‘gold’ + èwɔ´ ‘flour’ → sìkáwɔ´ ‘gold dust’

### 9.1.2 APPENDIX 2

**VERB (ending with /e/) + NOUN SHOWING ELISION OF THE FINAL VOWEL OF THE VERB.**

34. té ‘to press’ + ànyí ‘clay’ →tányí ‘to press clay’
35. sè ‘to hear’ + ènú ‘something’ → sènú ‘to hear something’
36. ŋé ‘to break’ + àbɔ̀ ‘arm’ → ŋábɔ̀ ‘to break an arm’
37. lé ‘to hold/catch’ + àgbà ‘bowl/plate’ → lágbà ‘to hold/catch a bowl/plate’
38. ɖè ‘to remove’ + àkùtsá ‘sponge’ → ɖàkùtsá ‘to remove sponge’
39. xé ‘to pay’ + èfè ‘ bill’ → xéfè ‘to pay bill’
40. hè ‘to pull’+ àkplɔ̀ ‘spear’ → hákplɔ̀ ‘to pull a spear’
41. gé ‘to drop’ + àtíkútsétsé ‘fruit’ →gátíkútsétsé ‘to drop a fruit’
42. mè ‘to roast/grill’ + àbɔ̀bì ‘ a type of local fish’ → màbɔ̀bì ‘roast/grill this type of fish’
43. dzè ‘to purchase’ + àhà ‘drink/liquor’ → dzàhà ‘to purchase drink/liqour’
44. xlɛ̃̀ ‘to read’ + àgbàlɛ̃̀ ‘book’ → xlãgbàlɛ̃̀ ‘to read a book’
45. gé ‘to drop’ + àtùkpá ‘bottle’ → gátùkpá ‘to drop a bottle’
46. gblɛ̃́ ‘to spoil/destroy’ + àvɔ̀ ‘cloth’ → gblãvɔ̀ ‘to spoil/destroy a piece of cloth’
47. hè ‘to pull/drag’ + èɖɔ̀ ‘net’ → hèɖɔ̀ ‘to pull/drag a net’
48. kè ‘to open/spread’ + àtá ‘thigh’ → kata ‘to open/spread one’s legs
49. lè ‘to bath’ + ètsì ‘water’ → lètsì ‘to bath water’
50. sè ‘to hear/listen’ + èhà ‘music/song’ → sèhà ‘to listen to music or song’

### 9.1.3 APPENDIX 3

**VERB (ending with /a/) + NOUN (with initial vowel /e/) SHOWING ELISION OF THE INITIAL VOWEL OF THE NOUN.**

51. mlã´ ‘to train’ + èvì ‘child’ → mlã´vi ‘to train a child’
52. gbá ‘to roof’ + èxɔ̀ ‘house/building’ → gbáxɔ̀ ‘to roof a house/building’
53. ɖà ‘to cook’ + ènú ‘something’ → ɖànú ‘to cook something’
54. fà ‘to mix’ + èdè ‘palm fruit’ → fade ‘to mix palm fruit’
55. má ‘to share’ + èkplú ‘cup’ → mákplú ‘to share cup’
56. ná ‘to give’ + ègà ‘money’ → nágà ‘to give money’
57. sà ‘to tie’ + èkà ‘rope/thread’ → sàkà ‘to tie rope/thread’
58. bà ‘to cheat’ + èdù ‘country’ → bàdù ‘to cheat a country’
59. dà ‘to throw’ + èhè ‘knife’ → dàhè ‘to throw a knife’
60. ɖà ‘cook’ + ètsi‘water’ → ɖàtsì ‘to boil water’
61. kplá ‘put on/take’ + ètú ‘gun’ → kplátú ‘to take one’s gun’
62. klá ‘to bid farewell’ + ènɔ̀ ‘mother’ → klánɔ̀ ‘to bid one’s mother farewell’
63. kpà ‘to peel’ + ètè ‘yam’ → kpàtè ‘to peel yam’
64. tsrà ‘to sieve’ + èblì´ ‘maize/corn’ → tsràblì´ ‘to sieve corn/maize’
65. bà ‘to cheat’ + èvì ‘child’ → bàvì ‘to cheat a child’
66. ká ‘to take a portion of’ + èlã̀ ‘meat’ → kálã̀ ‘to take a portion of meat’

### 9.1.4 APPENDIX 4

**ADJECTIVE + NOUN COMBINATION SHOWING ELISION IN THE ADJECTIVE**

The examples given under noun+noun compounds all pass for adjective + noun combination. The difference that need to be established is that in the adjective + noun environment, one of the nouns is actually the adjective (describes) of the other noun category it combines with.

### 9.1.5 APPENDIX 5

**POSSESSIVE PARTICLE ɸé + NOUN COMBINATION SHOWING DELETION OF THE VOWEL BELONGING TO THE POSSESSIVE PARTICLE**

67. ɸé + èló ‘crocodile’ → ɸéló ‘his/her/its crocodile’
68. ɸé + àkɔ́ta`́ ‘chest’ → ɸákɔ`ta`́ ‘his/her/its chest’
69. ɸé + ènù́ ‘mouth’ → ɸénù́ ‘his/her/its mouth’
70. ɸé + àlɔ`gŏ ‘cheek’ → ɸálɔ`gŏ ‘his/her/its cheek’
71. ɸé + èdzì ‘heart’ → ɸédzì ‘his/her/its heart’
72. ɸé + àyìkú ‘kidney’ → ɸáyìkú ‘his/her/its kidney’
73. ɸé + édɔ`kà ‘intestine’ → ɸédɔ`kà ‘his/her/its intestine’
74. ɸé + àgɔ`bɔ́ ‘navel’ → ɸágɔ`bɔ́ ‘his/her/its intestine’
75. ɸé + ètsìlètsé ‘towel’ → ɸétsìlètsé ‘his/her/its towel’
76. ɸé + àfɔ`wù́ ‘sock’ → ɸáfɔ`wù́ ‘his/her/its sock’
77. ɸé + èklò ‘knee’ → ɸéklò ‘his/her/its knee’
78. ɸé + èdɔ`kà ‘intestine’ → ɸédɔ`kà ‘his/her/its intestine’
79. ɸé + èkɔ` ‘neck’ → ɸékɔ` ‘his/her/its neck’
80. ɸé + àɖè ‘tongue’ → ɸáɖé ‘his/her/its tongue’

81. ɸé + ègbè ‘grass’ → ɸégbé ‘his/her/its grass’

82. ɸé + àŋè ‘rubber’ → ɸáŋè ‘his/her/its rubber’

83. ɸé + àkplɔ̀ ‘spear’ → ɸákplɔ̀ ‘his/her/its spear’

84. ɸé + àkpákpà́ ‘dove’ → ɸákpákpà́ ‘his.her/its dove’

85. ɸé + àbɔ̀ ‘garden’ → ɸábɔ̀ ‘his/her/its garden’

86. ɸé + àgbèlì ‘cassava’ → ɸágbèlì ‘his/her/its cassava’

87. ɸé + àgùmètákúí ‘ginger’ → ɸágùmètákúí ‘his/her/its ginger’

88. ɸé + àká ‘charcoal’ → ɸáká ‘his/her/its charcoal’

89. ɸé + àmìzé ‘oil pot’ → ɸámìzé ‘his/her/its oil pot’

## REFERENCES


1. Agbetsoamedo, Yvonne 2006 (Master's Thesis). *Syntactic Pattern in the Ewe Noun Phrase.* Norwegian University of Science and Technology.
2. Ameka, Felix & Dorvlo, Kofi (without year). The Ewe language. Online article, last retrieved on 19th of November 2013 from: http://www.let.leidenuniv.nl/verba-africana/ewe/c-ewe-language.htm
3. Anane, Evelyn 2010 (Master's Thesis). *Some Phonological Processes of Compounding in the Akan Language.* Faculty of Arts, Department of Language and Communication Studies. Norwegian University of Science and Technology.
4. Archangeli, Diana & Pulleyblank, Douglas 2007. Harmony. de Lacy (2007:353–378).
5. Beckman, Jill 2004. Positional Faithfulness. Blackwell Publishing Ltd.
6. Booij, Geert 2007. *The Grammar of Words: An Introduction to Morphology*. Oxford University Press.
7. Dresher, Elan (1996). *The rise of optimality theory in First Century Palenstine*. In recent issues in linguistics. in GLOT international 2,1/2:8
8. Durand, Jacqes 1990. *Generative and non-Linear Phonology*. Longman Group UK Limited.
9. Duthie, A.S 1996. *Introducing Ewe Linguistic Patterns: a textbook of phonology, grammar, and semantics*. Ghana Universities Press, Accra.
10. Gussenhoven, Carlos 2004. *The Phonology of Tone and Intonation.* Cambridge University Press.
11. Gussenhoven, Carlos and Haike Jacobs 2005. *Understanding Phonology*. Hodder Education, an Hachette UK Company.

12. Harris, John 2011. Deletion. In: Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice (eds.): The Blackwell Companion to Phonology. Volume III. Wiley- Blackwell, pages 1597–1621.
13. International Phonetic Association 1999. *Handbook of the International Phonetic Association: A Guide to the Use of the International Phonetic Alphabet.* Cambridge University Press.
14. Kager, René 1999. *Optimality Theory.* Cambridge University Press.
15. McCarthy John J. 2008. *Doing Optimality Theory*. Blackwell Publishing.
16. Odden, David 2006. Tone: African Languages. Goldsmith (1995:444–475).
17. Smith Jennifer L. 2001. Lexical Category and Phonological Contrast. In R. Kirchner, J. Pater, and W. Wikely, eds. *PETL 6: Proceedings of the Workshop on the Lexicon in Phonetics and Phonology*. Edmonton:
University of Alberta, 61-72.
18. Stahlke, Herbert Frederic Walter 1971 (Doctoral Thesis). *Topics in Ewe Phonology.* University of California, Los Angeles.
19. Turner Claire K. (2006) Tone Fusion in Mọ̀bà Yorùbá. In: *Selected Proceedings of the 35th Annual Conference on African Linguistics: African Languages and Linguistics in Broad Perspectives.*
20. Walker, Rachel 2011. *Vowel Patterns in Languages.* Cambridge University Press.
21. Wikipedia, the free encyclopaedia. Glottal Stop. Online article, last retrieved on 19th of November 2013 from: http://en.wikipedia.org/wiki/Glottal_stop
22. Yip, Moira 2007. Tone. de Lacy (2007:229–252).
23. Zec, Draga 2007. The syllable. de Lacy (2007:161–194).