PHONOLOGICAL NATIVIZATION OF DHOLUO LOANWORDS

By

DANIEL OWINO

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Promotor: Prof. Rachélle Gauton
Co-Promotor: Prof. C. J. van Rensburg

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DEDICATION

To my wife Pamella, and to my children Otieno Nyaruath, Adhiambo, Akinyi and Baro, who endured my long periods of absence from home, and to my parents James Ang'iella and Anjeline Ang'iella, whose moral support was ever present, do I dedicate this work.

ABSTRACT

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SUPERVISORS: PROF. RACHÉLLE GAUTON
PROF. C. J. VAN RENSBURG

This is essentially a phonological analysis of the Dholuo loanwords derived from English and Swahili.

This study examines loanword adaptation at three levels: phonemic, phonotactic and prosodic. The study analyses the strategies that the language has used in adapting the foreign phonemes to the native phoneme system. It also examines the way foreign consonant and vowel clusters are adapted to the Dholuo system and how the stress systems in the source languages are adapted to the Dholuo tonal pattern. The Dholuo principles of syllabification are also examined.

On adaptation of incoming sounds into the language, the study determined that Dholuo replaces such foreign segments with native sounds which are acoustically and auditorily closest to the foreign sounds. Some foreign sounds, however, are adopted into the sound system of the language, either to fill some phonological gaps in the language or for non-linguistic factors, like the prestige value.

The study found that the native speaker-hearer has knowledge of the possible phonetic sequences in his language and performs the simplest possible adaptation in the loanword to make it correspond to these well-formed sequences. This extends to the insertion or deletion

of foreign segments to make a loanword conform to the syllable structure constraints of the native system.

The study reveals that Dholuo employs several strategies to nativize unnatural, non-canonic syllable structures: epenthetic vowel insertion, extrasyllabic consonant or vowel deletion, devocalization of unnatural vowel sequences, addition of a final vowel, and in some cases, consonant clusters may be tolerated.

At the suprasegmental level, the study reveals that stress in the source languages is generally rendered as high tone in the language, while the stressed vowel in the loanword generally determines the ATR harmony in the loanword. The study revealed that if the first syllable in the loanword is stressed, then the loanword will be rendered with +ATR in Dholuo, while an unstressed first syllable will lead to a loanword with –ATR harmony.

The study concludes that the means employed by a given language for the adaptation of unnatural, non-canonic syllable shapes are, in a general sense, peculiar to that language, and have nothing to do with the internally-motivated morpheme structure or phonological rules of the target language.

The study also concludes that foreign phonemes are directly mapped onto corresponding native phonetic forms, and there is very scarce evidence in the data to support the theory that loanwords are nativized at the abstract phonological level of the target language.

Key terms
Nativization
Loanword
Suprasegmental
Non-canonic
Resyllabification
Epenthetic
Extrasyllabic
Insertion
Deletion
Devocalization

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To you all, I say

Erokamano! Siyabonga!

LIST OF ABBREVIATIONS

VH:	Vowel harmony
ATR:	Advanced tongue root
CC:	Consonant clusters
SL:	Source language
TL:	Target language
BL:	Borrowing language
SSC:	Syllable structure conditions
PSSCs:	Positive syllable structure conditions
NSSCs:	Negative syllable structure conditions
CS:	Code-switching

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CHAPTER ONE

1. INTRODUCTION

1.1 Background to the Languages

1.1.1 Dholuo

Dholuo is the language spoken by the Luo people of Kenya. They are part of that group of the Nilotes which is collectively referred to as the Luo, whose craddleland historians and linguists have located around Wau, along the rivers Sue and Jur in the open grassland plains of Bahr-el-ghazal province of Sudan (Ochieng' 1985:35).

According to Greenberg (1966), Tucker (1994) and Grimes (1996), Dholuo occupies the extreme end of the extensive Nilotic group of languages. It belongs to the Western Nilotic sub-branch of the Nilotic branch of the Eastern Sudanic family. In the wider (African) context, Eastern Sudanic is itself a sub-branch of the Chari-Nile branch of Nilo-Saharan group of languages (Grimes1996:2). Of the Nilotic languages in Kenya, only Dholuo belongs to the Western Nilotic group. Languages closely related to it are Shilluk, Dinka, Alur (of southern Sudan) and Acholi, Lango, Padhola of Uganda. From their craddleland in southern Sudan, the Luo migrated across northern and eastern Uganda, into western Kenya. On the way to Kenya, they left behind the related groups mentioned above (Ochieng' 1990:10).

According to Cohen (1974), the Luo began to settle in their present area of western Kenya between 1500 and 1550 A.D. Dholuo speakers live in the Nyanza province of western Kenya, along the eastern shores of Lake Victoria, and also in northern Tanzania. According to the latest population census, (1999), the Luo people number around 3.8 million (only in Kenya) with a further estimated 923,000 in Tanzania (Grimes 1996), making it the second largest group after the Kikuyu.

According to Stafford (1967), Dholuo has two major regional varieties:

(a) the Trans-Yala dialect – spoken in Ugenya, Alego, Yimbo, and parts of Gem.
(b) the South Nyanza dialect, spoken in the various locations of southern Nyanza area plus those parts of Siaya and Kisumu not included in the Trans-Yala group.

Although these dialects of Dholuo have a high degree of mutual intelligibility, they are distinct enough in their lexical and phonological features to enable one identify a dialectal zone a speaker comes from merely by the way he speaks (Okombo 1997). The South Nyanza variety is the one regarded as standard, as it is the one that is found in the bulk of the literature in Dholuo, including the Bible and the readers for school. It is also the dialect on which this study is based and any reference to Dholuo in this study will be referring to the South Nyanza variety. Today the Luo people practice a mixed economy, involving agriculture, fishing and livestock rearing. Many of them are also to be found in diverse professions and vocations.

1.1.2 Swahili

Swahili belongs to the North-East coastal Bantu group of the Benue-Congo family, which is a member of the Niger-Congo group of languages, one of the largest families of languages in Africa (Campbell 1991). The name "Swahili" is derived from the Arabic word "Sawàhil", which means 'coast'. There seems to be evidence of Swahili being spoken in the East Coast of Africa centuries before the arrival of Europeans. Evidence from comparative Bantu studies by Guthrie (1962) suggests that some form of proto-Swahili was being spoken on the East Coast of Africa before the 10th C.

Miehe (1995) also suggests that Swahili had its origins at the East coast of Africa in the period before the 10th C. Four separate but hardly exclusive groups were found in this area: the "pure-blooded Arabs or Persians", the Afro-Arabs, of mixed blood, the islamised Africans and the non-islamised Africans from outside the coastal area. As a result of intermarriage and closer interaction, it became difficult over the years to differentiate between these groups, and so the term "Waswahili" was later used to refer to them (Miehe 1995:30).

Later on, lbn Battuta, who visited East Africa in the 14th Century, referred specifically to "Swahili" being spoken somewhere between Mombasa and Kilwa, or even between Mombasa and Mogadishu, "within the country of the Zenjs" (Guillain,1857, cited in Whiteley 1969:35). By the end of the 19th Century, the Swahili could be described as a people who shared a common cultural heritage and were conscious of a common history and common interest which united them (Miehe 1995:30).

At the beginning of the 19th Century, Swahili' was still essentially a language of the coast, serving as a means of communication for the many trading communities along the coast (Whiteley 1969). However, later on, Arab slave traders moved through most of East and Central Africa in search of slaves and ivory. The trading caravans usually included a number of Swahili speakers from the coast. In view of the linguistic diversity of the areas through which the caravans passed, Swahili obviously proved itself a most useful medium of communication, at least in the trading context. The Arab traders later on set up interior trading centres which served as stopping depots for slaves in transit and for the purchase of locally available ivory. They also founded or propped up dynasties to help facilitate their trade. Whitely (1969) records that Swahili, the language of the coastal traders, eventually spread inland along the trade routes and inland centres they founded.

Towards the 2nd half of the century, Christian missionaries added their number to the Arab caravans and European explorers who increasingly criss-crossed East Africa. During this time, Swahili penetrated westwards and south-westwards into present day Congo and Zambia (Whiteley 1969: 53). With time, it spread to more countries as legitimate trade opened up and as more and more schools were started by missionaries.

During the colonial period, the use of Swahili greatly improved. It was widely used by the colonial administration for administrative purposes. In education, it was used both as a medium of instruction and also taught as a subject.

Recent estimates put the speakers of Swahili to be between 50 to 70 million people, the great majority of whom are bilingual, using Swahili as a second language alongside other African languages (Campbell 1991:1283). It is also used as a lingua franca in the whole of East and Central Africa.

In less than 150 years since the Arabs ventured into the interior of Africa, Swahili can claim the status of first or second language to many people in the African hinterland. At present, the language is spoken as far south as Mozambique and the northern tip of Madagascar (Chimera 1998:2). It is also spoken in the DR-Congo, Malawi, Southern Somalia, and the Comoros (Polome 1967, Whiteley 1969, Vitale 1981). In Kenya Swahili is the national language and is taught as a compulsory subject in primary schools, and is examinable in high schools. It is also taught at University. In Tanzania, Swahili is, together with English, the official and national language and is compulsory in the education system up to high school.

1.1.3 English

English belongs to the West Germanic branch of the Indo-European group of languages (Grimes 1996). It first came to Kenya through the Christian missionaries and traders. It was also used by the British colonialists.

At the turn of the 20th Century, the only Africans in Kenya who commanded a smattering of English were the Swahili at the coast. Lloyd-Jones (1926) noted that around 1905, half-educated Swahili who were rejected from mission schools in Zanzibar were eagerly accepted as clerks and signalers in the colonial Kenya African Rifles (KAR) owing to their knowledge of English.

Later on, in 1927, an advisory committee on education at the colonial office recommended for the first time that teachers should be trained to use English in addition to their mother tongue (Gorman 1974:113). The committee also declared that to withhold the teaching of English to pupils was regarded by natives as an attempt by the government to prevent advancement for Africans (Sifuna 1990:140).

The Second World War contributed to the spread of English in a dramatic and unexpected manner. The British army in Eastern African recruited many Africans who were trained to be clerks and translators. To this end they were instructed in the reading and writing of English. On leaving the army, thousands of Africans were able to speak good English when they went home (Shiroya 1985:41).

Earlier in 1906, the Kenya-Uganda railway line had reached Port Florence (later Kisumu), the heartland of the Luo community (Sifuna 1990). With the railway line came a lot of things: settlers came over to exploit local agricultural and other resources, European quarters arose within the town, and the locals worked for the Europeans as labourers and domestics. Later on, a small native elite was being educated in European type schools.

With mass education after independence, English took on a new importance, and the former colonial power took pains to maintain its cultural (and hence economic and political) influence by sending teachers and textbooks to Kenya, and also by sponsoring local students and visitors to Britain (Sifuna 1990).

English soon became the official language of Kenya, used as a medium of instruction throughout the education system. It also became the language of regional communication in the East African region, thus setting a fairly standard 'life circle' of borrowing patterns.

Currently, it is estimated that there are approximately 322 million speakers of the English language all over the world, many of them second language speakers (Grimes 1996).

It has been argued that the language of numerically and culturally more dominant peoples are the more likely donors in lexical borrowing while the less prominent groups are more often the borrowers (Scotton & Okeju 1972). This is true in the Kenyan situation, where Dholuo, although surrounded by other numerically dominant groups like Luhya, does not borrow from them. This is because these languages are less dominant socio-economically and they have little prestige. This leaves English and Swahili, which are also the major sources of borrowing in East Africa.

Although there are few first language speakers of English in Kenya, the language is prestigious and occupies a culturally and socio-economically dominant position and so it is an obvious donor for Dholuo. It is also the official language in Kenya, while Swahili is the national language.

1.2 STATEMENT OF THE PROBLEM

Any analysis of loanwords in Dholuo, or indeed in any language, comes up with adapted loans having different phonological shapes. One question that the analyst has to answer is: what determines the phonological shape of the loanword in Dholuo? What determines the choice of the target language (TL) to substitute, or delete, or even adopt incoming foreign segments? Why, for example, would Dholuo, in integrating the English words "box" and "bomb", accept the [b] in "box" into its system, and yet prenasalize it in "bomb", thus ending up with [mbom]?

It is our contention that by analysing the occurring borrowed forms, various aspects of the internalised phonology of the language can be determined. This possibility rests on the proposition that the phonological properties of a language largely determine both the phonological shape and the phonetic realization of a lexicalised loanword.

After carrying out a phonological analysis of loanwords, one would be in a position to account for the various ways in which the target language handles incoming segments that are totally alien to its phonological system. It would also be possible to discover principles that may offer reliable predictions as to whether the target language will opt for substitution, deletion or adoption of a foreign segment in any given case.

As Weinreich (1963:7) argues, phonological adaptation of loanwords may occur on the basis of similarities in shape and or distribution. The problem for the linguist is to figure out how these equivalences are arrived at by a native speaker of a target language.

1.3 AIMS AND OBJECTIVES

The aim of this study, first and foremost, was to contribute to an understanding of the internalised phonology of the Dholuo language. The research therefore endeavoured to improve upon the present descriptions of the language and to provide a basis for any further research.

The major objective of this research was to determine the phonemic, phonotactic and prosodic constraints that govern the nativization of loanwords in Dholuo.

1.4 RESEARCH HYPOTHESES

(i) Dholuo adapts new phonemes and sound sequences in order to fill phonological gaps in the native system.

(ii) The level of adaptation of the loanwords vary with the degree of bilingualism as well as the structural differences between the source languages and Dholuo.

1.5 RATIONALE FOR THE STUDY

In an article on borrowing, Hyman (1970a:1) states that:

> "Both in syntax and in phonology, one of the chief concerns in the process of linguistic analysis is the justification of grammars".

He then quotes Kiparsky (1968:6):

> "What we really need is a window on the form of linguistic competence that is not obscured by factors like performance".

Hyman then concludes:

> "I would like to suggest that borrowing provides one such window" (p.1).

The importance of the study of loanword phonology in helping understand the internal phonological system of a language cannot be overstated. Borrowing processes have often been studied in the hope that they may reveal interesting structural features of the target language. Indeed certain phonological rules often escape our attention until their application in the restructuring of foreign morphemes forces the reality of such rules on the analyst.

Since source language (SL) forms are often structurally ill-formed from the perspective of the target language (TL), and since there may be several potential ways to reshape the forms to

satisfy minimal target-language norms, the precise way in which loanwords are actually reshaped may provide valuable clues as to deep-seated phonological and morphological patterns of the TL. When a monolingual native speaker is confronted with 'new' material and we observe how he modifies this material, then we can catch some glimpse of the nature of his native linguistic constraints.

It is in this regard that this study is expected to throw more light on the internal phonological system of Dholuo, based on the assumption that the perception and rendition of foreign sounds is based on the internalised grammar of the Dholuo speaker, and the observation of this perception and rendition might provide a better understanding of the grammar of this language.

1.6 SCOPE AND LIMITATIONS

This study examines the phenomena of borrowing and the perception of foreign sounds and their adaptation to fit the intrinsic phonological system of Dholuo. An attempt will be made to define the rules determining phonemic, phonotactic and prosodic adaptation of foreign phonological features coming into the language.

Loanwords also undergo morphological and semantic changes on introduction to a target language. Morphological changes may involve inflections for number and tenses, as well as assignment to various word class systems of the recipient language. However, this particular aspect of loanword adaptation will not be examined, and only the phonological adaptation will be studied as it may offer interesting clues to an understanding of Dholuo phonology. What will also not be covered are cases where a particularly talented speaker of Dholuo accurately perceives and reproduces foreign sounds and sequences in the process of borrowing.

On the prosodic level, it is quite apparent that prosodic features are not as rigidly or discretely definable as segmental phonemes. However, the prosodic features that will be examined in this study are those deemed contrastive, and whose omission from an utterance would cause a linguistically untrained hearer to say the utterance is unnatural. In this regard, prosodic features like pause, tempo, pitch, intonation, loudness, rhythm, tension, though distinctive in

some dialects of English, will not be examined in this study. Only stress, tone and vowel harmony will be examined as they have some level of functional load in the three languages.

One thing that is apparent in a study of this nature is the inherent number of assumptions and limitations that must of necessity come with it. Spatially and temporally, borrowing is an extremely complex phenomenon, since it involves the transmission at various times, through various dialects of both the source and target languages, through various intermediate linguistic communities, and by various speakers (or groups of speakers), of all of these dialects and languages, of semantically disparate lexical items. Each of these complicating factors can phonologically distort the "original" form of the word and thereby render incorrect any conclusions about adaptation, partial or full, which are based solely on the first and last stages of the borrowing process.

A number of assumptions, then, have to be made in this type of study. One of them is that the borrowing occurred from a single source language, over a period of time short enough to preclude any significant change in the source language from the time it "lends" the lexical item to the time it is finally borrowed.

Another assumption would concern the identification of the dialect of the source language that determined the original phonological shape of the word. This is of considerable theoretical and practical importance since, given the phonological variation manifest in the dialects of most languages, this might have a critical influence on the perception and rendition of the word in either intermediate languages or in the final target language. Since some of the dialects of English and Swahili have no standardized grammars, and since it is almost impossible to determine which dialect of the source language the borrowing originated from, we shall opt in this study for the standard dialects of the source languages and assume that they were the original source of the loanwords in Dholuo.

Another type of assumption that is manifest in a study of this kind is the type of contact made between the loanword and the target language, whether direct or indirect. By indirect contact, it will be understood to mean that before entering the target language, from the original source, the lexical item will have passed through intermediate languages or dialects, which are likely to have altered to some extent its phonological shape. If this can be shown to be the case, then one may have to consider the form found in the last of these intermediate languages

(just before entering the target language) to be the phonological source of the loanword. This follows from our ultimate interest in accounting for the kinds of phonological adaptation and adoption undergone by loan segments in Dholuo, an interest that demands knowledge of the exact shape of the word just before being adapted or adopted, as well as its final assimilated form.

However, this, of course, is not possible. It is virtually impossible to know who first introduced the loanword into the language, and what phonetic features were peculiar to these first carriers. Furthermore, only in very rare instances can we identify the exact source dialect, trace the exact path of transfer, or establish the exact receptor dialect in the target language. This is why in many studies of this nature, it is often the standard form of the source language, as exemplified in dictionaries, that is often used as the source language form. The dictionary data or sources used would necessarily obscure the dialect effects.

Having reduced the situation to a state where the transfer of a word to the target language is not affected by intermediate languages, then the contact between the source language and the target language will be considered as direct.

A type of borrowing that is anticipated in this research is orthographic borrowing. It is frequently the case that in literate societies where a certain degree of bilingualism exists, words will be imported in printed rather than in phonetic form. The kinds of phonological modifications undergone in such instances of orthographic borrowing are often a product not of any phonological correspondences between foreign and native sounds, but rather of conventions for transliteration from one alphabet into another. It is also expected that borrowing of this type would be stimulated for languages using the same alphabet, like English and Dholuo, although there may be different phonetic values associated with the symbols in these languages.

Having outlined some of the assumptions inherent in a study of this nature, we are now in a position to delimit the scope of this study. We will assume in the present study that we are dealing with a simplified type of phonological borrowing: the rendering by monolinguals of foreign words introduced into their language by bilinguals of the same linguistic community.

Changes brought about by orthographic assimilation will also be beyond the scope of this study, except in instances where they clearly affect our assessment of the facts of purely phonetic borrowing. Similarly, a study of the effects of sociological factors will be omitted, despite their overall importance in a more general theory of borrowing.

Although it has been shown by other studies (see Scotton and Okeju 1973; Bernsten and Myers-Scotton 1993; Appel and Muysken 1987; Mougeon and Beniak 1991) that there exists a correlation between the degree of phonological integration of loanwords and the sociocultural characteristics of the speakers, thus leading to different renderings of the same loanword, this will not be a major focus of this study. We will, however, cite it as one of the courses of partial nativization of loanwords, citing the above sources.

1.7 THEORETICAL ISSUES

In the early 1980s, after the dominance of "classical" generative phonology in the late 1960s and 1970s, a variety of approaches arose under the general heading of "non-linear phonology". Many of them were developed to overcome the inadequacies of the Generative Phonology model, developed by Chomsky and Halle (1968), and which is commonly known as the SPE (The Sound Pattern of English) model. These new approaches discarded the notion that phonological representation is a uni-linear sequence of segments and boundaries. In several of these approaches the representation of segments as unordered bundles of distinctive features has been replaced by multi-tiered hierarchical structures. Some of the more developed approaches are autosegmental phonology (Goldsmith 1976), which started as a theory of tone, and its progeny, CV phonology (Clements and Keyser 1983).

The descriptive tools used in this study are mainly those provided by the theory of autosegmental phonology and CV-phonology.

The basic claim of autosegmental phonology is that certain features or feature complexes can be represented on distinct autosegmental tiers which are separate from one another as well as from the phonological core. Such features or feature complexes, e.g. tone, behave in relative autonomy in regard to others. The entities on different autosegmental tiers may be referred to as autosegments, while the entities in the central core are referred to as slots (Halle &

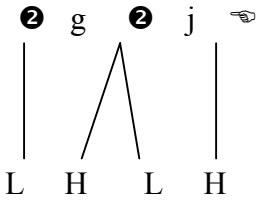
Vergnaud 1981). Particular autosegments can be linked to only particular slots. Thus in many languages like Dholuo, tone is linked only to vowels, and not to consonants.

The behaviour of autonomy between features or feature complexes and the slots is reflected in a formal theory of phonology by representing such features and feature complexes on independent (but concurrent) levels of phonological structure (Clements 1980). A full phonological representation will then consist of several independent strings of such segments. A formal relation of association binds elements of one level to another, and determines how they will be co-articulated.

Thus for a tonal language like Dholuo, the feature complexes constituting tones will be assigned to a concurrent level of representation (tonal tier) distinct from that level or levels upon which non-tonal features are organized, e.g. segmental tier for the vowels and consonants.

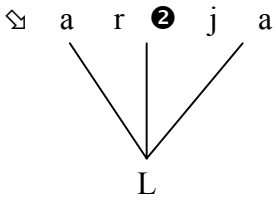
According to this theory, the relation of association is expressed through association lines. Association is not necessarily a one-to-one relation. For example, in tone, single segments can be associated with more than one tone, as in cases of contour tones on one segment. Single tones may also be associated with more than one segment, as seen in example 1 below:

1). (a)



Ogoye '*He has really beaten it*'

(b)



nyaroya '*calf*'

It is this characteristic that makes such representation non-linear. Phonological rules applying to elements on one level will not directly affect elements at another level unless a rule clearly designates such a result (Clements 1980, 1983, Halle & Vergnaud 1981). Thus rules which delete vowels do not generally affect the sequence of tones that belong to the word in which the vowel occurred. Such deletions leave the tones intact, unless the rule specifically mentions them.

This theory posits that the formal relation of association does not bind tonal segments with each segment of the level upon which non-tonal features are represented (Clements 1980). Instead, association is defined between tonal segments and certain designated elements of the non-tonal level. In Dholuo these elements are mainly vowels, although for other languages like English and Swahili, such elements may also include other sonorants, e.g. nasals and liquids.

In order to guarantee that all representations receive an unambiguous phonetic interpretation, the theory introduces a well-formed condition for each pair of associated levels. Such conditions not only specify the set of well-formed associations, but also operate upon ill-formed representations by removing or adding the minimal number of association lines necessary to make the association well-formed (Clements 1980).

Thus for a tonal language like Dholuo:

- All tone bearing elements are associated with at least one tone.
- All tones are associated with at least one tone-bearing element.
- Association lines never cross (Clements 1980:45).

The theory of CV-phonology, as developed by Clements and Keyser (1983), is a three tiered theory of the syllable.

> "Syllable trees consist of three-tiered representations, in which each tier has a certain vocabulary associated with it. The vocabulary of the first, or σ-tier, consists of a single element, σ. The vocabulary of the second, or CV-tier, consists of two elements, C,V; and the vocabulary of the third, or segmental tier, consists of single column phonetic matrices characterizing consonants and vowels in the usual manner" (Clements and Keyser 1983:25).

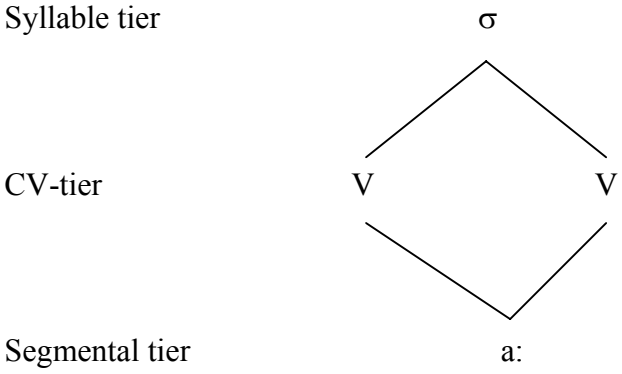
According to this theory, units of the CV-tier define the functional positions (peak verses non-peak) within the syllable. In this respect, the CV-tier can be seen as subsuming the functions of the earlier feature (syllabic). However, the elements of the CV-tier are not merely analogues of the features [+syllabic] and [-syllabic], but serve the additional and equally

important function of defining the primitive units of timing at the subsyllabic level of phonological representation (Clements and Keyser, 1983). Thus, according to this theory, what are normally regarded as single segments (both simple and complex) correspond to single instances of C or V on the CV-tier, while germinate or bimoraic sequences correspond to two units on the CV tier (Clements and Keyser 1983:31).

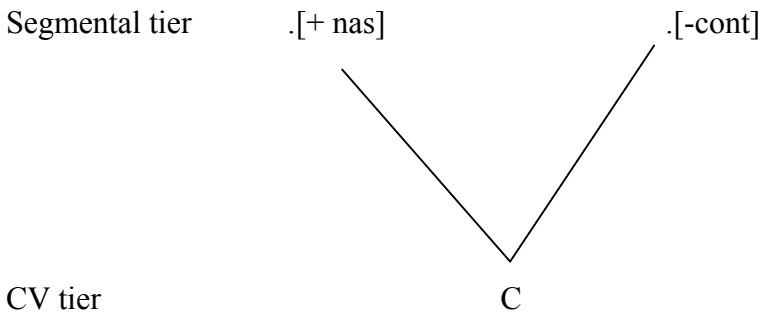
Assuming this theory, it is no longer necessary to distinguish between vowels and glides since a [+high], [-cons] segment dominated by a C unit of the CV tier will automatically be realized as a glide.

Following this theory, then, complex segments in the three languages will be represented as follows:

2 (a) Long Vowels



(b) Prenasalized Consonants



In the CV phonology theory, Clements and Keyser (1983:29) have proposed the following primary set of core syllable types:

(a) CV
(b) V
(c) CVC
(d) VC

Based on their choice of core syllable types, languages may be classified into the following types:

1. CV
2. CV, V
3. CV, CVC
4. CV, V, CVC, VC

Judged against these language types, Dholuo is a type 4 language.

According to this theory, constraints on co-occurrence within the syllable are represented by positive and negative syllable structure conditions which, taken together, generate the set of well-formed syllables for each language. The positive syllable structure conditions (PSSCs) state the general canonic form of well-formed consonant or vowel clusters in terms of sequences of natural classes. The negative syllable structure conditions (NSSCs), (applying to the output of the PSSCs), specify certain subsequences within the syllable as ill-formed, thus performing a filtering operation (Clements and Keyser 1983:31).

1.8. REVIEW OF RELATED LITERATURE

In this section, literature related to the topic of borrowing will be reviewed in order to find a perspective on the most recent research findings related to the topic. Currently, there is no work in print that deals exhaustively with borrowing in Dholuo. What exists in the literature is an article by Sure (1991) listimg the various loanwords in Dholuo from English, and the noun classes they are assigned to. The article also describes the adaptation of foreign phonemes, especially English vowels, into the Dholuo phonemic system. The article, however, does not examine adaptation of prosodic features, nor any in-depth analysis made of phonological adaptation.

There is a lot of literature, however, on the phenomenon of borrowing and loanwords in general.

1.8.1. Views on Borrowing

The term 'borrowing' has been variously defined by different scholars of language contact. Crystal (1987) defines borrowing as the introduction of a word or other linguistic feature from one language or dialect to another. Vocabulary borrowings are known as loanwords. Bynon (1977) has the same definition, terming borrowing as the transfer of lexical materials across language boundaries. The loanwords in such borrowings are usually members of specific semantic fields referring to technical fields, science and technology, and institutions such as the church, the military etc. Loanwords are therefore viewed as filling a semantic or stylistic slot not occupied by a native word.

For lexical borrowing to take place, a contact situation between the languages involved is required (Eichhoff 1980, Winter 1992).

Bloomfield (1933) further makes a distinction between intimate borrowing and remote borrowing. He uses the former to designate borrowing in a situation where two languages are spoken side by side in what is topographically and politically a single community. Remote borrowing, on the other hand, refers to borrowing across national boundaries. He claims the

former is done largely by culturally less advanced classes while the latter is done by the educated.

Many researchers, however, agree that the term 'borrowing' is semantically misleading, since it implies that the source language relinquishes a form in lending it to the target language, which is expected to return it later. (Hockett 1958, Weinreich 1963, Knappert 1970, Asher & Sympson 1994). In lexical borrowing, the source language actually loses nothing, and in fact continues to use the form.

There are various types of borrowing recognized in the literature. There is:

(i) the direct type of borrowing, where the target language adopts and integrates into its system both the form and meaning of a lexical item originating from a source language (Bynon 1977, Asher 1994).

(ii) Loan translation or calques, where the form and meaning of a foreign word, instead of being carried over into the target language, is merely employed as a model for a native creation. Here, the target language substitutes for each of the SL morphemes, the semantically corresponding morphemes in the TL and combining these according to its own native rules of word formation (Bynon 1977). Thus in this case, where the choice of the constituent morphs and the overall meaning of the new construct will be modeled on the foreign source, the constituent elements themselves and the rules governing their combination will be native (Bynon 1977:233). As a result, the newly introduced form will be fully motivated for the native speaker as they would make the concepts they introduced very much more accessible to the native speaker than the completely alien forms. This is the case of the Dholuo loanword '**Roho maler'** (Holy Spirit). Since none of these new words violate the native rules of word formation and they have no formal properties that would distinguish them from genuine native words, it may be difficult to say whether one is dealing with a calque or merely the semantic extension of a pre-existing word.

(iii) Semantic extension (semantic calques): this is another way in which a foreign concept may be taken into a language by modifying the semantic range of an item of similar meaning in the native vocabulary. Semantic calques may also involve the expanding of the semantic range of a native word to accommodate the new meaning alongside the original one (Asher 1994, Bynon 1977, Weinreich 1963). However, a difficulty

may arise here because there is often very little evidence of the exact pre-borrowing meaning of the word in question. This is the case of the Dholuo word '**polo'** (heaven/sky), whose semantic field has now been extended in Christian circles to mean God's abode.

(iv) Loanshift: this is where the TL does not accept the new word along with a new cultural item, but instead adapts material already in the language. The precise adaptation, however, may be patterned on the SL's verbal behaviour, so a new word emerges, under the impact of another linguistic system, thus a loanshift. (Hockett 1958, Weinreich 1963). In loanshifts, the influence of the source language is very limited. The only change directly entailed is semantic.

(v) Loanblend: here the borrower imports parts of the model and replaces part of it with something already in the language (Weinreich 1963).

(vi) Loan creations: this refers to new coinages, which are stimulated not by cultural innovations, but by the need to match designations available in a language of contact (Weinreich 1963).

(vii) Hybrid borrowing: here, words borrowed from one source language may be replaced with those borrowed from a successor source language. This occurs especially in third world countries which experienced successive colonial powers. Since the second source language may have many cognates with the previous source language, what results is called hybrid borrowing (Asher & Sympson 1994).

There are several reasons advanced to explain why languages borrowing from one another. Among these are:

a) The prestige motive. Hockett (1958) identifies prestige as one of the reasons for borrowing. In this case, he argues that people are expected to emulate those they admire. The bilingual uses loanwords from a SL as a means of displaying the social status which its knowledge symbolises. The same motive is advanced by Weinreich (1963). On the other hand, the borrower may not really admire the source language but may wish to be identified with them and be treated the same.

Another variety of prestige is wanting to conform with the majority. The source language could be that of the majority, or those in power.

b) The need filling motive: where languages borrow in order to find words for new objects, concepts and places. It is argued that it is easier to borrow an existing term from another language than to create one (Langacker 1972, Hockett 1958).

c) Weinreich (1963) also considers as a motivation for borrowing, the need to designate new things, persons, places, concepts as a universal cause of lexical innovation. Taber (1979:192) also agrees that this is a motivation for borrowing.

d) Pernicious homonymy is another motivation for borrowing. Sometimes a word is borrowed from another language to resolve a clash of homonyms (Weinreich 1963).

e) Weinreich also identifies the low frequency of words in a language as another cause for borrowing. He argues that the frequent words come to mind easily and therefore are more stable, while the infrequent words of the vocabulary are, accordingly, less stable and more subject to oblivion and replacement (Weinreich 1963:56).

f) He also identifies the tendency of affective words to lose their expressive force as another reason for borrowing. Weinreich (1963:58) claims that in some semantic fields like sleeping, talking, beating etc. there is a constant need in many languages for synonyms. Where they are available from another language, they are easily borrowed.

g) Weinreich (1963:60) also identifies another use of lexical borrowing as what he calls "cacophemistic purposes" in slangy speech, because of unfavorable associations in the native language

On the type of linguistic items likely to be borrowed, Bynon (1977) discusses the lexical classes that are open to borrowing. He notes that it is generally the open classes: nouns, verbs and adjectives, that are more readily borrowed than the 'closed' classes (pronouns conjunctions, prepositions). He notes that nouns are the most borrowed class everywhere, because the great majority of borrowed words are the names of new objects and materials. He claims that borrowing from closed classes may only be possible in situations of intense linguistic exchange since it presupposes the cross-linguistic equation of syntactic patterns, whereas "mere lexical borrowing" from open classes would require only a minimum number of bilingual speakers in the transmission process (Bynon 1977: 231).

1.8.2 Borrowing and Code-switching

Scotton (1988) makes a distinction between borrowing and code-switching. She claims that there is little difference between established loanwords and the multi-word, spontaneous insertion of an embedded language into a matrix language. Quoting (Poplack 1987), Scotton outlines two different approaches to the definition of loanwords and code-switching. She says that in one approach, the main difference between borrowing and code-switching has to do with morphological and syntactic integration of embedded language material into the matrix language. According to this approach, borrowing includes established or widespread loanwords which recur relatively frequently, are widely used in the speech community and have a certain level of recognition or acceptance. Borrowing may also include language material which may occur only once but which receive affixation of the matrix language and follows matrix language word order.

On the other hand, argues Scotton (1988), code-switching involves multi-word sequences which remain syntactically and morphologically unintegrated into the matrix language patterns. Code switching then is more 'special purpose' and occurs when the speaker is looking for a new word. Borrowing, on the other hand, is acquired behaviour and is not merely a function of a lexical need.

The second approach, notes Scotton (1988), differentiates borrowing from code-switching on the basis of reoccurrence value or frequency. Borrowings have a tendency to occur with some level of predictability when the target language is used, while code-switching forms have no reoccurrence value. Only a single occurrence of code-switching is entirely possible. They also rarely show any phonological integration into the language.

Another difference between these two concepts, argues Scotton (1988), is in terms of the words themselves. Borrowings, she notes, means source language words which have been incorporated into the lexicon of the target language and are therefore part of the linguistic competence of at least some group of native speakers of the target language. Code-switching, on the other hand, includes morphemes, words, phrases, clauses or sentences which occur spontaneously in the target language discourse, but which have not been part of the lexicon of the target language.

1.8.3 Views on Phonological Adaptation

Hyman (1970b), writing on the role of borrowing in the justification of grammars, posits that sounds are borrowed on the basis of phonemic approximation. His argument is that a language first finds the closest phonemes that encompass the phonetic quality of the foreign sound, and then the foreign sound is approximately phonemicised and subjected to the phonological constraints of that phoneme's members. He supports his arguments with evidence from Yakui loanwords borrowed from Spanish. He concludes that foreign sounds are definitely perceived in terms of underlying forms and are therefore subject to the phonological constraints of the system.

Other proponents of the view that loan phonemes are incorporated at the deep structure level are Kaye and Nykiel (1979). In a paper on the reasons why loanwords adapt to the native system, they argue that loanwords are adapted phonologically to meet certain constraints on possible words or morphemes imposed on them by the target language. They claim that such constraints are defined on the level of lexical representation and assert that surface phonetic constraints play no role in the phonology of loanwords. The authors claim that deep phonotactic constraints, which are not necessarily reflected on the surface, are what determine the shape of loanwords. They maintain that the systematic phonemic level of generative phonology is the level on which the constraints controlling loanword phonological behaviour can be understood (Kaye & Nykiel 1979:72)

Supporting Hyman's (1970b) argument, they claim, using Yoruba loanwords in Nupe, that the target language borrows a foreign phoneme as an underlying form, then allows it to undergo the phonological rules to yield a phonetic form which differs from the phonetic form in the SL. Again using English loans in Spanish, they further argue that loan forms are actually reshaped to conform with the deep phonotactic constraints in the language. These deep phonotactic constraints, they argue, do not correspond to surface phonetic constraints. However, in cases where a deep constraint happens to be "surface true," then the foreign forms typically conform to this constraint (Kaye & Nykiel 1979: 72).

Steinbergs (1985), in an article on Oshikwanyama loan phonology, also supports the concept of abstractness in loan phonology. Using examples based on the incorporation of foreign clusters involving nasals and voiceless consonants in Oshikwanyama, she argues that,

although at the surface level, such clusters are allowed in fast speech, there are cases where the language usually modifies clusters of nasals plus voiceless consonants in loanwords. This is usually done by voicing the consonants.
She concludes therefore that the loanword incorporation process is derived not from the surface structure, but as a result of deep structure constraints.

But Picard and Nicol (1982), writing on the relationship between loanwords and concrete phonology, oppose this view. Using English loanwords in Quebecois, they contradict the claim by Kaye and Nykiel (1979:72) that the underlying representation of the SL is relevant in loan phonology. Using data from Quebecois, they argue that borrowers do substitute the underlying forms of SL sounds in their borrowing even though a segment with the same phonetic properties may exist in some identical environment in the target language. They therefore maintain that abstractness in loan phonology, if it exists at all, is situated at the level of the source language, rather than the target language. The two therefore opt for an approach "which directly maps the phonetic shape of the foreign word into its closest native phonetic sequence" (Picard & Nicol 1982: 144)

Hansford & Hansford (1989), Katamba & Rottland (1987), Mwihaki (1998) all argue for the notion of concreteness in loan phonology, where the loanword nativization process is derived from the surface structure, and not from the underlying structure.

Holden (1976), writing on rates of assimilation and phonological productivity, contends that loan phonemes are borrowed according to the closest phonetic forms of the target language phonemes.

Hansford & Hansford (1989), in an article on borrowed words in Chimburung, also argue that foreign phonemes are directly mapped onto corresponding native phonetic forms. Katamba & Rottland (1987), working on the syllable structure and English loanwords in Luganda, also argue for this position. Using data from Luganda, they show that English loan phonemes are mapped onto the nearest phonetic forms in Luganda.

Mwihaki (1998), writing on English loanwords in Gikuyu, also comes to the same conclusion. She concludes that phonological adaptation involves replacement of the phonological properties of the SL with the equivalent elements in the TL. She maintains that the target

language substitutes the most similar native sound, in terms of physical and perceptual correlation, for any foreign segment not in the target language.

The process of phonological integration of loanwords in Dholuo can clearly be explained from the concrete integration approach. The data collected in the present study clearly support the view that foreign phonemes are directly mapped onto corresponding native phonetic forms, and there is very scarce evidence in the data to support the abstract phonological nativization theory.

Weinreich (1963), writing on reasons why languages may or may not integrate foreign forms into their native systems, claims that if a speaker is bilingual, he may attempt to reproduce the borrowed morpheme with its original sounds, while the unilingual speaker is more likely to force the loanwords to confirm to the TL phonetic and phonemic pattern. He also identifies another determinant of the selection as the speaker's attitude towards the SL. If that language enjoys great cultural or social prestige in the TL, the pronunciation of loanwords in a phonic form close to the SL may serve as a mark of education or status (Weinreich (1963:26). He remarks that as a result of loanword integration, changes may take place in the sound system of the TL. New sequence and patterns, or even new phonemes or new relevant phonemic distinctions may be introduced through borrowing (Weinreich (1963:27).

Ohly (1987), writing on the Afrikaans loanwords in Herero, points out different stages of loanword adaptation. He describes 4 stages of loanword adaptation: first the domesticated loanwords, where a local class prefix is added to a foreign word. Then follows the accommodated loanword stage which, according to Ohly, is an advancement on the previous stage. Here the loans partly apply to phonological rules.

He then describes the adapted loanwords stage, where the class prefixes and the initial sounds of loanwords many agree phonetically, in terms of co-occurrence rules.

Finally, there is the stage of assimilated loans, which constitutes thorough nativization of terms brought into the TL system.

Ohly further claims that a loanword acquires an ideal native pattern if the community of the TL do not speak the SL. In this way, loan phonemes are avoided while consonant clusters foreign to the TL are not admitted.

Baldunchiks (1991), while examining West European loanwords in modern Latvian, also posits three stages of loanword adaptation. He recognises the penetration or first use stage, which can take place in speech or in written form (Baldunchiks 1991:21). The second stage that he identifies is the stage of adaptation, where there is the substitution of the foreign forms for the native forms and the assignment of native grammatical properties. The latter is understood as the development of a stable meaning in the recipient language.

The third process of borrowing, according to Baldunchiks, is the assimilation or integration stage. At this stage, the assimilation of foreign material is so deep that native speakers do not perceive the replica as a foreign word.

Scotton and Okeju (1972), in a study of loanword integration in Ateso, advance some factors that are responsible for loanword integration and reanalysis. They point out that fortuitous parallels between the structures of the source language and the target language could be responsible for loanword integration.
They argue that because Ateso and Luganda, the source language, both have similar phonotactic patterns, this similarity encourages rapid integration of foreign patterns. They also claim that some loanwords may retain their foreign character because they often refer to a situation where the foreign language is the normal medium of communication, and the appropriateness of the foreign rendition of these words seems to carry over even when the speaker uses the target language. They give examples of English words in Ateso like "salesman, "free time", "wholesale" etc.

Scotton and Okeju (1972) also point out that psychological factors may contribute to the none integration of loanwords. They claim that the probable prestige, which accrues to the person who demonstrates knowledge of English, accounts partly for the presence of relatively unincorporated loanwords in his speech.

1.8.4 Views on Syllable Structure Adaptation

The literature on syllable structure adaptation generally point to the tendency of the target language to adopt the foreign syllable structures to the intrinsic BL patterns. There are cases, however, where syllable structures not compatible with the native syllable structure, are accommodated. Steinbergs (1985) notes that the Oshikwanyama language does not allow consonant clusters which contain liquids and clusters made of obstruents. When such unacceptable clusters occur in the loanwords, the language almost always eliminates them. There are a few cases, however, which the language accommodates. In a bid to modify such structures to conform to Oshikwanyama pattern, the language simplifies the consonant clusters by inserting a vowel, which usually is a copy of the vowel of an adjacent syllable. The language would also occasionally delete one of the consonants, especially if the consonant cluster was word–final in the source language. Where loans contain a final consonant, the language adds a vowel to it to conform to the syllable structure.

Batibo (1994), in an article on loan diphthongs in Swahili, also suggests more or less the same adaptation rules. He says that Swahili has the syllable structure CVCV, and therefore does not allow a sequence of VVs in the language. Such syllable structures are therefore modified by insertion of semi-vowels [j] and [w] between the vowels. Swahili, notes Batibo, may also apply vowel coalescence, collapsing the two vowels into a single, usually long vowel with an intermediate quality. The language may also delete one of the vowels or apply glide formation. In the latter case, one of the vowels is devocalized by becoming a glide.

In another article on the nativization of foreign clusters, Batibo (1996) says that both Tswana and Swahili generally use the nativization rules in Bantu languages to nativize foreign clusters. He names these rules as the vowel insertion rule, onset assimilation rule, extra-syllabic consonant truncation rule, and extra-syllabic vowel truncation rule (Batibo 1996:43). However, he also notes that the two languages may also tolerate some foreign clusters.

He concludes that all loanwords must go through special filter grids in which sequences that do not conform to the required specifications have to be resyllabified.

Katamba & Rottland (1987), also discuss several processes of foreign syllable structure nativization in Luganda. They focus on the importance of the differences in the syllable

structures of Luganda and English in determining the incorporation of English loanwords in Luganda. They note that, among other differences, the range of consonant clusters allowed in Luganda syllable onsets are more restricted than in English. Therefore in the borrowing of English loanwords, the syllable structure constraints function as a sieve to filter out or adjust putative loans.

Among the different methods for adopting foreign syllable structures in Luganda, they observe, are vowel and consonant epenthesis, to make the loans adapt to the CVCV structure. They also note that extra-syllabic consonants may be deleted, and also point out cases of metathesis, where loan morphemes are interchanged within the word, thus conforming to Luganda syllable structure.

Singh (1980), Hansford & Hansford (1989), Kunene (1963) also note these strategies for foreign syllable structure adaptation.

Singh (1980), in an article on English loans in Hindi, notes that Hindi typically breaks up word-initial consonant clusters, either prothetically or epenthetically, while word-medial clusters in loanwords are accommodated. He further notes that the word-medial clusters are not broken up because the two consonants can be assigned to two different syllables even if they belong to the same syllable in English.

Kunene (1963), writing on the English and Afrikaans loanwords in Southern Sotho (SS), notes that the language has accommodated the foreign consonant clusters in its phonological system, although consonant combinations are very rare in the language. He also observes that since SS does not have diphthongs, it adapts the diphthongs in loanwords by giving syllable (and therefore also vocalic) value to the glide portion of the diphthong, thus adding an additional syllable to the Sothoized word.

Hansford & Hansford (1989) note the occurrence of dummy syllables in Chimburung loanwords. The study notes that since /r/ does not occur word-initially in the language, it creates dummy syllables which are prefixed to loanwords with word-initial /r/, thus creating an acceptable phonotactic structure. Homorganic nasals are also inserted in Chimburung loanwords, although the authors do not point out a particular rule that results in this, only that it is sporadic.

A phonotactic requirement in Chimburung is that word-final consonants must be [+nasal]. They therefore point out that a front vowel is suffixed to loans that end in non-nasal consonants. The tone on this vowel generally copies that of the previous syllable.

1.8.5 Views on Adaptation of Prosodic Features

The literature on loanword nativization so far does not contain much in terms of adaptation of prosodic features. This review will therefore focus mainly on the adaptation of stress and tonal features to the stress and tonal patterns of the target language. It will also examine vowel and consonant harmony processes as they apply to loanword adaptation.

Asher & Sympson (1994), while supporting the need for the analysis of suprasegmental aspects of nativization into a target language, argue that each language has unique prosodic patterns like stress, tone, pitch etc., which often interact closely with segmental phonology. They point out that the most recent revisions of phonological theory have involved the recognition of previously unnoticed syllabic and rhythmical bases for many phonological phenomena.

Hyman (1970b) comments on the adaptation of tone in the Hausa loanwords borrowed into Nupe. He formulates a rule which states that the high tones in the loanwords are realized as rising tone if the preceding syllable has a low tone. When a new syllable is created by vowel epenthesis, then the tone in this syllable is usually a copy of the phonological tone of the preceding syllable.

Hansford & Hansford (1989) write on the adaptation of Twi and Hausa tones on loanwords borrowed into Chimburung. They note that where Twi has high and low level tones, loanwords usually copy the original tone pattern. However, where loanwords from Hausa have a tone pattern not permitted in Chimburung, the tones assimilate to the nearest possible tone pattern.

Concerning words from English, the authors note that they tend to transfer the stress pattern to the tone pattern, with stressed syllables becoming high tones. The tone on the unstressed

syllable in English, however, may be either high or low in Chimburung. On the other hand, the epenthetic vowel that is inserted in a consonant cluster tends to have a low tone.

Kunene (1963) also discusses the tonal placement of loans from Afrikaans and English. He observes that when the loanword begins with 'm' and has primary stress on the first syllable, then the southern Sotho word derived from it lengthens the 'm', for the purpose of achieving stress which, as he claims, is borne by the consonant in S. Sotho. The first part of the lengthened 'm' is then regarded as a contracted class prefix (class 3) and is thus given a low tone. The article, however, does not mention other placements of tone in the borrowed words.

Katamba & Rottland (1987), in comments on stress placement in loanwords, observe that English stress is usually translated in Luganda as vowel lengthening and high pitch. They concede, however, that this is an impressionistic observation, since the study did not focus on the treatment of stress.

Baldunchiks (1991), writing on west European loanwords in modern Latvian, notes that in agreement with Latvian rules, the stress always falls on the first syllable on loanwords. He observes, however, that a small group of undeclinable words from French do retain their original stress pattern.

These observations therefore agree with the general patterns of nativization of foreign features in loanwords, whether segmental or prosodic. As observed in earlier sections, most foreign forms are made to adapt to the native phonological system, yet there are always exceptions, where foreign forms or features may be accommodated.

There is not much in the literature concerning vowel and consonant harmony. Hansford & Hansford (1989) comment about some aspects of vowel harmony in Chimburung borrowings. The language, they note, has two harmony sets, based on the advanced tongue root feature (± ATR). A majority of the loans, according to Hansford & Hansford, are in the + ATR set. If the loan has a mixture of + ATR and – ATR vowels, there is a tendency to let the harmony specification of the stressed syllable nucleus dominate the remaining vowels.

Khumalo (1987), writing on Zulu phonology, also mentions consonant harmony in loanwords. He argues that the final 't' in a foreign root whose other stop is perceived as a depressor stop,

is also restructured as a depressor stop /d/, while a similar final 't' in a root incorporating an aspirate is restructured as the aspirate stop /th/. He claims that this segment is perceived in terms of a general principal that governs the distribution of stop types within a Zulu root.

This study will show how some of the stress and pitch patterns in the source languages are adapted to the Dholuo tonal system. English stress, as a rule, coincides with high pitch in the words, and is variable, falling on any syllable in the word (Roach, 1993, Crystal, 1976). Swahili stress, on the other hand, is fixed, falling on the penultimate syllable (Vitale, 1982). The study will also discuss strategies that the language uses to adopt the incoming vowel segments into its harmony system, which is based on the ATR feature.

1.9.0 RESEARCH METHODOLOGY

1.9.1. The Subjects

This study is partly based on about 15 hours of audio-recorded interviews of 50 Dholuo speakers of different ages, genders, educational backgrounds, and residence. About half of the interviewees were from Manyatta, a working class suburb near Kisumu, the regional headquarters of Nyanza province, which is regarded as the heartland of Dholuo speakers. This group was targeted simply because of their urban residence, with their daily lives centered on urban activities: using the buses for going to work, buying provisions at the supermarket, transporting the children to and from school each day. It was hoped that with this kind of daily 'urban activity', there would be a high propensity to use terminology in the sciences and technology, and thus provide several instances of borrowing. And since they require more than one language in their daily communication, the heavy contact between the various languages would inhibit total integration of loanwords. Their speech would thus provide a fair amount of partially assimilated loans.

The other half of the subjects came from the environment of Bondo, a village about 60 kilometres from Kisumu. This rural environment was chosen mainly because most of the subjects are monolingual Dholuo speakers and were likely to provide a good corpus of fully integrated loanwords in the language.

While conducting the interviews, the subjects were unaware that our main interest was in the loanwords borrowed from English and Swahili. The interviews were very informal, conducted where the interviewees lived, and dealt with problems in their daily lives with the purpose of eliciting a sample of speech about them, which forms part of their everyday conversation. An attempt was made to get a quota sample, making age, gender, educational background and occupation the determining variables. The resulting transcripts offer near-natural conversation, with subject matter kept relatively constant, for which the incidence of loanwords across different types of speakers can be assessed.

1.9.2. Sampling Techniques

The sampling techniques used in this study was purposeful random sampling. The researcher went to several houses of people staying in the Manyatta area and enlisted their help in conducting the research. About 30 houses were visited and potential subjects recruited. A total of 50 persons were initially recruited, with non-speakers of Dholuo being instantly eliminated. Also removed were speakers of the language who were fluent in other neighbouring Kenyan languages. This was done to eliminate the prospect of the subject using words borrowed from the other language, since our interest was in Swahili and English loanwords. What remained as the subjects for the research was about 25 individuals.

The same type of sampling was used for the group of subjects around Bondo village. For this group, attempts were made to interview only subjects who declared that they were monolingual Dholuo speakers. We hoped to get a good sample of fully integrated loanwords from the speech of these subjects.

After the subjects had been chosen, unstructured interviews were carried out with these individuals who had been purposefully sampled to reflect the emergent design of the study. This type of interview was relevant to the study because the subjects were unlikely to be on guard, and the researcher was able to get natural speech patterns. This was deemed to be a better technique because if a different method, like a questionnaire, was used, with the subjects being asked to pronounce certain loanwords, the researcher would end up with what the subject perceived as the correct formatives, and not necessarily the actual naturally occurring utterances. More important in this approach than a single exchange from a single questionnaire is the quantitative evidence of loanwords in the corpus of data collected.

1.9.3. Data Collection

1.9.3.1. Primary data

The subjects chosen in 1.9.1 above were asked, in unstructured interviews and discussions, questions on various areas of their lives. These were mainly on such areas as problems at the place of work, experiences with raising children, discipline at home, health issues and the

AIDS epidemic, technical skills, social relations, educational matters, the sciences and technology, dress, religion, family, agriculture, travel, leisure, commerce and the like.

Data was also collected from conversations in social gatherings and funerals, using the participant observer technique.

All these were tape-recorded and later transcribed. More data was also gleaned from the Dholuo radio broadcasts on the local radio station.

1.9.3.2. Secondary data

There is a big collection of books, weekly magazines, dictionaries, and the Bible, which provided the source of secondary data. Native speakers of the language were then used to verify the pronunciation of the loanwords collected from these sources.

1.9.4. ANALYSIS OF DATA

The loanwords in the data collected in 1.9.3.1 and 1.9.3.2 above were identified through a systematic comparison of the lexical items occurring in the target language and the source languages. This was done based on three criteria: semantic affinity of concepts, a phonemic correspondence of lexemes, and the direction of borrowing depending on the nature of the referents. Identification of the loanwords was aided by the fact that there is a great phonetic discrepancy between Dholuo and the source languages. The three languages (Dholuo, English and Swahili) are not genetically related, nor did they share any cultural experiences before the 20th Century. If a Dholuo lexeme therefore shows a systematic formal and conceptual correspondence with a source language item, then it is likely to be a loanword.

The sociolinguistic situation of the three languages in this study was crucial in giving a pointer to the direction of borrowing. As Hockett (1986:410) argues, borrowing tends to be from more prestigious to less prestigious cultures. He also says that languages rarely borrow basic lexical items which define the core of human experience, but rather adopt names for concepts acquired through cultural diffusion. This has been seen in the data, where many of

the loanwords coming into the language represent foreign concepts. Thus loanwords in the speeches were easily isolated from the lexical items that define the core human experiences.

Once the data was transcribed, loanwords were classified in order of initial sounds: vowels, followed by consonants. This ensured that the English and Swahili phonemic inventory was well represented. The subsequent analysis and description considered sounds in all phonetic environments.

CHAPTER TWO

2.0. DHOLUO PHONOLOGICAL PARAMETRES

2.1. Introduction

A number of detailed, informative descriptive studies exist which provide a fairly good picture of the main characteristics of the Dholuo segmental and tonal phonology. Outstanding among these is A.N.Tucker's (1994) study on the grammar of Kenya Luo, a work of unusual depth and insight. Some of the descriptive generalizations upon which this section is based are drawn from Tucker's work and from the equally thorough studies of Omondi (1982), Adhiambo (1981), Okombo (1982, 1997), Ngala (1994), and Owino (1994).

The extensive documentation provided by these studies makes it unnecessary to give the full exemplification of each point that would otherwise be required in a study of this nature. For a fuller account of the descriptive observations given in summary below, one may consult the studies cited above. In this section, we will outline some of the more important surface features of Dholuo phonology.

2.2. The Dholuo Vowel System.

Dholuo has a nine vowel system consisting of the low, back vowel /a/ and four pairs of other vowels distinguished primarily by [ATR] harmony (Ngala 1994, Omondi 1982, Okombo 1997). The nine distinctive vowels can be differentiated by the features [high], [low], [back], [round], and [ATR], as displayed in the chart below:

Fig. 2.1. Dholuo Vowel Chart.

			[-back]		[+ back]
			[-round]		[+ round]
[+high]	[-low]	[+ATR]			
		[-ATR]			
[-high]		[+ATR]			
		[-ATR]			
	[+low]	[-ATR]			

The [-low] vowels exist in pairs: a [-ATR] and a [+ATR] counterpart. The vowel [a] functions in both [-ATR] and [+ATR] contexts in Dholuo. Although inherently [-ATR], the vowel functions as a transparent vowel in [+ATR] environments, neither undergoing nor triggering vowel harmony changes.

Dholuo vowels are lengthened before NC (nasal + consonant) segments or when preceded by CG (consonant + glide) sequences. All Dholuo vowels can occur word initially and finally. It therefore follows that they also occur syllable initially and finally as, according to Greenberg (1978:455):

> "…distributional constraints and boundary phenomena that occur
> at word boundaries often occur at syllable boundaries as well"

Dholuo orthography, however, underdifferentiates these vowels. Only the [+ATR] vowels, plus [a], are represented in the orthography. This sometimes makes for difficult reading, especially in minimal pairs where the vowels are differentiated only by tongue height. As Okombo (1997) rightly points out, this underdifferentiation has the advantage of accommodating both personal and regional differences, in reading and writing, which are based on vowel tongue root positions. This is common especially where there are no lexical

minimal pairs. Below are the nine vowels, their orthographic representation, and examples in words:

Phonemes	Orthography	Examples
i	i	[pi❄] 'a small hill'
✋	i	[p✋❄] 'wealth in animals'
e	e	[ler] 'muscle'
☜	e	[l☜r] 'light'
❷	o	[k❷r❷] 'to harden dough'
o	o	[koro] 'to prophesy'
✞	u	[g✞r❷] 'to trim'
u	u	[guro] 'to nail'
a	a	[pala] 'knife'

(Some examples derived from Tucker 1994, Okombo 1997).

In Tucker's (1994:15) work, Dholuo is described as a 10 vowel system, with another /a/ which is [+ATR]. However, other writers on the language's vowel system, including Omondi (1982), and Okombo (1997), all agree on the nine vowel system, since the [-ATR] [a] vowel and its [+ATR] counterpart are not phonemic in the language.

Dholuo then, has a smaller vowel inventory than English, and it lacks all the central vowels found in the latter. The differences between the vowels are more acute. This means that so many oppositions found in the English vowel inventory are not maintained when words with such vowels are borrowed. As will be seen later, English vowel contrasts are neutralized more drastically as Dholuo attempts to contain the 20 or so vowel oppositions in English in its 9 vowel system.

2.3. The Consonant System

Dholuo has 26 consonants, including two semi-vowels [j, w], and five nasal obstruent combinations, which always function in the language as unit phonemes. The consonants have

a one-to-one correspondence between their phonemic and orthographic representation. Below are the consonants, their representation in the orthography and examples of their occurrence in words:

Phoneme	Orthography	Example
◘	◘	☯◘♋●♋☸ ☃&■♓♐♏☃
♌	♌	☯♌◆●☸ ☃♎❒◆❍☃
⬥	⬥	☯⬥♋☠☸ ☃♏♲♏☃
❍	❍	☯❍♋♍☸ ☃♐♓❒♏☃
♐	♐	☯♐☥⬥❷☸ ☃⬥◆◆◘♓♎♓◆♲☃
❄	◆♒	☯❄☥❍☸ ☃❍◆⬥♓♍☃
☜	♎♒	☯☜♋&❷☸ ☃⬥◘❍♋■☃
◆	◆	☯◆♋♎❷☸ ☃❒◘◘♐☃
♎	♎	☯♎☚❒❷☸ ☃♑❒♋■♋❒♲☃
☼	❒	☯☼♓☠◘☸ ☃❍♏♋◆☃
●	●	☯●☥❍☸ ☃♑❒♋⬥⬥☃
⬥	⬥	☯⬥♓☠♑◘☸ ☃♋♑❒♏♏❍♏■◆☃
♂	♲	☯♂♋⬥◘☸ ☃◘◘■♎☃
■	■	☯■◆☠♑◘☸ ☃⬥♋♓⬥◆☃
♍	♍♒	☯♍♋&☸ ☃❍♓●&☃
⇦	♂	☯⇦♋❒❷☸ ☃◆◘ ⬥◘♓◆♏☃
⇘	■♲	☯⇘♋&❷☸ ☃♑♓❒●☃
&	&	
☯&♏■♎◘☸ ☃♐♓❒♏◘●♋♍♏☃		
♑	♑	☯♑☚&☸ ☃♒♓♍♍◆◘☃
☠	■♑☃	☯☠◆◆☸ ☃■♏♍&☃
♒	♒	☯♒♏❒♋☸ ☃●◘❖♏☃
❍♌	❍♌	
☯❍♌♋&♋☸ ☃♍◘■❖♏❒⬥♋◆♓◘■☃		
■☜	■♎♒	☯■☜☥■❷☸ ☃◆◘ ◘♓■♍♒☃
■♎	■♎	☯■♎♋❒♋☸ ☃❒◘♋♎☃
⇘⇦	■♂	☯⇘⇦♋♑♋☸ ☃♌♋■♑☃
☠♑	■♑	☯☠♑♓❍♋☸ ☃●♓♐♏☃

The consonants can be plotted in a chart as below, using a broad phonetic transcription based on the IPA system:

Fig. 2.2. Dholuo consonant chart.

Okombo (1997:19) notes the presence of a consonantal phoneme [?] which often appears in Dholuo but has a doubtful phonemic status. This sound occurs mainly in a few utterances, e.g.:

3).

Dholuo	English
?m?m	'no'
?a?a	'no'
?e?e	'here is"
?mm	'yes'
?ee	'yes'

This sound, however, is not considered an intrinsic part of the Dholuo consonant system, and is normally left out in many descriptions.

All consonants in the language may appear in the first and second positions in CVCV stems but ☯❄ 🗃 ☜☸ ♋■♎ ☯♦🗃 ♎☸ cannot exist in the same stem. All consonants can occur in word final position in CVC stems except ☯♌🗃 ☜🗃 ♎🗃 ♑🗃 ♐☸ which cannot terminate free stems.

The nasal compounds ☯❍♌🗃 ■☜🗃 ■♎🗃 ⇘⇦🗃 ☠♑☸ are possible word finally in the language. The fricative [h] may occur before all vowels, and sometimes alternates with [k] in this environment, as seen below:

4). hajumba~kajumba / halanga~kalanga 'type of skin disease'

Before ☯◆🗃 ☥☸🗃 ☯♒☸ often alternates with ☯♂☸🗃 ♏👉♑👉

5).

Dholuo	English
Ohunyu ~ ofunyu	'type of worm'
Ohula ~ ofula	'rivulet'
Huyo ~ fuyo	'to fly'
Huwo ~ fuwo	'stupidity'

[h / f] very rarely occur in word final position. [f] only occupies syllable coda position in loanwords, e.g. **baf 'bathroom'**

In the nasal-consonant sequences, the nasals are always homorganic with the consonants that follows them, and must agree in voicing with them. There are no syllabic consonants in Dholuo.

The semi-vowels, [w, j], occur as consonants in the language, capable of being followed by either vowels or diphthongs. Not all consonants in the language, however, can precede diphthongs. In Dholuo, no word, except the genitive form, may end in [j] or a voiced plosive. However, some words can end in nasal compounds. The sounds [g, f, h] and all prenasalized consonants cannot precede [j]. In certain words, it is difficult, even for native speakers, to determine the presence or absence of semi-vowels, e.g.

6).	Dholuo	English
	Yie ~ yiye	'boat'
	Bie ~ biye	'ants'
	Dwe ~ due	'moon'
	Two ~ tuo	'sickness'
	Duwo ~ duo	'to muddle'
	Kamunio ~ kamuniyo	'snail'

Tucker (1994) suggests a practical solution to this problem. He says that in certain circumstances, medial -y- and -w- may be replaced by –ch- and -p- respectively, while the final vowel is lost, e.g.

7).	Dholuo	English	Possessive	Plural
	Biye	'ants'	bicha	biche
	Kamuniyo	'snail'	kamunicha	kamuniche
	Ohiwu	'1st meal'	ohipa	ohipe

On the other hand, the final V is preserved and there is no sound change where true diphthongs are concerned, e.g.

8).	Dholuo	English	Possessive	Plural

Yie	'boat'	yieya	yiedhi
Due	'moon'	dueya	dueche

In loanwords, most vowel sequences lose the final vowel, e.g.

9).

Dholuo	English	Plural
Miya	'one hundred'	miche
Chae	'tea'	chache
Boyi	'servant'	boche
Tae	'tie'	tache
Barua	'letter'	barupe
Bao	'timber'	bepe

He therefore asserts that true diphthongs in the language do not lose the final vowel.

2.3.1. Complex Consonants

While in most cases a single consonant or vowel is linked to a single timing unit, thus constituting a unit phoneme, several segments may also coincide with one timing unit, thus constituting a complex segment, e.g. the prenasalised consonants in Dholuo.

Sagey (1986:56), in her dissertation on the representation of features in non-linear phonology, makes a distinction between complex and contour segments. Within the framework of non-linear autosegmental phonology, she argues, it is possible to represent multiple articulations within a segment by many-to-one mappings on a single timing slot. Dholuo has a number of such multiple articulations of consonants, which are considered as linked to one C-slot, based on homorganic behaviour. This is the generally accepted interpretation of prenasalized consonants in the language (Okombo 1982, Ngala 1994), and the same interpretation will be adapted in this study, where prenasalized consonants are considered single units.

Sagey (1986:56), however, describes complex segments as multiple simultaneous articulations within the place node, and gives affricates as examples of this type of articulation. She considers prenasalized consonants as "…many-to-one linkings of sequences

of articulations within a single segment" (Sagey 1986:56). She therefore refers to prenasalized sounds as contour segments.

In this work, however, the prenasalized consonants in the language will be considered as complex segments after Okombo (1982), Omondi (1982), and Tucker (1994), for the sake of consistency. Thus Dholuo has the following prenasalized consonants:

Since the prenasalized consonants in Dholuo function as single units, they are clearly different from the English nasal and consonant clusters which do not function as unit phonemes. The latter may also occur word and syllable finally, but never in the word or syllable initial position. As already noted, the prenasalized consonants in Dholuo can occupy all positions in the word, although their occurrence in word final position is fairly restricted to genitive forms of the verbs, as shown below:

2.3.2 Distribution of prenasalized Consonants

Initial		Medial		Final	
mb	mbaka '*conversation'*	rombo	'*sheep'*	remb	'*blood of*'
ndh	ndhuno '*to pinch'*	andhoga	'*traitor'*	hondh	'*build boat'*
nd	ndawa '*cigarette'*	andiwo	'*beer'*	pond	'*hide'* (v)
nj	njaga '*bang'*	penjo	'*to ask*'	penj	'*exams'*
ng	ngima '*life'*	angima	'*ape'*	rang	'*search'*

However, other complex sounds have a much more restricted distribution within the word:

Cw	kwano	'maths'
NCw	mbwakini	'unsettled in behaviour'
Ndj	ndjaro	'to talk ceaselessly'
Cj	pjen	'skin'
Mw	mwandu	'riches'
Dw	dwaro	'needs'
Dj	djel	'goat'
Mj	mjel	'dance'

☠j	☠jelo	'to roll'
⍉w	⍉wol	'to give birth'

As Lojenga (1993) convincingly argues, prenasalized consonants can be regarded as a case of a [nasal] archisegment, **N,** unspecified for place of articulation, receiving its specification from the accompanying obstruent by spreading of the place node. Since the nasal is unspecified for place of articulation, the archisegment is therefore written with a capital **N** in the underlying representation. It receives its feature specification by spreading from the stop. The two elements of the prenasalized stops agree for the feature [voice], and their points of articulation are also the same, though their manner of articulation differs (nasal plus oral consonant).

The five prenasalized voiced consonants therefore appear in their underlying representation as: **Nb□□N□□□N□□□N⇦□N■□□**nd are represented orthographically as: mb, ndh, nd, nj, ng.

2.3.3. Consonant Sequences

Tucker (1994) mentions the existence of some consonant sequences within certain nominal derivatives in Dholuo. These are especially found in words like:

10).

Dholuo	English
Lihumblu	backbone
Lokro	larynx
Butno	to go broody
Tetni	to shiver
Bebni	to crackle (of fire)
Wakni	to rustle
Lwang'ni	fly
Kanyna	donkey
Mbwakni	to be unsettled

These consonant sequences are especially found in the standard dialect of Dholuo: the South Nyanza dialect. However, an analysis of the other dialect, the non-standard Trans-Yala dialect, reveals a different pattern. The Trans-Yala dialect shows no consonant sequences, having a clear pattern of CVCV.

Now traditionally, scholars have always either considered one dialect independently of the other dialects, or they have used comparative evidence to show that one sound in dialect A corresponds to another sound in dialect B. What I propose to do in the case of CCs is to look at such phenomena in both dialects in a comparative manner in the hope that what happens in one dialect may illuminate an obscure point in another. Such a comparative approach allows the phenomena found in one dialect to put into perspective what in one dialect may appear arbitrary.

This comparative approach is not unique. Lass (1976) observes that descriptions of phonological systems as a rule restrict themselves to the standard variety of the language and ignores other dialects. He confirms that many phonological and morphophonemic problems are clarified if the data-base of phonological description is widened to include non-standard dialects.

The words above are actually rendered in the Trans-Yala dialect as follows:

11).

Dholuo	English
Lihumbulu	backbone
Lokiro	larynx
Butino	to go broody
Tetini	to shiver
Bebini	to crackle (of fire)
Wakini	to rustle
Lwang'ini	fly
Kanyina	donkey
Mbwakini	to be unsettled

In the articulation of these words in the standard dialect, an epenthetic vowel can also be heard. This however, is not very clear and actually depends on the phonetic environment.

Tucker (1994:29) also notes the existence of these vowels and says that they are never stressed in speech, although they may have a tonal value, usually of the preceding vowel. He correctly notes that in Luo music, the epenthetic vowel is often given full vocalic value and given a note. It may even be stressed. It would therefore be phonologically plausible to argue that consonant sequences do not occur in Dholuo.

2.4. Dholuo Diphthongs

The term diphthong refers to sounds in which the quality of the vowel sound is not the same at the end as it was at the beginning of articulation (Gimson 1980, Jensen 1993). The tongue position also changes in the production of diphthongs.

Although certain sounds in Dholuo exhibit some characteristics of diphthongs, especially the gliding of the tongue in their articulation, the Dholuo speakers, however, do not make a distinction in their pronunciation between a sequence of two vowels, and a sequence of a semi-vowel and a vowel. This is especially true where the first vowel in the vowel-vowel sequence is a high vowel. Thus the speakers freely vary the vowel-vowel and glide-vowel sequences in their pronunciation, e.g.

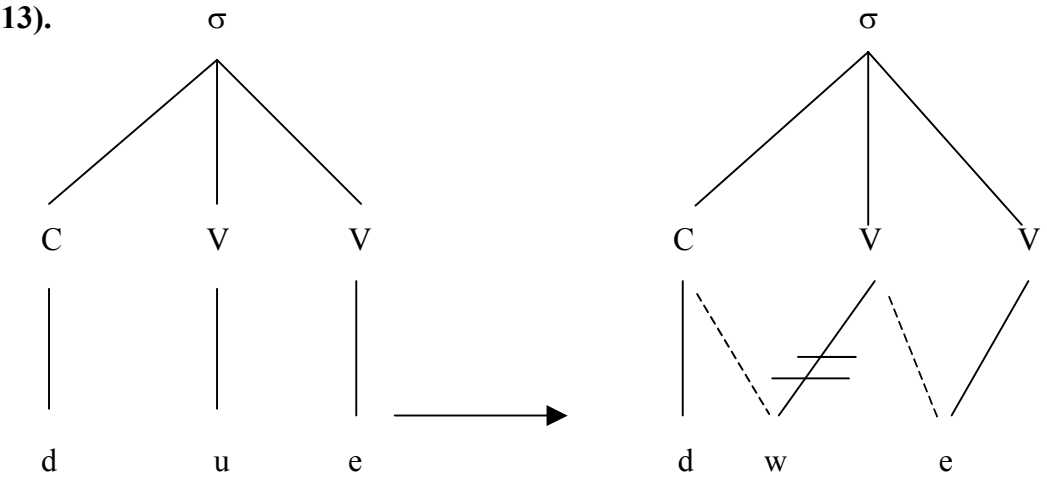
12).	Dholuo	English
	gweno ~ gueno	'hen'
	dyel ~ diel	'goat'

In English, [j] and [w] are mainly consonantal. But in Dholuo, they can be both consonantal and vocalic. However, when they occur in the central position in the syllable, they must be followed by another vowel occupying the syllable nucleus position.

Adhiambo (1981) has argued that the diphthongs in Dholuo are underlyingly vowel sequences. Interpreted this way, they fit in and greatly simplify the phonemic structure of the language. The high vowel in the underlying level then becomes a glide through a rule of

derivation. Using this interpretation, one would then posit that the glides in Dholuo are derived from underlying vowels, dominated by a V node, but during derivation, a glide formation rule applies, delinking them from the V node and associating them with the C node. The vacant V is hooked to the following vowel, thus the compensatory lengthening that accompanies glide formation is accounted for, e.g.

13).



[dwe] 'moon'

On the surface, however, all glides are dominated by the C node, following Clements & Keyser (1983).

Below are examples of the diphthongs in Dholuo:

14).

Dholuo	English
[tuak] ~ [twak]	'converse'
[thuon] ~ [thwon]	'cock'
[diel] ~ [dyel]	'goat'
[thuol] ~ [thwol]	'snake'
[riambo] ~ [ryambo]	'to tell a lie'
[kia] ~ [kya]	'ignorance'
[kuiri] ~ [kwiri]	'poison'

Although diphthongs should of necessity occupy only one nuclear node, Adhiambo (1981) and Omondi (1982) both consider the diphthongs in Dholuo to be sequences of two vowels in their underlying representations. This view is supported by the behaviour of the diphthongs during phonological processes like vowel elision. When these diphthongs occur word finally, the final vowel is elided independent of the preceding one, e.g.

15). Bie otho ⇒ bi otho 'the ants have died'

2.5. Vowel Harmony

In its simplest, regular form, vowel harmony consists of a co-occurrence restriction upon the vowels that may occur in a word. All vowels in a word must be drawn from one or another of two mutually exclusive sets. In languages which have this phenomenon, the harmony often occurs either lexically or postlexically.

Although vowel harmony processes have been noted in the language at both levels, this section will cover only lexical vowel harmony since in the borrowing phenomena, it is usually the lexical items that are borrowed. The vowel harmony processes in Dholuo that are examined in this section are based on the feature Advanced Tongue Root as it manifests itself within word boundaries. The basic principles governing vowel harmony are described in terms of co-occurrence and co-occurrence restrictions between the vowels in different positions in the word.

The effect of vowel harmony is usually noticed when an affix is added to the root of a given word. The affix vowel will normally acquire the tongue root position of the root vowel. In Dholuo, the infinitive suffix **–o** is usually realised as either + ATR or – ATR depending on the root vowel, e.g.

16).	-ATR	+ATR
	[kɛl❷] 'to scatter'	[kelo] 'to bring'
	[k✞n❷] 'to refuse'	[kuno] 'to preserve'
	[✋k❷] 'to prepare'	[iko] 'to bury'

[g✠r❷] ‘to trim’ [guro] ‘to nail’

(Adopted from Tucker 1994)

In Dholuo, all [-low] vowels within a word must belong to the same harmony set, either [+ATR] or [-ATR]. Vowel harmony in the language is determined by the root morpheme as seen above. The other vowels in the affixes must harmonise with the vowels in the root for the feature [ATR].

In this language, the vowel [a] is unspecified for [ATR]. When it constitutes the only root vowel, then the affix vowel must be [-ATR]. However, this vowel occurs as a transparent vowel in [+ATR] contexts, where it does not block, undergo or trigger the spread of vowel harmony. This means that [a] as an affix is found in words with both [-ATR] and [+ATR] roots, e.g.

17). [ra☠ɛc] ‘grey’ [- ATR] with [a] in the prefix.
[hɛra] ‘love’ [- ATR] with [a] in the suffix.
[a✆ola] ‘wound’ [+ ATR] with [a] in the root.
[ai✆a] ‘squirrel’ [+ ATR] with [a] in the suffix.

In Dholuo, the vowel [a] may occur in any V-slot in a polysyllabic root, in both [- ATR] and [+ATR] environments, as long as the vowels on either side of [a] agree for the feature [ATR].

According to Clements (1980), certain vowels in many harmony languages do not alternate under the conditions for harmony. They appear in a single, invariant form. He identifies two types of such non-alternating vowels: neutral and opaque vowels.

Neutral vowels, according to Clements (ibid), do not affect the harmonic category of neighbouring vowels. Thus occurrences of a neutral vowel internally in a word does not break the word into two harmonic domains. Vowels to the left of the neutral vowel must agree in harmonic category with those to the right of it. The [a] vowel in Dholuo fits this description.

Opaque vowels, on the other hand, affect the harmonic category of either vowels. Thus its occurrence internally in a word regularly divides the word into two harmonic domains, which necessarily do not agree in harmonic categories.

Neutral vowels will therefore occur freely in both harmonic groups, and will always function as if belonging to the harmonic category of its neighbours.

Within the autosegmental framework, an [ATR] autosegment is placed on a separate tier (Clements 1980, Lojenga 1993). The vowels of both the root morpheme and the affix are unspecified for [ATR]. This means that in their representation, they are written with a capital letter. The [ATR] autosegment belongs to the root morpheme, and is then linked to the root morpheme and the affix, which receives its specification for [ATR] from the root morpheme. The [+low] vowel [a] in Dholuo does not participate in the harmony process, and the [ATR] autosegment cannot be linked to this vowel. Loyenga (1993) also confirms this phenomenon in Ngiti.

2.6. Stress and Length

Stress in Dholuo falls mainly on the stem vowel of a word and never on the affix, except in the plural forms of verbs in the imperative, where stress may fall on the suffix (Tucker & Bryan 1966). This can be seen in the following examples:

18).

Dholuo	English
nìndí	sleep (imperative)
kàdhí	pass (imperative)

Stress in Dholuo is normally accompanied by length, although length is not distinctive. The addition of prefixes and suffixes does not upset the pattern between stress and length, which is a fundamental difference from the case of Swahili. In the latter, stress will always shift to the penultimate syllable.

2.7. The syllable Structure

The following discussion on the structure of the Dholuo syllable will mainly employ the descriptive tools of the autosegmental theory of the syllable developed by Halle and Vergnaud

(1981), Harris (1983) and Clements and Keyser (1983). These writers share the view that the syllable is a fundamental unit in the phonological hierarchy.

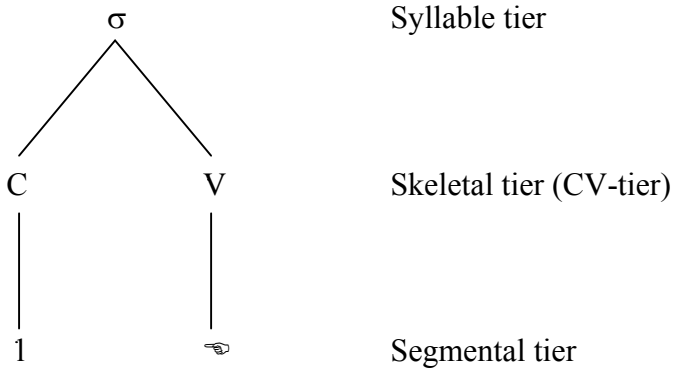
In this model, the syllable is regarded as a central phonological unit having the following functions:

- It is the unit in terms of which many phonotactic constraints in the language are expressed.
- The syllable is viewed as a hierarchical unit with three tiers:

    1. the root node
    2. the CV tier
    3. the segmental tier, having the actual consonants and vowels to which the C and V symbols are attached.

The syllable in autosegmental phonology is assumed to have the following hierarchical structure:

19).



i.e. [l☜] ‘axe’

The lines linking various tiers are known as association lines. According to the theory, the various tiers are independent of each other, and the rules affecting one tier need not affect the elements at a different tier. These three tiers, which act as independent levels of representation (thus the hierarchical representation), “in principle allow one-to-one, one-to-many and many to one linkings” (Clements and Keyser 1983:18). This model of the syllable aims at providing

an adequate description of both phonological segments and processes which refer to the syllable and its constituents.

Furthermore, in addition to the syllable hierarchy, there exists in this theory other hierarchies based on features like tone, nasalization and vowel harmony. In spite of their independence, the various hierarchies normally interact.

Of the set of core syllables proposed by Clements and Keyser (1983:29), Dholuo is a type IV language, having CV, V, CVC, VC syllable types. The language therefore allows only a maximum of one consonant in the onset and coda positions. These syllable types can be collapsed into the form (C)V(C), showing that Dholuo has monosyllabic words consisting of a vowel, which may be phonetically long or short, and a diphthong. The consonants occupying the C position in the syllable may be simple or complex, the latter mainly being prenasalised consonants, with some cases of palatalization and labialization. The onset and coda positions within the syllable can only be occupied by one consonant, simple or complex.

The V slot in Dholuo syllables may represent a complex nucleus consisting of a short falling diphthong with two different vowel qualities, the first one of which normally is realized fully before the articulation of the second one. As earlier mentioned, native speakers vary freely between glide-vowel sequences and high vowel-vowel sequences.

There are also disyllabic words in the language which contain vowels as their only constituents. This can be seen in the following examples:

20). [ai] leave
[ae] leave

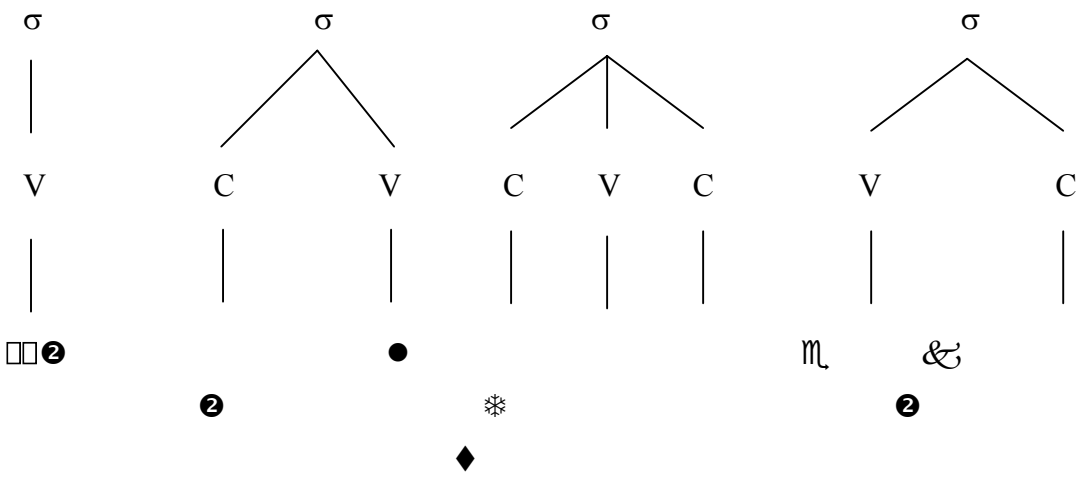
Some native speakers, however, insert the semi-vowel [j] in between, giving pronunciations like:

21). [ayi] leave
[aye] leave

This is also the pronunciation found in the non-standard dialect of Trans-Yala.

The basic syllable types in Dholuo can be exemplified as follows:

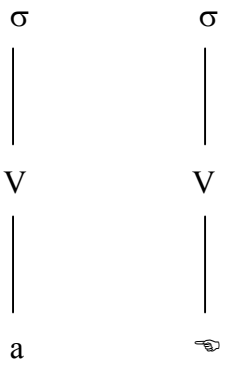
22).



o ‘pour’ le ‘animal’ koth ‘rain’ ot ‘house’

The VV structure creates the possibility of another syllable structure of the following type:

23).



Ngala, (1994:135), while admitting the existence of vowel sequences beginning with non-high vowels, argues that such sequences do not form a glide within the same syllable. She then

quotes Adhiambo (1981:101) who has the same view that "…a vowel sequence that begins with a non-high vowel constitutes two syllables and cannot be realized as a diphthong".

This argument is quite valid, especially considering the fact that the articulation of the first vowels in such sequences is normally completed before the articulation of the next vowel begins., e.g.

24). [aora] river
[❷✞la] rivulet

All vowels in Dholuo can occur in open syllables. However, there are situations where long vowels appear syllable finally but in word-medial position. Such lengthened vowels do not occur in word final position.

The vowels in Dholuo, as already shown by Okombo (1982), Ngala (1994), and Owino (1994), are phonemically short. However, long vowels in Dholuo can be derived through the process of root lengthening, compensatory lengthening and assimilation (Adhiambo 1981). The phonological process of compensatory lengthening is described by Okombo (1982:25) as follows:

> "Dholuo vowels are phonemically short. However, there is a process which lengthens a vowel when it precedes one or two consonants in utterance final position. The affected vowel is …the root vowel. In a consonant-final word, it is the last vowel: in a vowel-final word, it is the second last vowel in a word".

Since the language has no consonant sequences, what he calls CCs must be regarded as the prenasalised consonants. He then gives the following rule for deriving long vowels in the language:

25). $V \longrightarrow [+long] \; / \; \_\_\_\_\_ \; C^{2}_{1} \; V^{1}_{0} \; \# S$

Since Chomsky and Halle (1968) do not provide a symbol for utterance final boundary, Okombo (1982) has used the word boundary symbol plus S to indicate the utterance final boundary.

As already noted earlier, Dholuo has single consonant codas, where a single consonant occupies a post-nucleus position in a syllable. All consonants except /b/ and /h/ may occur here. Some consonants occur in the syllable coda position only in the genitive form. These include: / ð /, /⇦ /, /w/, e.g.

26). Dholuo English

☯●◆☜ Ochieng☸ 'Ochieng's walking stick.'

☯●♋◆ Atieno☸ 'Atieno's dress'

☯●□⇦ ☜♓♋■♑☸ 'the cow's peg'

The palatal stop [c] becomes [⇦] or is deleted in the final position of genitive forms of words which have [c] as the final consonant. The occurrence of [⇦] in syllable final position is therefore restricted, while [w] occurs freely in both onset and coda positions.

Dholuo does not have syllabic consonants, and every V-slot in the language is invariably filled with a vowel.

2.8. Tonal Representation

As in many other African languages, tone plays an important role in Dholuo. Within the verbal and nominal systems, tone plays a very significant role in signalling a number of contrasts, such as in lexical differentiation in minimal pairs, tense and aspect contrasts, and in some cases the distinction of word classes.

A number of studies exist on the tonal structure of the Dholuo language, prominent among them being Tucker and Bryan (1966), Okombo (1982), Omondi (1982), and Tucker (1994)

which, although published many years later, was actually written earlier than the 1982 publications by Okombo and Omondi.

Tucker (1994:56), in his discussion of Dholuo tonal patterns, comes up with three basic tones: high [H], low [L] and mid [M]. Although his data clearly shows the existence of a fourth tone, the falling tone [F], he rightly argues that [F] is really an allophone (allotone) of [L] in particular environments.

Okombo (1982) posits a three tone system for Dholuo: high, low and downstepped high. He also points out the existence of three derived tone patterns, whose occurrence is governed by the principle that "…any two different tone patterns which are not separated by a syllable boundary are realized as a gliding tone which begins at the level of the first one and ends at the level of the second" (Okombo 1982:26). He gives the three derived tone patterns as:

27).

- Low-rising: [❖] e.g. cìém 'eat'.
- High-falling: [^] e.g. àgâk 'a crow.'
- High-hanging: [^] e.g. àpôl 'waterbuck.'

Omondi (1982) cites the four basic tones of Tucker (1994): high, low, mid and falling tones. Omondi argues that [M] occurs only in one environment, after a [H] tone. She also maintains that [L], [H] and [F] tones have a gap in their distribution. [L] does not occur after [H]. She therefore rightly concludes that [M] is an allotone of [L]. So Dholuo would then be analysed as having 3 tones:

28).

- High [H]
- Low [L]
- Falling[F]

However, Omondi (1982) provides convincing arguments to prove that the language actually has 2 tones: high and low. She maintains that a syllable which has one or two vowels may bear one or a sequence of these two tones. The rising tone and the falling tone could actually be argued to be sequences of [L] and [H], or [H] and [L]. Using the imperative form of a verb

like **[nìndí]** 'sleep', Omondi (1982) demonstrates that this word rarely occurs in the full form with the final vowel, which is often deleted. But the floating high tone of the deleted vowel is often attached to the preceding vowel, thus rendering **[nǐnd].** Her argument is therefore that the rising tone is not a contour tone, but a sequence of the two register tones, [L] and [H]. This is also the conclusion reached by P. Avery (personal communication) who also posits that the language has 2 underlying tones: [H] and [L], with Rising, Falling and Downstepped High tones being derived in particular environments.

This study therefore takes the position that Dholuo has two underlying tones, and will use this in the interpretation of loanwords coming into the language. Since we will be dealing mainly with borrowed lexical items, and much of the tonal derivations in Dholuo occur postlexically, the derived tones in the language will not be mentioned any further.

Tone is phonemic in Dholuo, though it has a low functional load. It may be used in lexical differentiation, e.g.:

29).

- [kìc] 'orphan'
- [kíc] 'bee'
- [lèk] 'pasturage'
- [lék] 'dream'
- [ndálɔ́] 'farm'
- [ndàlɔ́] 'days'

Tone may also be used in Dholuo for distinguishing word classes, e.g.

30).

- [mìt] 'sweet' (adj)
- [mít] 'sweetness'(n)
- [yòm yòm] 'weak' (adj)
- [yóm yòm] 'weakness' (n)
- [b᷈r] 'good' (adj)
- [bɛ́r] 'goodness' (n)

- [lᵊr] 'bright' (adj)
- [lɛ́r] 'brightness' (n)

Although tone is not marked in the orthography, and the [ATR] vowels not distinguished in the writing system, the above lexical distinctions can easily be made in context, since the pairs occur in mutually exclusive phonological environments.

The most important use of tone, however, is in the aspectual distinctions in the language, e.g.

31).

- [ábíró] 'I am coming'
- [àbíró] 'I have come'
- [âbíró] 'I came a while ago'
- [âbíró] 'I was coming (to do ...)

The difference between the perfective and imperfective aspects in the language is also signaled only through tone.

2.9 English Phonological Parametres

As with the work in the previous section, this section, and the following one, merely contain summaries of the phonological parametres of the languages in question. More detailed work on either the English or Swahili phonological systems can be found in the extensive literature already available on the subjects. We will make summaries in this section that are necessary for the analysis of strategies for loanword nativization in Dholuo.

2.9.1. The English Vowel System

The English vowel inventory consists of the following vowels and diphthongs (Gimson 1980, Ladefoged 1982, Roach 1993, Jensen 1993).

Fig: 2.3:

Fig. 2.4: English Diphthongs.

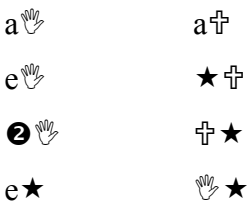


Fig. 2.5: English Triphthongs.

The language has a total of 12 vowels, 8 diphthongs and 5 triphthongs.

Various English vowels may be differentiated by tongue height, e.g. [i] and [□], as opposed to the tongue root advancement or retraction as in the case of [ATR] vowel systems found in languages such as Dholuo.

2.9.2. The Consonant Phonemes

The English language has a total of 24 consonants, including 2 semi-vowels. They can be plotted in a consonant chart as shown below:

Fig 2.6. The English Consonants

	Labial	Dental	Alveolar	Palatal	Velar	Glottal
Plosives	p b		t d		k g	

Affricate				t dʒ		
Fricative	f v	ʃ	s z			h
Nasals	m		n		ŋ	
Glides	w			j		
Approx.			l r			

(Adopted from Roach 1993:62)

The major difference between the English and Dholuo consonants is that English does not have any prenasalised consonants, while Dholuo has prenasalised plosives and fricatives.

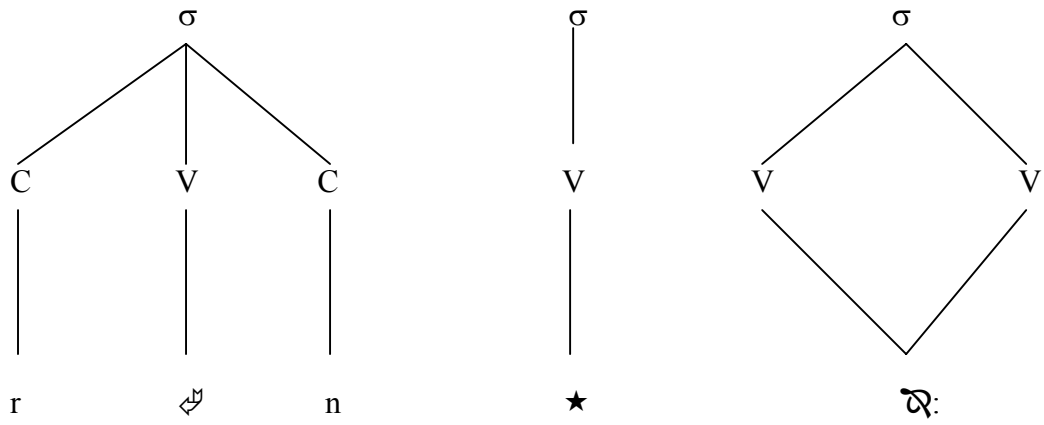
2.10. The English Syllable Structure

The following syllable types are acceptable in English:

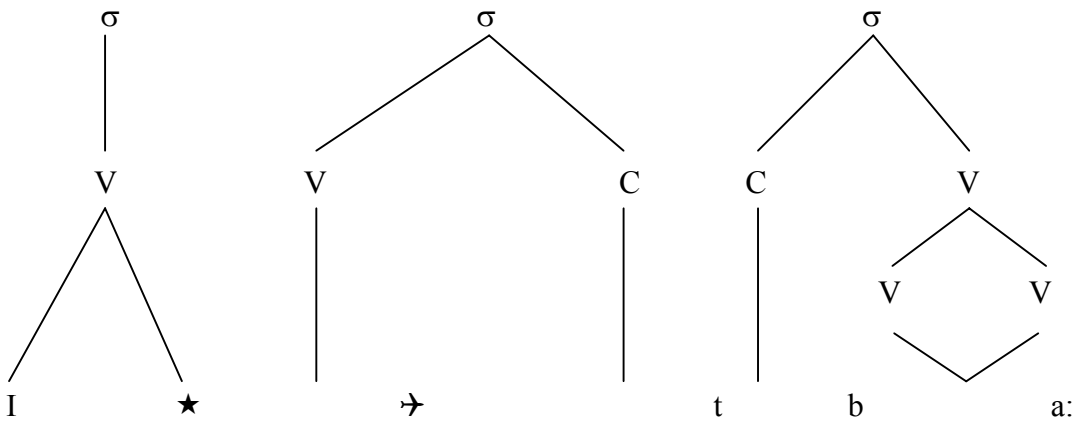
- V, e.g. [a:] 'are'
- CV, e.g. [ba:] 'bar',
- VC, e.g. [ɔ:t] 'ought'
- CVC, e.g. [rʌn] 'run'

These structures can be seen diagrammatically in the following examples:

32).



[rʌn] 'run' [★] 'a' [ɜ:] 'err'



[✋★] 'ear' [✈t] 'at' [ba:] 'bar'

The language allows consonant clusters in the syllable structure, with a maximum of 3 consonants in the syllable onset and 4 consonants in the coda. Typically, in a three consonant cluster, the first consonant is usually [s], followed by either [p], [t], or [k]. The third consonant before the syllable nucleus would either be [l], [r], [w], or [j] e.g.

33).

- [splei] splay
- [string] string
- [spjew] spew
- [skr✋n] screen

The English syllable can therefore be summarized as follows:

(C)(C)(C)V(C)(C)(C)(C) (Roach 1993:71).

In all descriptions of the English syllable structure, it is implicitly recognized that sequential restrictions on syllable-initial consonant sequences (the syllable onset) or restrictions on the onset relative to the nucleus, are independent of constraints on syllable-final clusters, or on such codas relative to the nucleus (Fujimura & Lovins, 1982). The language actually has much more complex restrictions between coda and nucleus than between onset and nucleus.

When the English syllable onset is a single consonant, almost all the vowels can follow it. Most restrictions on larger onsets center on /CwV/ forms, for example /tw/ forms tend not to

occur with back vowels (Roach 1993). The syllable-final velar nasal /N/ is never preceded by long vowels or diphthongs. The vowels /i/, /☜/, /✈/, /✞/ do not normally occur before /rC/, and back vowels rarely occur before /lC/ (Roach 1993).

Some English monosyllables or polysyllabic forms may end in obstruent clusters of some complexity, usually representing morphological affixes: 3rd person singular, plural, past tense forms. In a final cluster of obstruents, all but the first are necessarily apical in place of articulation. All the obstruents agree with the first in voicing, except a small class containing the morphemic voiceless 'th', e.g. warmth (Fujimura & Lovins, 1982).

2.11. Stress in English

As Crystal (1976) argues, prosodic features are not as rigidly or discretely definable as segmental phonemes, although the criterion for establishing them is similar. The only prosodic feature discussed in this section is stress, since it is deemed to be contrastive in English, and its omission would likely cause an utterance to be unnatural. Features such as pause, tempo, pitch, intonation, loudness, rhythm, tension, although prosodic, are not considered here as they largely are not distinctive in Dholuo, English or Swahili.

The production of stress is generally believed to depend on the speaker producing more muscular energy than is used for unstressed syllables (Roach 1993). From a perceptual point of view, all stressed syllables have prominence as a general characteristic.

English stress, unlike French (last syllable stressed), Swahili (penultimate syllable stressed), or Czech (first syllable stressed), is not fixed (Roach 1993). In a 2 syllable word, either the first, or second syllable, will be stressed, but not both. Generally, the English stress can occur on any syllable: initial, medial, or final.

There are in English a small group of words, mainly nouns, verbs or adjectives, which are spelt identically but are distinguishable only through stress. They are mostly 2 syllable words, and the stress will occur on the second syllable of the verb, but in the first syllable of the noun or adjective, e.g.

34).

- ☞insult / in☞sult
- ☞rebel / re☞bel
- ☞perfect / per☞fect
- ☞refuse / re☞fuse.

Being a property of syllables, stress is considered to be suprasegmental. In our analysis of loanwords from English, we will be mainly concerned with how Dholuo integrates the words having stress into its prosodic system.

As with the work in the previous section, this section, and the following one, merely contains summaries of the phonological parameters of the languages in question. More detailed work on either the English or Swahili phonological systems can be found in the extensive literature already available in the subjects. We will make summaries in this section that are necessary for the analysis of strategies for loanword nativization in the Dholuo.

2.12 The Swahili Phonological Parametres

The phonetic structure of Swahili is relatively simpler than that of the other Bantu languages, in spite of the fact that Swahili contains some consonants in words of Arabic origin not found in other Bantu languages.

Most studies of Swahili have presented the language as having 31 sounds: 5 vowels and 26 consonants, e.g. Campbell (1991), Batibo (1994). Other studies have included aspiration (Myachina 1981) and prenasalization (Meinhoff 1932) as distinctive features in the language.

2.12.1 The Swahili Vowel Phonemes

Swahili has the following vowels, mainly differentiated by the features [back], [high], [round], and [mid]:

i e a o u

Back	-	-	+	+	+
High	+	-	-	-	+
Round	-	-	-	+	+
Mid	-	+	-	+	-

2.12.2 Swahili Diphthongs

Most diphthongs in Swahili actually occur in loanwords from Arabic. The most common diphthongs in Swahili are [ai] and [au], when they are pronounced as part of one syllable in loanwords (Batibo 1994). Consider the following examples:

35). taulo towel faili file
rais(i) president tauni plague

Batibo (1994) argues that these vocalic complexes are considered diphthongs since they have a noticeable change in quality during their articulation. Phonetically, the first segment in the diphthong is stronger, and therefore the nucleus, making Swahili diphthongs articulatorily off-glides. The second segment is weaker and more peripheral. It is quantitatively shorter than the nucleus in length, and is often perceived as glides (Batibo 1994).

In many loanwords occurring in Swahili, mainly from English and Arabic, the diphthongs have either been fully or partially nativized, e.g.

36). Nativization

Source Lang	Partial	Full
gown (Eng)	gawni	gawuni
laum (Arabic)	lawmu	lawumu 'blame'
rais (Arabic)	raysi	rayisi 'president'

pipe (Eng) paypu payipu

(Adopted from Batibo 1994).

Although the choice between partially and fully nativized forms depends on stylistic and sociolect factors, and especially the level of access to the source language by the speaker, some forms tend to be more commonly used than others.

2.13 Swahili Consonants

Below are the consonants of Swahili:

Fig. 2.7. Swahili Consonants

	Labial	Dental	Alveolar	Palatal	Velar	Glottal
Plosives	p b		t d		k g	
Affricate				t♦ d☪		
Prenasalised Plosives	mb		nt nd	nd☪	☠g	
Fricative	f v	❄	s z	♦	x ↳	h
Prenasalised Fricative	mv		nz	n♦		
Nasals	m		n	↘	☠	
Glides	w			j		
Approximant			l r			

(Adopted from Myachina 1981).

Swahili speakers' consonant phoneme inventories vary depending on their Islamic-Arab erudition. Thus some would have phonemes /x/, /↳/ and the dental /t/ in Arabic loanwords like [xalifa] 'caliph', [lu↳a] 'language', [xabari] 'news' and [♦etani] 'satan'. Other speakers, mainly the elite, substitute /h/ for /x/, /g/ for /↳/ and /t/ for the dental counterpart. It is therefore arguable whether /x/, /↳/ and the dental /t/ are part of the consonant inventory as

they do not seem to be part of the competence of even educated speakers. It may be reasonable to regard them as part of hypercorrection in the pronunciation of foreign words by a very literate traditional elite.

The status of two other sounds borrowed from Arabic, however, is not open to any questions. The dental fricatives /❄/ /✆/ (pronounced as /s/ and /z/ by many up-country Swahili speakers), have been fully assimilated into the language and mother tongue speakers of Swahili pronounce Arabic loans which contain these sounds in a uniform way, e.g.

37). [❄eludC✆i] snow
[❄ela❄ini] thirty
[✆ambi] sin
[✆ahabu] gold

In words of Bantu origin, [l] may alternate with [r], e.g.

38). lamba ~ ramba ‘to lick’.
chura ~ chula ‘frog’.

As an independent phoneme, [r] is found mainly in loanwords.

Some studies make a distinction between aspirate and non-aspirate consonants, e.g.
39).

- [paa] paa ‘roof”
- [p✋aa] paa ‘gazelle’
- [tembo] tembo ‘palm wine’
- [t✋embo] tembo ‘elephant’
- [kaa] kaa ‘charcoal’
- [k✋aa] kaa ‘land crab’

(Myachina 1981:5)

However, the language has very few minimal pairs distinguishable by aspiration alone.

Some studies include the prenasalized consonants as part of the consonant phonemes of Swahili (Meinhoff 1932, Katamba (n.d.)). There are words in the language where the nasal is homorganic with the consonant it precedes. In this case, they are considered as unit phonemes. Such prenasalized consonants can be seen in the examples below:

40). Mbata geese
Mbele ahead
Chumba room
Chunga guard (imperative)

But the nasal in Swahili is not always homorganic with the following consonant. Katamba (n.d.) claims that a process of syncopation has taken place so that some pro-Bantu forms realized as mu- have been reduced to m- in Swahili. This has happened in specific morphological environments as seen below:

(a) where the nasal is an exponent of noun classes 1 and 3, e.g.

41).

mbuni	originator	class 1
mbuni	coffee plant	class 3
mtu	person	class 1
mbovu	weakling	class 1
mchezo	game	class 3
mlango	door	class 3

(Katamba n.d. p:27)

Native speakers systematically separate the nasal from the consonant into different syllables in speech. Moreover, the nasal component often carries tone, indicating that its actually the nucleus of a syllable and therefore does not act as part of the onset or coda of a separate syllable.

(b) where the nasal is an exponent of the pronominal object prefix, e.g.

42). kumleta to bring him.
watamsifu they will praise him.

nitamtembelea I will visit him.

Evidence of this kind suggests that syllabicity is the property of a syllable rather than a vowel. When proto-Bantu mu- was reduced to m-, the syllabicity of u was not lost: it was retained and passed on to the nasal.

The general rule in these non-homorganic nasal consonant sequences seems to be that where a nasal is not homorganic, it is syllabic:

43). C $\longrightarrow$ [+ syllabic] / _____C
[+ nasal]

(Condition: nasal is an exponent of noun classes 1 or 3 or the pronominal object prefix)

This rule is therefore a morphological rule which applies if certain morphological information is present.

2.14 Swahili Syllable Structure

Bickmore (1991:84) has proposed some syllabification principles applicable in Bantu languages. These principles, which are meant to capture the Bantu canonical syllable structure, are formulated as follows:

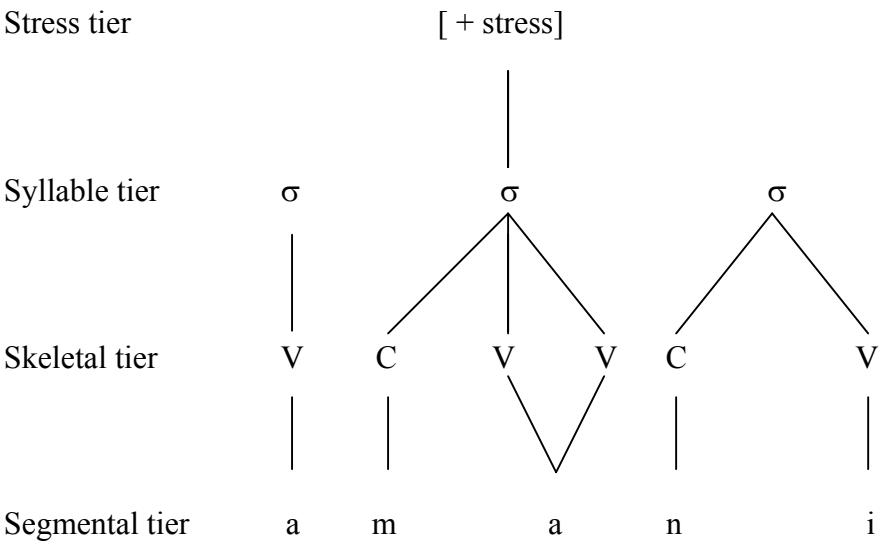
- All vowel segments must be dominated by V-elements on the templatic or skeletal tier.
- The V-element must form the nucleus of the syllable.
- The C-element to the left becomes the onset of the syllable.

Swahili, like most Bantu languages, has the canonical syllable structure V and CV. The syllable may dominate a single vowel or a combination of a consonant and a vowel. The

syllable in Swahili is open and may be composed of a maximum of one consonant in the onset.

In non-linear terms, a typical Swahili syllable may dominate a V or a sequence of CV and CVV in the skeletal tier, e.g.

44).



A typical Swahili syllable can therefore be monomoraic (dominating one V-element) or bimoraic (dominating two V-elements). However, where a syllable dominates two V-elements, they both dominate one single segment, which is then phonetically realized as a long vowel.

As a rule, Swahili does not allow a sequence of two vowels in a word, unless separated by a C-element. The common word shape of CVCV is in this way maintained.

The onset consonants in Swahili that can assume syllabic function are sonorants, mainly the nasals, e.g.

45). nta ‘wax’
nge ‘scorpion’
mpira ‘ball’
mbu ‘mosquito’

Swahili therefore belongs to type II of languages (as proposed by Clements & Keyser 1983: 29) where there are only two permissible syllable types: V and CV. Thus the Swahili syllable structure can be represented as CV_2, meaning that only one C element is allowed in the onset position, and one V element in the nucleus position, which can be phonetically long. Swahili syllable structure does not permit any coda consonants.

2.15 Stress in Swahili

The phonetic properties of stress in Swahili are lengthening of the nucleus of the stressed syllable and a very marked rise in pitch (Katamba n.d). Linguists in recent years have emphasized the point that the difference between a stress language and a tone language is not so much due to a physical difference between stress and tone, but it is rather a difference in the linguistic function of pitch (Hyman 1975, Kiparsky 1982, Jensen 1993).

In a tone language like Dholuo, a word may have more than one high tone, but a stress language can only have one stressed syllable. Because of this, stress tends to have limited potential for distinguishing words. Its main use is to demarcate entities in the stream of speech which constitute phonological words (Hyman 1975).

As a rule, stress in Swahili is fixed, and it invariably falls on the penultimate (second to last) syllable. Even when morphological affixes are added to a word, the stress will always shift to the penultimate syllable, e.g.

46).

- ´enda *go* ´penda *love*
- ana´enda *he is going* kupe´ndana *to love one another*
- ku´gonga *to hit* kugo´ngana *to knock one another*
- kugonga´nisha *to cause people/things to knock each other*

When words are reduplicated, again the only stress is on the penultimate syllable:

47).

- ˊmaji *water*
- maji ˊmaji *wet*

When two words are joined together to form a compound word, only the penultimate syllable of the compound will be stressed:

48) ku ˊuza sa ˊmaki *to sell fish*

- mwuza sa ˊmaki *fish monger*
- thela ˊthini *thirty*
- ˊsaba *seven*
- thelathini na ˊsaba *thirty seven*
- wa ˊtaka ˊkazi *they want work*
- wataka ˊkazi *job-seekers*

The same happens when a clitic follows the word, e.g.

49).

- ulisema + je ulise ˊmaje *what did you say ?*
- waenda + pi wae ˊndapi *where are you going?*
- Atafuta + ye atafu ˊtaye *he who seeks*
- Aenda + po ae ˊndapo *where he goes*

Exceptionally for a Bantu language, Swahili has no tones.

The phonological parameters reviewed in this section, i.e. the vowel and consonant phonemes, the syllable structure, the stress systems, the diphthongs, will be analysed in terms of how they are integrated into the corresponding phonological parameters occurring in the Dholuo language. Particular attention will be paid to cases where the phonological parameters in the source languages do not correspond to those in the target language. The strategies employed by the latter in their integration into the phonological structure of Dholuo will be analysed and their implications for Dholuo phonology assessed.

In the next chapter, we look at the adaptation of phonemes from English and Swahili into Dholuo.

CHAPTER THREE

3.0. PHONEMIC ADAPTATION

The manner of nativization of foreign forms into Dholuo is quite regular. Native speakers of the language do not just substitute an arbitrary native segment for a foreign sound. The language exhibits a clear process of adaptation of foreign segments, and their nativized phonological and phonetic representation.

The degree of assimilation of foreign segments into the language may in part be attributed to the frequency of usage of the word. Adaptation is often a function of time and the sociological factors or pressures influencing frequency of usage. In the cases where the foreign sounds are not fully nativized, the notion of "phonological distance" (Holden 1976) seems to apply. In this case, native speakers of the target language seem to have a notion of what does or does not constitute an acceptable borrowing. It will be observed in the following sections, for example, that only a fixed set of foreign-like phonological peculiarities is permitted to co-exist with the native system. These permissible foreign features correspond almost identically either to the so-called gaps in the language's phonological system, or to permissible underlying representations, when such URs are distinct from their final phonetic shapes. Other borrowed features are immediately assimilated to this level of acceptable foreignness.

As will be noted in this section, some loanwords do not have the ideal native patterns. Ohly (1987) also noted the same phenomenon in a study of Afrikaans loanwords in Herero. He noted that ideally, the borrowings are likely to acquire a pattern similar to the native phonological system if the speakers in the target language have limited access to the source language. However, foreign forms may also be retained in the TL if the SL enjoys prestige status in the target language community.

Since most speakers of Dholuo have average competence in both English and Kiswahili, there are quite a number of loanwords not fully integrated into the phonological system of the language. The relative prestige value of both source languages, especially English, would also explain why such divergent structures are retained within the sound system.

3.1.0. Models of Phonological Adaptation

In attempting explanations about the nature of loanword adaptation in Dholuo, it is prudent at this point to examine some of the models of loanword adaptation that have been proposed by linguists working on loan phonology and assess their relevance to the Dholuo borrowing situation.

Two schools of thought have emerged over the years in attempting to explain the phenomena of loanword adaptation from the source language to the target language. On the one hand are the "abstract" school of thought who hold the view that foreign sounds are perceived in terms of the underlying forms in the target language phonology, and that these underlying forms are in fact the morphophonemes or abstract systematic phonemes which must be postulated in generative phonology.

Based on Hyman's (1970a) work, one can distinguish three particular cases when this natural tendency in the assimilation process applies.

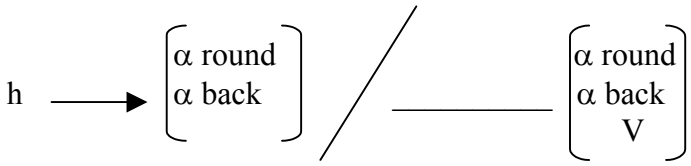
1. The phonetic form of the incoming word corresponds to a well-formed underlying representation, but not to a well-formed surface representation. The resolution under this view is to perceive the form as an underlying representation, then derive the correct surface form via the native phonological rules. For example Yagui renders Spanish *estufa* as [*ehtupa*] because it has a rule:

$$s \longrightarrow h / \_\_\_\_ \begin{Bmatrix} t \\ k \end{Bmatrix}$$

(Hyman 1970a:22)

2. The foreign segments correspond to derived native segments, but not to underlying ones. Here the lexicalization process involves perception and storage in terms of the underlying segments which would allow the derivation of the appropriate surface derived segments. For example:

   Hausa wuri: > Nupe wuri . There is no underlying [w] in Nupe, but rather only the glide [h], from which [w] and [y] are derived before back, rounded and front, unrounded vowels respectively, i.e.

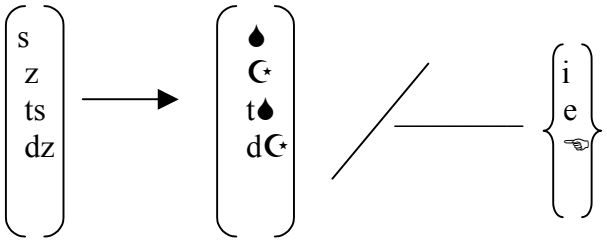


(Hyman 1970a:34)

Thus Hausa [w] is perceived as derived via the above rule from underlying /h/.

3. The foreign segment corresponds to a derived native segment, but is not found in the same phonological environment. Lexicalization takes place as above with the correct underlying representation which would allow the appropriate derivation, but the environment of the segment is changed to meet the structural description of the rule applying to it. For example:

   Hausa shu:gaba > Nupe shigaba. The rule for the derivation of strident palatals in Nupe is:



   Since the Hausa word violates this rule, the [u] is changed to /i/ to allow the appropriate application of the rule to underlying /sigaba/.

The process of assimilation, then, involves perception in terms of systematic phonemes, and the mapping of these sequences of elements into their surface phonetic shape via the ordered rules of the phonological component .

Hyman attempts then to prove the validity of this theory in explaining loanword assimilation. Yet none of the three specific cases discussed under Hyman's hypothesis allows for incoming sounds which are identical to neither surface nor underlying representations of the borrowing language.

A similar line of argument as Hyman's is advanced by Ohso (1971). Working on the phonology of English loanwords in Japanese, Ohso likens the borrowing process to children's

acquisition of phonological representation. His thesis is that if incoming foreign sounds are admissible underlying segments in the native phonological system, then they will be represented in the lexicon without change. In other words, the foreign phonetic representations will be adopted as underlying forms.

On the other hand, argues Ohso, if some foreign forms are underlyingly inadmissible, then these sounds will be analysed by suitable underlying rules of the target language to obtain admissible representations. She contends further that if some foreign segments cannot be analysed as admissible underlying representations in the native system of the target language, then they will be registered as violations of the rule that prohibits them. (Ohso 1971:68). This explains the reason why such strings retain a 'ring' of foreignness to them.

The "abstract" school of thought has also maintained the argument that perception is constrained by the native system, so that speakers perceive foreign sounds in terms of native phonological systems (Hyman 1970a, Ohso 1971). So when some segments have to be registered in violation of native rules, they argue, the borrower will change his inadmissible underlying representations into admissible ones sooner or later.

The reasoning here is that the incoming foreign sounds will be put in the lexicon as they are on the surface unless they are inadmissible underlying segments. In this case then, they will be analysed by the native rules until some admissible forms are obtained. This would then be the continual, progressive process of phonemic and syllable structure nativization.

Another proponent of the "abstract" school, Hoenigswald (1965:25), also advances the same line of argument. He asserts that borrowing entails phonemic substitution or the rendering of the foreign form by what he calls "…the nearest phonemic shape in the target language.

In supporting this school of thought, Kaye & Nykiel (1979) have advanced certain models for nativization of loanwords. In their first model of loanword adaptation, they propose that loanwords are borrowed as they appear in the SL, unless there is some reason to modify them. In this model then, a phonetic output of the source language would be interpreted as the phonetic output of the target language, if this is possible. This model is shown below:

Source Language *Target language*

[a, b, c…….x] ⟹ [a☞, b☞, c☞…….x ☞]

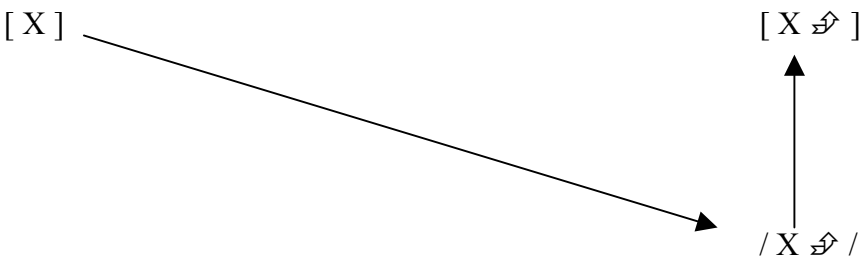
(Kaye & Nykiel 1979:72)

In this model, the primes of the phonetic output of the target language indicate that the sounds in question are the target language's equivalent of the source language sounds. In this model, the phonemic status of the sounds in the borrowing situation appears to be largely irrelevant. This is because it is assumed that a detailed knowledge of the SL is not relevant in a borrowing situation.

A second model, however, proposes that the form in question is borrowed as an underlying form and then it is allowed to undergo the phonological rules to yield a phonetic form which differs from the phonetic form of the source language. This strategy is used where the phonetic form of the source language is not a possible phonetic form in the target language. Thus there is no possible derivation in the target language which would yield the phonetic form of the SL as a possible output.

Under this model, for example, English [r☟s☟:v] 'reserve' could not enter Dholuo as [r☟s☟:v] given that the segment V does not exist in the language. But it did enter Dholuo as [risav], the [v] is then devoiced and the acceptable form [risaf] is obtained. This model can be represented diagrammatically as follows:

Source Language Target language



(Kaye & Nykiel 1979:73)

Thus in cases where a phonetic output corresponding to the source form is uninterpretable, i.e. where it cannot be the final step in any derivation in the target language, then this model applies. Here, the phonetic source string [X] is interpreted as an underlying representation, /

X✍ /, where /X✍/ is the underlying form which most closely resembles [X] of the source language and is at the same time a possible underlying form of the target language (Kaye & Nykiel 1979:73). Thus it is obvious that features of underlying forms must be phonetically interpretable. Once / X✍ / is posited as the underlying form, it undergoes all the phonological rules in the target language, yielding [X ✍].

Kaye & Nykiel (1979) therefore affirm that loanwords are actually reshaped to conform with the deep phonotactic constraints of the target language. Thus in cases where deep phonotactic constraints happen to be 'surface true', loanwords typically conform to this constraint.

The second school of thought, the proponents of "concreteness" in loan phonology, however, support "…an approach which directly maps the phonetic shape of the foreign word into its closest native phonetic sequence (Holden 1976: 144). This school of thought will view assimilation of foreign sounds in terms of phonetic approximation. In its loosest interpretation, this is taken to simply mean that one substitutes for foreign sounds the closest phones of ones own language. Closeness here is described variously in accord with the differing brands of phonetics adhered to. Sometimes closeness seems to be defined in terms of articulatory phonetics, sometimes it appears that acoustic properties are of paramount importance. Finally, closeness occasionally gets analysed in terms of shared distinctive features, be they articulatorily, acoustically or functionally defined. Phonetic closeness here is defined in terms of the number of features shared by foreign phones with native segments.

As stated earlier, the concrete or phonetic approximation model of phonological assimilation is clearly relevant in the borrowing situation in Dholuo. The language data will show that Dholuo borrowing is really at the phonetic level.

One criticism of the phonetic approximation theory has been that even when there are members of the target language phonetic inventory essentially identical to the source language sound in question, and demonstrably much more like it than any other segment in the target language, an entirely different substitution is made. This is probably the case with the English vowel [✍], which is consistently nativized in Dholuo as [i], yet the Dholuo counterpart [✍] is also present in the language. This kind of phenomena, argue the abstract school, would suggest that some more abstract aspect of the target language's phonological structure is getting in the way.

In noting this anomaly, Lovins (1975:14) has suggested that this kind of probable borrowing language system interference could be at one of several points:

- differences in allophonic variation, where the target segment may not normally occur in the same environment as the SL form.
- differing sequential restrictions at levels other than the allophonic.
- [X] TL = [X] SL occurs in the phonetic inventory of the TL as a whole, and in analogous positions, but is marginal in some way.

From the data under review, what seems clear within the Dholuo borrowing situation, is that most borrowed forms will almost immediately be matched to their counterparts in the TL which correspond to them both acoustically and auditorily. It is apparent that the monolingual Dholuo speaker has knowledge of the possible phonetic sequences in his language and performs the simplest possible adaptations of the incoming sounds to fit into the structure of his language.

3.2.0 Phonological Adaptation of English Vowels

3.2.1. Adaptation of the schwa [□]

The schwa [★], found mainly in unstressed syllables in the English language, is integrated into Dholuo as [a]. The examples of the fully nativized forms of this vowel are as follows:

50).	English	Dholuo
	[r✍b★] 'rubber'	[raba]
	[pe✋p★] 'paper'	[p☜pa]
	[s★lu:t] 'salute'	[sarut]
	[★ten♦★n] 'attention'	[atenson]
	[v★r✈nd★] 'veranda'	[baranda]
	[dr★✋v★] 'driver'	[dir☜ba]
	[sp✈n★] 'spanner'	[sipana]
	[b★lu:n] 'baloon'	[balun]

[b➋✋l★] 'boiler'	[b➋la]
[bl✈d★] 'bladder'	[bilada]
[ka:bj✝ret★] 'carburetor'	[kabureta]
[kr✋sm★s] 'christmas'	[kirisimas]
[k✍lv★t] 'culvert'	[kalabat]
[d✋k♦★n★ri] 'dictionary'	[dikisonari]
[p★re✋d] 'parade'	[pared]
[s★✝f★] 'sofa'	[s➋fa]
[s★✝ld☪★] 'soldier'	[so⇦a]
[spi:k★] 'speaker'	[sipika]
[s✍m★ns] 'summons'	[saman☜]
[k➋r★s] 'chorus'	[k➋ras]
[k★nd✍kt★] ,conductor'	[k➋ndak✋ta]
[✋kwe✋t★] 'equator'	[ikweta]
[g✈l★n] 'gallon'	[galan]
[g✈r★nti:] 'guarantee'	[garanti]
[m★♦i:n] 'machine'	[masin]
[me✋d☪★] 'major'	[m☜⇦a]
[m★nj✝★] 'manure'	[manyiwa]
[m✋st★] 'mister'	[mista]

The schwa is the most frequently occurring vowel in English, and it is always associated with weak (unstressed) syllables. Its derivation into Dholuo as [a] is plausible given that the two share most properties except the feature [low]. [a] is also the vowel closest to the schwa both articulatorilly and perceptually.

There are, however, partially integrated forms of this vowel in loanwords. In one of them, the schwa is rendered in Dholuo as [i] e.g.

51). English Dholuo

[b✈t★ri] 'battery'	[betiri]
[k✈t✋k✋z★m] 'catechism'	[katikaisim]

In these occurrences, the schwa is rendered as an epenthetic [i] where the articulation of the vowel in the English word is not clear and in the cases where some speakers of English articulate a CC sequence in their speech rather than a C★C sequence, e.g.

52). [b✈t★ri] vs [b✈tri]
[b✍k★l] vs [b✍kl]

The schwa may also be rendered in some partially integrated forms as either [e] or [☜], e.g.:

3.2.1.1. [□] integrated as [□]

53).

English	Dholuo
[di:z★l] 'diesel'	[d✋s☜l]
[✈ks✋d★nt] 'accident'	[ak✋s✋d☜nd]
[sin★m★] 'cinema'	[s✋n☜ma]

3.2.1.2. [□] integrated as [e]

54).

English	Dholuo
[m✋♦★n] 'mission'	[misen]
[✋nspek♦★n] 'inspection'	[pekisen]
[l★✞ke✋♦★n] 'location'	[lokesen]
[ste✋♦★n] 'station'	[sitesen]
[tel★v✋☪★n] 'television'	[telefison]
[sek♦★n] 'section'	[sekisen]

In the first examples, where the [★] is partially integrated as [☜], it is probable that this is due to orthographic or written borrowing, since all instances of [★] in the borrowed words are orthographically represented with the 'e' symbol. The second case of partial integration,

where [★] is integrated as [e], are instances where the sound is orthographically represented as 'ion' in the source language. It is however, not quite clear from the data why this choice is made.

The schwa may also be partially integrated as either [o] or [ə] in Dholuo. Examples of this are shown below:

3.2.1.3. [□] integrated as [o]

55).

English	Dholuo
[b✋♦★p] 'bishop'	[bisop]
[k★m✋ti] ,commitee'	[komiti]
[f✈♦★n] 'fashion'	[fason]
[f✈kt★ri] 'factory'	[fakitori]
[★ten♦★n] 'attention'	[atenson]
[k✈➪★l✋k] 'catholic'	[ka➪olik]
[d✋k♦★n★ri] 'dictionary'	[dikisonari]
[h✋st★ri] 'history'	[hisitori]
[tel★v✋☪★n] 'television'	[telefison]
[k★m✋♦★n] 'commision'	[komison]

3.2.1.4. Examples of [□] integrated as [□]

56).

English	Dholuo
[di:k★n] 'deacon'	[d✋kən]
[k★nd✍kt★] 'conductor'	[kəndak✋ta]
[k✈r★t] 'carrot'	[karət]
[m★✞t★ka:] 'motorcar'	[m✋təka]
[kə:p★r★l] 'corporal'	[kəb✞lə]

In these partially integrated forms, the /★/ in the source language words is orthographically represented by 'o', giving rise to the possibility that the borrowings may have occurred

through the written forms rather than the spoken versions. This visual shape of the foreign forms may also affect their perception where the /★/, represented as 'o', is perceived either as /o/ or /❷/, and thus rendered as [o] or [❷] in the loanwords. However, it is not clear why there is a distinction between the two loan forms.

3.2.2. Integration of the central vowel /□/.

The English central vowel /✍/ is invariably nativized in Dholuo as /a/. The examples are shown below:

57).	English	Dholuo
	[br✍♦] 'brush'	[bras]
	[kl✍b] 'club'	[kilabu]
	[b✍s] 'bus'	[bas]
	[k✍mp★ni] 'company'	[kambi]
	p✍☠t♦★] 'puncture'	[pa☠ca]
	[f✍nl] 'funnel'	[fanel]
	[kl✍t♦] 'clutch'	[kilac]
	[k✍lv★t] 'culvert'	[kalabat]
	[k✍b★t] 'cupboard'	[kabat]
	[d❍✍g] 'jug'	[⧅⇦age]
	[r✍b★] 'rubber'	[raba]
	[s✍m★ns] 'summons'	[saman☜]
	[k★nd✍kt★] ,conductor'	[k❷ndak✋ta]
	[n✍t] 'nut'	[nat]

This central English vowel is invariably nativized into the Dholuo phoneme system as /a/. This derivation is again phonetically plausible because of shared features, the only differentiating feature being [low]. The only exception in a group of over 30 loanwords containing the vowel /✍/ is the rendering of this vowel as /o/, possibly due to what I would term 'onomatopoeic borrowing', due to the onomatopoeic effect made when pumping air into a tyre, e.g.:

58). [p⮰mp] ‘pump’ [pom]

The unacceptable sequence of a prenasalised voiceless stop is simplified thus ending with ***‘pom’.***

3.2.3. Integration of the back vowel /u:/

The vowel /u:/, when it occurs in loanwords, is integrated into Dholuo as /u/, with no exceptions found in the data. Since the language does not have phonemic length, the double vowel is reduced to a single segment. Both vowels share all properties except the feature [length]. The Dholuo rendition is therefore the only one predictable. Examples:

59).

	English	Dholuo
	[skru:] ‘screw’	[sikuru]
	[b★lu:n] ‘balloon’	[balun]
	[sku:l] ‘school’	[sikul]
	[blu:] ’blue’	[mbulu]
	[su:t] ‘suit’	[sut]
	[s★lu:t] ‘salute’	[sarut]
	[fju:z] ‘fuse’	[fius] ~ [fiwus]

The vowel /u:/ may occur either word medially or finally in English. When it occurs word medially in English, it is nativized as [u] in Dholuo loanwords. However, when this vowel occurs word finally, Dholuo breaks the long vowel into two, creating a second syllable using an epenthetic consonant. This is usually the final consonant in the onset of the same syllable, for example:

60).

	English	Dholuo
	[skru:] ‘screw’	[sikuru]
	[blu:] ’blue’	[mbulu]

3.2.4. The back, centralised high vowel /□/

The English vowel /✞/ is also rendered in the language as /u/, with no exceptions. Again, these vowels share all phonetic features, except that /✞/ is more centralised. This derivation is therefore plausible. The following examples were found in the data:

61).

English	Dholuo
[b✞k] 'book'	[buk]
[ka:bj✞ret★] 'carburettor'	[kabureta]

In the data, there are no partially integrated forms for this vowel. Although the language has the same vowel /✞/ in its phoneme inventory, the foreign vowel is not rendered in the language as its native counterpart [✞], but as [u], showing that the latter is phonologically more dominant in the language than [✞].

3.2.5. The front, mid vowel /e/

In a majority of the loanwords, the English vowel /e/ is fully nativized in Dholuo as /e/, with some cases of partial nativization. Examples of full nativization of the vowel are given below:

62).

English	Dholuo
[desk] 'desk'	[desiki]
[h★✞tel] 'hotel'	[otel]
[★dres] 'address'	[adires]
[sek◆★n] 'section'	[sekisen]
[★ten◆★n] ,attention'	[atenson]
[ka:bj✞ret★] ,carburettor'	[kabureta]
[✋nspek◆★n] 'inspection'	[pekisen]
[spe◆★l] 'special'	[sipesial]
[tel★v✋☪★n] 'television'	[telefison]
[g★zet] 'gazette'	[gaset]

There are, however, some cases of partial integration, where the vowel is rendered as either [☜] or [i]. Examples are as follows:

3.2.5.1 /e/ realised as [□]

63).

English	Dholuo
[t♦ek] 'check'	[c☜k]
[k★set] 'cassette'	[kas☜t]
[bent♦] 'bench'	[b☜⇘⇦]

3.2.5.2. /e/ realised as [i]

There was only one example in the data where /e/ is realised as /i/. This was found in the word 'engine' and its derivative 'engineer'. Examples:

64).

English	Dholuo
[endↀ✋n] 'engine'	[i⇘⇦ini]
[endↀ✋n✋★] 'engineer'	[i⇘⇦inia]

The rendering of /e/ as [i] is attributed to vowel harmony achieved through vowel spreading. We will come to a more detailed explanation of vowel spreading at the end of this section.

The plausibility of /e/ being derived as /☜/ can be inferred from a correlation of componential features. These vowels share all properties except the phonetic feature [tense].

Besides phonetic correlation, a case of phonological levelling can be argued here. As Hock (1991:167-179) explains, levelling is a term used to refer to the processes whereby proportions of distinctive function are targeted. Without the [e] → [☜] derivation, there probably could result a great discrepancy in the distinctive load of the Dholuo mid front vowels. A comparable process of equitable distribution is also observed in the monophthongization of [e✋] into [e] and [☜].

3.2.6 Adaptation of /□/

The front, open-mid English vowel /✈/ is invariably rendered in Dholuo as /a/. This is the sound auditorily and perceptually closest to it in the language. This vowel, which can occur in both initial and medial positions within the English word, is rendered as /a/ in all such environments. Examples are as follows:

65).

English	Dholuo
[sp✈n★] 'spanner'	[sipana]
[k✈mp] 'camp'	[kambi]
[✈ks✋d★nt] 'accident'	[akisid☜nd]
[bl✈d★] 'bladder'	[bilada]
[t✈☠k] 'tank'	[ta☠gi]
[b✈dC] 'badge'	[ba⇦i]
[bl✈kb❷:d] 'blackboard'	[bilakib❷d]
[k✈bidC] 'cabbage'	[kabic]
[k✈t✋k✋z★m] 'catechism'	[katikaisim]
[g✈ra:C] 'garage'	[garac]
[m✋k✈n✋k] 'mechanic'	[makanika]
[t✈ksi] 'taxi'	[takisi]
[v★r✈nd★] 'veranda'	[baranda]
[bl✈☠k✋t] 'blanket'	[bara☠get]
[f✈kt★ri] 'factory'	[fakitori]
[g✈r★nti:] 'guarantee'	[garanti]
[g✈l★n] 'gallon'	[galan]

There are few cases, however, of partial nativization, where /✈/ is rendered in the language as /e/ or /☜/. Even in these cases, speakers are occasionally heard to pronounce the vowel /✈/ as [a]. Examples of this occurrence are shown below:

3.2.6.1 Adaptation of /□/ as /e/ and /□/

66).

English	Dholuo
[b✈t★ri] 'battery'	[betiri]

[dʤ✈k] ‘jack’ [⇦☜k]

[g✈☠] ‘gang’ [g☜☠]

In a group of over 30 English words with the front vowel [✈], less than 5 loanwords showed this type of partial nativization, showing that the language overwhelmingly renders [✈] as [a] in its phoneme inventory.

Since /a/ is the only low vowel which is functional in the phonological structure of Dholuo, the regular derivation of /✈/ into /a/ can be seen as a natural development. An /✈/ to /☜/ modification can also be considered plausible, given structural correlation which incorporates all the phonetic features but the values of [low]. Again, the derivation of /☜/ could be possible as a result of indirect borrowing, based on Swahili lexical correspondences (e.g. *benki* bank, *betri* battery). Furthermore, it is also possible that the variation is a result of a need for further phonological levelling whereby some /a/ derivatives subsequently modify to /☜/.

Concerning the derivation of /✈/ as /e/, it is probable that this derivation results from non-contact assimilation to the surrounding vowels on account of height correlation. Considering the phonetic distance between /✈/ and /e/, the study assumes a telescoped stage involving /☜/. A relative chronology of sound change is thus hypothesised:

✈ > ☜ > e

The vocalic split seen above can be considered as a strategy for accommodating the different needs of the lexical structure. This strategy rarely affects long vowels.

3.2.7. Integration of /□:/

This English vowel is realised in all its environments as /a/, without any exceptions. This can be seen in the following examples:

67).

English	Dholuo
[sk✇:t] ‘skirt’	[sikat]
[♦✇:t] ’shirt’	[sati]

[riz:v] 'reserve' [risaf]

[t:m] 'term' [tam]

[n:s] 'nurse' [nas]

This vowel, like the other English central vowels, is perceptually closer to /a/ in Dholuo, and is this nativized as such in the loanwords.

3.2.8. Integration of [:]

The English long, open mid, back vowel [:] is realised in a majority of Dholuo loanwords as [], with a few cases where it is rendered as [o]. The examples are as follows:

68).

English	Dholuo
[b:d] 'border'	[bda]
[t:t] 'torch'	[tc]
[k:rs] 'chorus'	[kras]
[rk:d] 'record'	[rkd]
[k:prl] 'corporal'	[kbl]
[blkb:d] 'blackboard'	[bilakibd]

The loanwords, however, show a few cases of [:] being realised in the language as [o], as shown below:

69).

English	Dholuo
[k:t] 'court'	[kot]
[st:] 'store'	[sito]

3.2.9. Integration of /①/

The back, low vowel /①/, in its fully nativized form, is realized in Dholuo loanwords as / /. This is the sound to which this vowel is closest in the language, both articulatorily and perceptually. Below are examples of its nativization:

70). English Dholuo

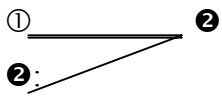
[b①m] 'bomb'	[mb❷m]
[b①ks] 'box'	[b❷k✋s✋]
[bl①k] 'block'	[b✋l❷k]
[st①k] 'stock'	[s✋t❷k]
[h①sp✋tl] 'hospital'	[❷s✋p✋tal]
[b①tl] 'bottle'	[b❷t✋l❷]
[g✋★ b①ks] ,gear box'	[giya b❷ks✋]

In the three cases of partial nativization found in the data, /①/ is realised in the language as [o], as in the examples below:

71).

English	Dholuo
[k①mpa✝nd] 'compound'	[kompaond]
[s①ks] 'socks'	[sokisi]
[na✋l①n] 'nylon'	[nailon]

The two English vowels /①/ and /❷:/ tend to be overwhelmingly integrated into Dholuo as /❷/. In their integration into Dholuo then, we have a case of phonemic merger, as shown below:



This merger can be attributed both to phonetic and phonological constraints. On the one hand, the three vowels involved share some basic phonetic properties: [+ back], [+ round] and [- high]. On the other hand, a phonological source of motivation can be inferred from the rather limited occurrence of /❷:/ in the loans. It can be interpreted to mean that this merger targets a maximal distinctive load. It therefore enhances the phonological functions of /❷/ in Dholuo.

3.2.10. Integration of /a:/

This open English vowel is realised in Dholuo loanwords as /a/ in all its occurrences. There are no cases of partial nativization in the data. Examples are as follows:

72).

English	Dholuo
[g✈ra:☪] ‘garage’	[garac]
[gla:s] ‘glass’	[gilas]
[ka:d] ‘card’	[kadi]
[sma:t] ’smart’	[simat]
[ka:bj✞ret★] ’carburetor’	[kabureta]
[m★✞t★ka:] ’motorcar’	[m✋t❷ka]

Since Dholuo does not have long vowels in its phoneme inventory, this long English vowel is shortened when it is derived into Dholuo.

3.2.11. Integration of /□/

The high, front English vowel is mainly realised in Dholuo loanwords as /i/, with a few exceptions, as shown below:

73).

English	Dholuo
[le✋d✋] ‘lady’	[ledi]
[♦✋l✋☠] ‘shilling’	[sili☠]
[d✋♦] ‘dish’	[dis]
[d✋gri:] ’degree’	[digiri]
[kl✋n✋k] ’clinic’	[kilinik]
[f✋lm] ’film’	[filim]
[t✋k✋t] ‘ticket’	[tikiti]
[b✋♦★p] ,bishop’	[bisop]
[k✈t✋k✋z★m] ,catechism’	[katikaisim]
[k✈⌲★l✋k] ,catholic’	[ka⌲olik]
[k★m✋ti] ‘committee’	[komiti]
[kr✋sm★s] ‘christmas’	[kirisimas]
[end☪✋n] ‘engine’	[i⇘⇦ini]
[d✋k♦★n★ri] ‘dictionary’	[dikisonari]

[st✋★r✋☠] 'steering'	[sitari☠]
[sp✋r✋t] 'spirit'	[sipirit]
[tel★v✋☪★n] ,television'	[telefison]
[h✋st★ri] 'history'	[hisitori]
[m✋st★] 'mister'	[mista]
[h①sp✋tl] 'hospital'	[osipital]
[✋☠k] 'ink'	[ingi]
[m✋k✈n✋k] ,mechanic'	[makanika]
[m✋♦★n] ,mission'	[misen]
[r✋z☋:v] 'reserve'	[risaf]
[k★m✋♦★n] 'commision'	[komison]
[end☪✋n✋a] 'engineer'	[i⇘⇦inia] ~ [i⇘⇦iniya]
[✋kwe✋t★] 'equator'	[ikweta]
[✋n♦✞★r★ns] 'insurance'	[insuwarens]

There are some cases of partial nativization for this vowel in the data. These include the following examples:

3.2.11.1 /□/ realised as [e]

74).	English	Dholuo
	[kwar✋] 'quarry'	[kware]
	[k✈l✋nd★] 'calendar'	[kalenda]

3.2.11.2 /□/ realised as [a]

In one loanword, /✋/ was realised in the language as [a], as shown below:

75).	English	Dholuo
	[m✋k✈n✋k] 'mechanic'	[makanika]

Although Dholuo has /✋/ existing as a phoneme within its sound system, there are no instances of this vowel being realised in the language as /✋/. In over 80 % of the loanwords, this vowel is realised in the language as /i/, the remaining cases being its realisation as either [e] or [a]. The fact that the English [✋] is realised in Dholuo as [i] is possibly due to the fact that these two sounds are acoustically closer to one another, and the native speaker automatically replaces the Dholuo segment for the English counterpart. It is possible that the two vowels are closer in terms of fronting and height at the surface phonetic level. This type of correspondence was also discovered by Holden (1972:65), who found that the English vowel [✍] is always rendered in Norwegian as the front, mid vowel [✋] and never as [e], [o] or [a], although these might have been the more obvious choice for replacement, from the point of view of distinctive features.

Another explanation for this realization of [✋] could be due to distributional restrictions. [✋] rarely occurs word initially or finally in Dholuo, although they do not occur in complementary distribution with [i]. They in fact contrast in identical environments in the language. It is therefore possible that the less restricted English vowel [✋] would get realised in the Dholuo as the corresponding less restricted counterpart [i].

3.2.12. Integration of [□:]

In one loanword found in the data, this vowel is realised as [i] in Dholuo. This is shown in the following example.

76).	English	Dholuo
	[fr✋:] ‘free’	[firi]

As in the other occurrences of long vowels in loanwords, the language showed a tendency towards shortening the vowels, or resyllabifying them and creating another syllable. This was seen in the case of [blu:] and [skru:] in example (60) above. This resyllabification also occurs in the case of [✋:]. The only difference is that although the long vowel is shortened, the resultant vowel is rendered in Dholuo as [i] and not [✋], again showing that both Dholuo [i] and English [✋:] are acoustically very similar.

3.2.13. Integration of /i/

The high, front vowel /i/ is realised in Dholuo as /i/, with no exceptions to this rule. This is shown in examples below:

77).	English	Dholuo
	[t✈ksi] 'taxi'	[taksi]
	[f✈kt★ri] 'factory'	[fakitori]
	[b✈t★ri] 'battery'	[betiri]
	[k★m✋ti] 'committee'	[komiti]
	[h✋st★ri] 'history'	[histori]
	[d✋k◆★n★ri] 'dictionary'	[dikisonari]

This type of nativization can be explained in terms of phonetic similarity between the two phonemes.

3.2.14 Integration of /i:/

When this long, front vowel comes into Dholuo in loanwords, it is shortened and realised as /i/. There is only one other instance of this vowel being realised differently. Examples are shown below:

78).	English	Dholuo
	[gri:s] 'grease'	[giris]
	[t◆i:f] 'chief'	[cif]
	[spi:k★] 'speaker'	[sipika]

[♦i:t] 'sheet'	[sit]
[m★♦i :n] 'machine'	[masin]
[d✋gri :] 'degree'	[digiri]
[g✈r★nti:] 'guarantee'	[garanti]

The vowel /i:/ may also be realised as /e/ in Dholuo. An example of this is shown below:

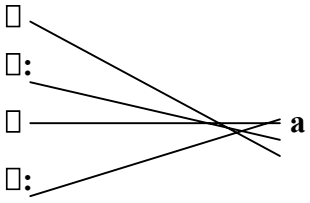
79).

English	Dholuo
[k①☠kri:t] 'concrete'	[ko☠gret]

From the foregoing data, it is clear that the whole group of high, front vowels [i], [i:], [✋], [✋:] are all realized in Dholuo loanwords as [i], even though /✋/ also exists as a phoneme in the language. This therefore demonstrates the phonological strength of [i] over [✋] in Dholuo.

Two general observations can be made concerning the integration of the English vowels. The first observation is that the canonical vowels /i/, /a/ and /u/ function as the focal points of phonemic merger, whereas the middle vowels are more involved in phonemic split. Secondly, the primary phonetic features [high] verses [low], [back] verses [front], [round] verses [spread] are regularly sustained.

In the loanwords, the central vowels /★/, /✍: /, /✍/ and /✌/ are regularly integrated in Dholuo as /a/, as seen in the sections above. From these derivatives, a phonemic merger is perceived as shown below:



This merger can be attributed to phonetic factors. On account of the restricted physiological space associated with the lower region of the oral cavity, it can be assumed that the articulatory and auditory properties of the low vowels occurring in English are minimally differentiated (see Lyons 1981:80). At the same time, Dholuo operates on a single low vowel, /a/. This vowel can therefore be considered as a natural rendering of central vowels found in English.

The data reviewed above on the nativization of English vowels have shown clearly our hypothesis at the beginning of this study, that surface phonetic shapes are fundamental in the assimilation of foreign segments, rather than underlying feature representations. In other words, the native speaker of the target language compares the phonetic shape of the borrowing with the surface phonetic shapes of his own words, and adjusts the former correspondingly.

Earlier, in section 3.2.5.2, the interesting case of the adaptation of 'engine' was mentioned. This adaptation was seen as an instance of vowel spreading. We restate here example (64) above as (80) in order to explore further the process of vowel spreading.

80).

English	Dholuo
[endʤ✋n] 'engine'	[i⇘⇦ini]
[endʤ✋n✋★] 'engineer'	[i⇘⇦inia]

The notion of heterosyllabic vocalic assimilation seen above is reinterpreted as a case of phonemic spreading. Spreading has been defined as the process whereby an identical unit extends into a contiguous syllable (see Hyman 1975: 222-223). This distribution may be progressive or regressive, as seen below:

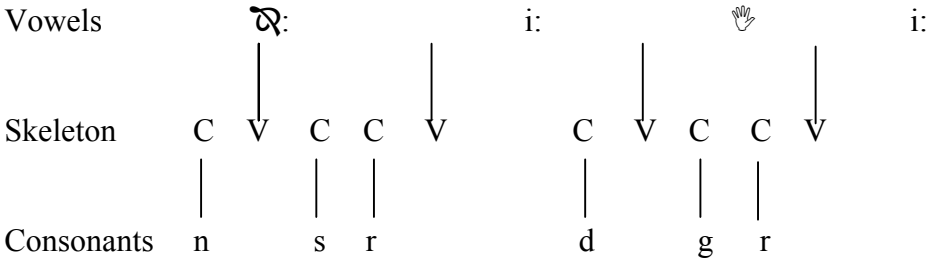
81).

English	Dholuo
[endʤ✋n] 'engine'	[i⇘⇦ini]
[s✋ment] 'cement'	[simiti]
[p★li:s] 'police'	[polisi]
[nɝ:sri] 'nursery'	[nasari]
[d✋gri:] 'degree'	[digiri]

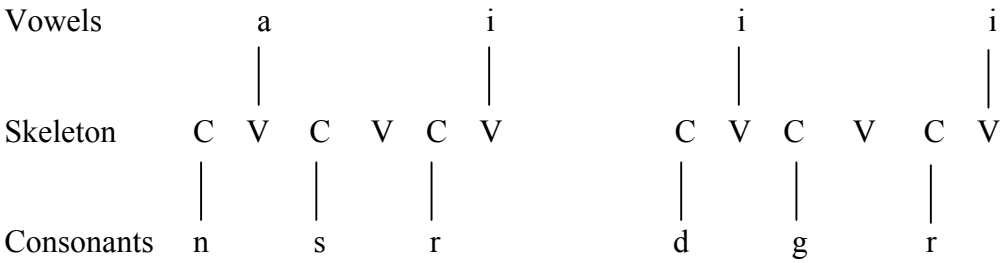
The process of vowel spreading regularly affects two syllables. The procedure involved is conceived progressively, and generalised as follows, in the case of **nursery** and **degree**:

82)

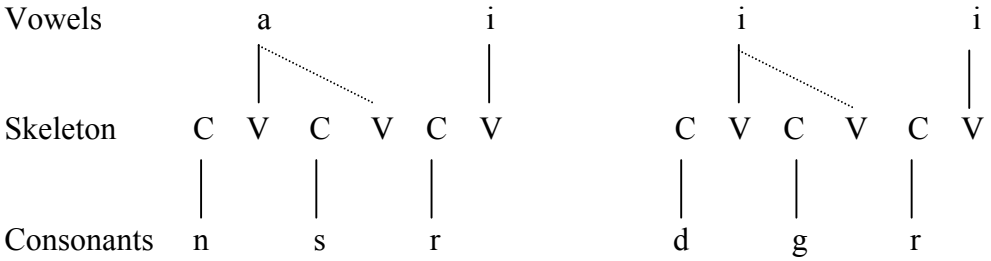
a). Underlying representation.



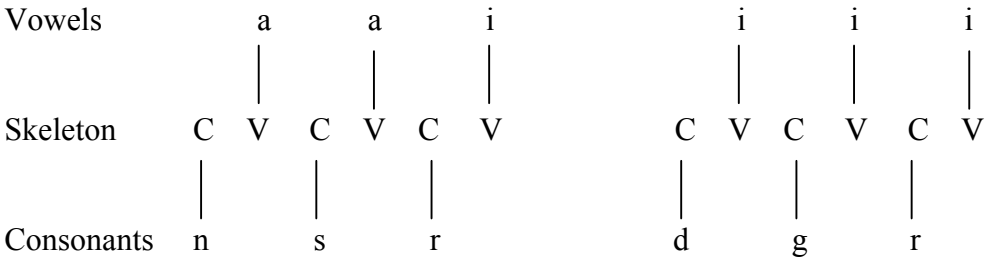
b). skeletal and phonemic modification:



c). Progressive vowel spreading:



d). Surface representation:



3.3.0 Integration of English Diphthongs

The English diphthongs coming into the language through loanwords all show a pattern of nativization similar to the one exhibited by the monophthongs. In most of the cases, there is either vowel coalescence, or deletion of the second element of the diphthong, the resultant nativized form then being a single vowel. There are loanwords, however, where the diphthong is not fully integrated. In such cases, the contour structure of the diphthong is maintained in the loanword.

3.3.1 Nativization of [□□]

The English diphthong [★✞] is integrated into Dholuo through a process of vowel coalescence, producing the back, open mid vowel [o] in loanwords. Examples are shown below:

83).

English	Dholuo
[k★✞t] 'coat'	[koti]
[st★✞v] 'stove'	[sitof]
[j★✞k] 'yoke'	[⇦ok]
[g★✞l] 'goal'	[gol]
[gl★✞b] 'globe'	[gilop]
[h★✞tel] 'hotel'	[otel]
[b★✞lt] 'bolt'	[boliti]
[s★✞ld☪★] 'soldier'	[so⇦a]
[l★✞ke✋♦★n] 'location'	[lokesen]
[n★✞t] 'note'	[not]

The data does not contain any other forms of nativization for this diphthong [★✞] in the language. In the loanwords which contain consonant sequences (CCs), an epenthetic vowel, usually [i], is inserted to resyllabify the word into an acceptable syllable structure.

3.3.2 Integration of [e□]

The English diphthong [e□] is nativized in Dholuo loanwords by elimination of the second element of the diphthong, leaving only [e] as the nativized form in the language. Examples are shown below.

84).

English	Dholuo
[le□d□] 'lady'	[ledi]
[gre□d] 'grade'	[giredi]
[me□d] 'maid'	[med]
[p★re□d] 'parade'	[pared]
[ke□s] 'case'	[kes]
[t♦e□ndC] 'change'	[ce⇘⇦]
[re□di★✞] 'radio'	[redio]
[ge□t] 'gate'	[get]
[□kwe□t★] 'equator'	[ikweta]
[ste□♦★n] 'station'	[sitesen]
[l★✞ke□♦★n] 'location'	[lokesen]

There are a few loanwords where this diphthong is integrated as [☜]. This typically involves the elimination of the second element in the diphthong, and then the lowering of the tongue to produce [☜], as shown below:

85).

English	Dholuo
[ke□k] 'cake'	[k☜k]
[pe□p★] 'paper'	[p☜pa]
[me□dC★] 'major'	[m☜⇦a]
[fre□m] 'frame'	[f□r☜m]

The integration of the closing contour [ℳ□] into either [e] or [☜] is phonetically plausible since these vowels share all properties except the phonetic feature [tense].

3.3.3 Integration of [a□]

In the production of this rising diphthong in English, the tongue rises from the low position of [a] and glides towards the high position for [✞]. When the diphthong appears in Dholuo

loanwords, its integration is achieved by lowering the tip of the tongue from the [✞] position to that of [o], thus forming the nativized [ao] sequence, which is an acceptable sequence of sounds in the language. This can be seen in the following examples:

86). English Dholuo

[bla✞z] 'blouse' [bilaos]

[ga✞n] 'gown' [gaon]

[ska✞t] 'scout' [sikaot]

[k①mpa✞nd] 'compound' [kompaond]

There are no other types of nativization of [a✞] found in the language.

3.3.4 Integration of [a□]

In the production of the diphthong [a✋] in English, the tongue is raised from the low, central position of [a] to the close, front position of [a✋]. In the loanwords coming into Dholuo, this sound is integrated by the lowering of the tip of the tongue to the front, close -mid position of [e], thus producing the sequence [ae] in Dholuo. The examples of this integration are shown below.

87). English Dholuo

[fa✋l] 'file' [fael]

[sta✋l] 'style' [sitael]

[ma✋l] 'mile' [mael]

[ta✋] '(long) tie' [tae]

[m★✞ba✋l] 'mobile' [m❷bael]

It is clear in the data that in the integration of both English diphthongs ([a✞] and [a✋]) Dholuo retains the contour structure of the diphthongs. This can be interpreted in terms of phonological levelling (Hock 1991:168-182). This is necessitated by the fact that both sets of reflexes exist in the phonological structure of Dholuo.

In the loanwords having partial integration, [a✋] is rendered as [ai], the tongue tip gliding further higher up to the close position of [i]. This also further proves the phonological strength

of [i] over [✋] in Dholuo, since the native phonological system prefers [i] to the latter. The examples are shown below:

88). English Dholuo

[la✋n] 'line' [laini]

[fa✋n] 'fine' [faini]

[na✋lon] 'nylon' [nailon]

[swa✋n] 'swine' [suwayini]

3.3.5 Integration of [□□]

There are few cases of loanwords in the data having this English diphthong. In the examples found in the data, [❷✋] is integrated by the elimination of the second part of the diphthong, leaving the integrated form as [❷], thus:

89). English Dholuo

[b❷✋l★] 'boiler' [b❷la]

[b❷✋] 'boy' [b❷yi]

In the case of 'boy', the loanword is resyllabified by adding [i] at the end, thus forming the preferred CVCV syllable structure in the language. There are no exceptions in the data to the integration of [❷✋] as [❷].

3.3.6 Integration of [e□]

This diphthong was only found in one loanword in Dholuo. In its integration, the two sounds are coalesced and the resultant, nativized form in Dholuo is [☜], as shown in the following example:

90). English Dholuo

[e★ri★] 'area' [☜ria]

The integration of [e★], however, is such an isolated case in the data that no major rules can be posited as concerns its nativization in the language.

3.3.7 Integration of [□□]

This diphthong, produced in the English language by gliding the tongue from the close, back position towards the centre, is rendered in Dholuo loanwords as [uwa]. Again the frequencies of its occurrence in the data is too small to enable us make any firm predictions as to the nature of its integration. There are only two examples found in the data.

91).

English	Dholuo
[□ns✞★r★ns] 'insurance'	[insuwarens]
[m★nj✞★] 'manure'	[ma⬊iwa]

In the nativization of this diphthong, the word is resyllabified by a glide formation rule, which converts [✞] into the semi-vowel [w], thus resulting in forms like '**manyiwa'**. The English consonant sequence -nj- gets fully palatalised in the integrated loanword, resulting in the palatal nasal [⬊] (**ny**).

3.3.8 Integration of [□□]

The English diphthong [□★] is nativized in Dholuo loanwords as [ia]. In some loanwords, the diphthong is actually broken up by an epenthetic consonant to form two syllables. This consonant is usually the semi-vowel [j]. However, as mentioned in chapter 2, sequences of diphthongs and CCs where the second consonant is a semi-vowel are used interchangeably in the language. This also occurs in the integration of [□★], where one hears [ia] being pronounced interchangeably with **-iya-**, as seen in the following examples:

92).

English	Dholuo
[g□★] 'gear'	[gia] ~ [gija]
[end□n□★] 'engineer'	[i⬊⇦inia] ~ [i⬊⇦inija]

[st✋★ri☠] ‘steering (wheel)’ [sitari☠]

As can be seen from the data, the adaptation of diphthongs reveals two strategies: preservation of the contour structure or the monophthongization of the diphthongal form. The preservation of the diphthongal form is observed in the rising diphthongs [a✋] and [a✞] and in the falling diphthongs [✞a] and [✋★].

3.4.0 Integration of English Triphthongs

There are few cases of loanwords in Dholuo having had triphthongs in their source language forms. Whenever loanwords containing triphthongs come into the language, either one of two phonological processes may occur so as to recreate the acceptable syllable structure. This may involve either a glide formation process, a deletion of one of the vowels in the triphthong, or a coalescence of two members of the triphthong to readjust this marked situation. In this way, all the extra V elements are trimmed.

The following examples exemplify these phonological processes:

3.4.1 Integration of [a□□]

The English diphthong [a✋★] is typically found in word final position, in words such as ‘**wire’** and ‘**choir’**. When they occur in loanwords, the extra V formation is readjusted using a glide formation process which then resyllabifies the word. Examples are shown below:

93). English Dholuo

[wa✋★] ’wire’ [waja]

[kwa✋★] ’choir’ [kwaja]

The following glide formation rule captures this resyllabification process:

94).

$$\begin{matrix} +\text{ syll} \\ +\text{ high} \end{matrix} \longrightarrow [-\text{ syll}] \quad [+\text{ syll}] \_\_\_\_\_$$

3.4.2 Integration of [i□□]

This diphthong also occurs word finally in English, and is found in a word like [re✋di✞★] '**radio'.** When such loanwords come into Dholuo, two vowel processes take place. First, the [e✋] diphthong is readjusted by elimination of the second element (as shown earlier in 3.3.2.) The triphthong [i✞★] is then integrated by coalescing the last two elements of the triphthong into [o], thus forming the acceptable sequence [io]. This is based on the assumption of an equal phonetic strength of the componential elements. This is seen in the following example:

95)	English	Dholuo
	[re✋di✞★] 'radio'	[redio]

However, the adaptation of triphthongs can also be interpreted in the following manner. It can be assumed that there is a prior deletion of the final element in each triphthong. This element is considered the least perceptible component in a triphthong (Roach 1983:22). The plausibility of deletion, hence, derives from perceptual considerations. Subsequent to deletion, the resultant diphthongs modify into the perceived equivalents in Dholuo.

One feature of the adaptation of triphthongs is that the initial constituents are regularly preserved. This is attributable to the stable properties of these units in their capacity as canonical vowels.

It is also possible for one to infer a systematic linkage of the vowel system from the regularity of the diphthongization procedures. Automatic diphthongization could mean that the recipient language cannot sustain triphthongs. This development is due to the fact that triphthongs, or their equivalents, are not utilised in the phonological structure of Dholuo.

On account of this constraint, a hierarchy of derivation is involved. In this hierarchy, triphthongs diphthongize into their closest derivatives. Diphthongs either translate into their

perceived equivalents, or otherwise monophthongise into plausible substitutes in the native Dholuo speaker's vowel inventory. Predictably, the monophthongs regularly adopt to their closest phonemic correspondences.

From the foregoing, one can conclude that the Dholuo speakers are intuitively aware of basic structural properties of vowels. This assumption is consistent with the conviction that native speakers have internalized the system of general rules and specific relationships which govern the set of vowels utilized in their languages.

3.5.0 Phonological Integration of English Consonants

The consonants in English do not present as many problems in their integration when they are borrowed into Dholuo as is the case with vowels. This is partly because many consonants which occur in English also occur in Dholuo.

Consonant adaptation is comparable to that of vowels in several ways. It conforms with three major adaptation strategies: phonemic preservation, phonemic merger and phonemic split. The notion of preservation suggests the equivalence of a sound in the source language with another sound in the target language. Sounds are presumed equivalent if there is correspondence in the phonetic properties. Phonemic preservation has been observed mainly in nasals and some approximants.

Approximants are sounds during whose production the articulators approach each other but do not get sufficiently close as in the production of other consonants like plosives or fricatives (Roach 1993:62). The approximants [w, j, r, l] are regularly preserved in the loanwords, e.g.

96).

English	Dholuo
[kwa✋★] 'choir'	[kwaja]
[wa✋★] 'wire'	[waja]
[h✋st★ri] 'history'	[histori]
[dra✋v★] 'driver'	[dir☜ba]
[k✍lv★t] 'culvert'	[kalabat]
[v★r✈nd★] 'veranda'	[baranda]

[r ☟z☜:v] 'reserve' [risaf]

The preservation of the approximants introduces a rather interesting aspect of phonemic adaptation. These sounds can be considered dispensable in that they regularly feature in stylistic variation (see Dogil in Gibbon & Richter 1984: 91-97). In this case, preservation is attributed to maximalization of phonological function. In view of the entire phonemic inventory of Dholuo, the phonological function of the approximants is rather limited. This limitation introduces a need to maintain the maximum load possible for these approximants.

Nasals are another class of consonants that have regularly been preserved. This can be seen in the following examples:

97).

English	Dholuo
[sp✈n★] 'spanner'	[sipana]
[b①m] 'bomb'	[mb❷m]
[k★m☟ti] 'committee'	[komiti]
[st☟★r☟☠] 'steering'	[sitari☠]
[fre☟m] 'frame'	[f☟r☜m]

In the examples shown above, the nasals are mostly in word-final positions or in the environment of vowels. These phonetic environments contribute to phonemic preservation. In these environments, the nasals are not exposed to the neutralising force of phonemes accorded greater phonetic strength (Jensen 1993).

In general, phonemic preservation is attributable to both phonological and phonetic constraints. The assumption of a phonological constraint concerns an attempt to maintain a relatively proportional distinctive load. This assumption is validated on the rather limited frequency of the sonorants depicted above, in the loanwords. The significance of the phonetic conditioning can be inferred from the articulatory, and hence the perceptual, distance of the consonants involved in every category of the preserved phonemes. It can be observed that each class of sounds is articulated in a distinct physiological space. The physical and perceptual distance involved is therefore not conducive to other strategies of the adaptation process.

3.5.1 Integration of [v]

The voiced, bilabial fricative [v] does not exist in the Dholuo phoneme inventory. When it comes into the language through loanwords, [v] is integrated as [b], which is similar to it in terms of place of articulation (labial), and is also voiced. The regularity of the /v/ > [b] derivation is thus a consequence of phonetic correlation in view of the properties of voicing and labiality. The two sounds are only distinguished by the phonetic feature [continuant]. [b] is thus a plausible derivation of its labial counterpart. When it occurs word finally, then the voiceless counterpart [f] is preferred as [b] does not occur in word final position in free forms in Dholuo. Examples of its integration are as follows:

98).	English	Dholuo
	[dra✋v★] 'driver'	[dir☜ba]
	[k☝lv★t] 'culvert'	[kalabat]
	[v★r✈nd★] 'veranda'	[baranda]
	[st★✞v] 'stove'	[sitof]
	[r ✋z⌧:v] 'reserve'	[risaf]
	[tel★v✋☪★n] 'television'	[telefison] ~ [telebison]

An exception to the above rule is in the nativization of '**television'**, where [f] is preferred to [b]. This is probably due to the fact that the urban middle class, who own televisions, have a greater level of contact with English and thus avoid the monolingual [b] alternative associated with the rural monolinguals. This rendering is also plausible because Dholuo has only one labial fricative, it would be the natural derivative of /v/, hence the [f] seen above.

3.5.2 Integration of [z]

This phoneme, which also does not exist in Dholuo, is usually integrated in loanwords as its voiceless counterpart [s]. This can be seen in the following examples:

99).	English	Dholuo
	[bla✞z] 'blouse'	[bilaos]
	[di:z★l] 'diesel'	[d✋s☜l]
	[g★zet] 'gazette'	[gaset]
	[r ✋z⌧:v] 'reserve'	[risaf]

[fju:z] ‘fuse’ [fiwus] ~ [fius]

This rendering is also predictable because Dholuo operates on only one alveolar fricative. It is therefore expected that the English alveolar fricative would adapt to its natural counterpart, though being devoiced in the process. There are no exceptions to this rule in the language.

3.5.3 Integration of [□]

The voiceless palatal fricative does not exist in Dholuo. When it appears in loanwords, this sound is realised as the voiceless alveolar fricative [s], which is the closest phoneme to it auditorily. This integration can be seen in the following examples:

100).	English	Dholuo
	[b✋♦★p] ‘bishop’	[bisop]
	[br✍♦] ‘brush’	[bras]
	[d✋♦] ‘dish’	[dis]
	[♦i:t] ‘sheet’	[sit]
	[♦➰:t] ‘shirt’	[sati]
	[f✈♦★n] ‘fashion’	[fason]
	[ste✋♦★n] ‘station’	[sitesen]
	[★ten♦★n] ’attention’	[atenson]
	[m★♦i:n] ’machine’	[masin]

Again in the case of /♦/, there are no exceptions to the rule realising it as [s] in Dholuo.

3.5.4 Integration of [□]

This phoneme also does not exist in the Dholuo phoneme inventory. Even in English, the phoneme occurs in very few words. It is found in two loanwords in the data. When it comes

into Dholuo through loanwords, this sound is realised as either [⇦] or [s]. This is seen in the following examples:

101).	English	Dholuo
	[g✈ra:C] 'garage'	[garac]
	[tel★v✋C★n] 'television'	[telefison]

In the case of '**garage',** [⇦] does not occur in word final positions except in genitives. So it is replaced by its voiceless counterpart [c].

Again for the sound [C], no general rules will be offered here for its integration since there are too few examples of its occurrence to make predictions.

3.5.5. Integration of [l]

There are a few cases in the data where [l], although present in the Dholuo phoneme inventory, is nevertheless realised in the loanwords as [r]. This can be seen in the following examples:

102).	English	Dholuo
	[s★lu:t] 'salute'	[sarut]
	[b☝k★l] 'buckle'	[bakira]
	[bl✈☠k✋t] 'blanket'	[bara☠get]

It is not clear from the data what determines this alternation of [l] and [r] in these loanwords.

In a majority of the loanwords, however, the English [l] is rendered in the language as its Dholuo counterpart [l], as seen below.

103).	English	Dholuo
	[b★lu:n] 'balloon'	[balun]
	[s✋:l ✋ ☠] 'shilling'	[sili☠]
	[le✋d✋] 'lady'	[ledi]
	[la ✋ n] 'line'	[laini]

[di:z★l] ‘diesel’	[d✋s☜l]
[fa✋l] ‘file’	[fael]

3.5.6. Prenasalization of [b]

There are two cases in the data where the English [b] is prenasalized in the loanwords, thus being rendered as [mb]. This occurs in the two words ‘**bomb’** and ‘**blue’**. Below are the examples:

104).	English	Dholuo
	[b①m] ‘bomb’	[mb❷m]
	[blu:] ‘blue’	[mbulu]

The first example, [b①m] > [mbom], seems to be a case of progressive assimilation. It is also possible that the strong rounding of [u] in blue is a probable cause for the Prenasalization of [b], a factor which has also been noted in other languages (E. Wolff, personal communication 2001).

3.5.7. Integration of [t□] and [d□]

It has been argued elsewhere (Okombo 1982) that the two palatal affricates [t♦] and [d☪] exist in Dholuo. There is, however, very little distinction in the speech of the native speakers as to whether the phonemes present are these affricates or the palatal plosives [c] and [⇦]. Most earlier researchers in the language have opted for the latter (see Okombo 1982, Omondi 1982, Ngala 1994). It is in following their tradition that I have opted for the palatal plosives in this study, though it is quite possible and acceptable to assume the existence of the palatal affricates.

When the voiceless palatal affricate [t💧] comes into the language through loanwords, it is rendered as the voiceless palatal plosive [c] in all its occurrences, as seen in the following examples:

105). English	Dholuo
[kl✍t💧] 'clutch'	[kilac]
[t💧i:f] 'chief'	[cif]
[t💧ek] 'cheque'	[c☜k]
[t❷: t💧] 'torch'	[t❷c]
[t💧eind☪] 'change'	[ce⬂⇦]

The phonemic preservation of /t💧/, being rendered as [c], arises out of perceived phonetic equivalence. It is therefore logical that this plosive should function as the regular derivative of the homorganic sibilant.

The perceived phonetic equivalence is also seen in the adaptation of the voiced palatal affricate /d☪/, which is also derived as [⇦], as seen below:

106). English	Dholuo
[d☪✍d☪] 'judge'	[⇦a⇦i]
[b✈d☪] 'badge'	[ba⇦i]
[me✋d☪★] 'major'	[m☜⇦a]

There are no exceptions to this rule in the language.

3.6.0 <u>Integration of Kiswahili Phonemes</u>

The phonological integration of phonemes from Swahili into Dholuo, especially the integration of vowels, is not as productive as in the case of vowels from English. This is because Swahili has fewer vowels (5) than Dholuo, which has 9 vowels. This means that the Dholuo vowel system has many more phonological oppositions within it than is present in Swahili. Also, the 5 vowels found in Swahili are all present in Dholuo, and during their

integration, the data shows a consistent one to one adaptation of each vowel from Swahili to its counterpart in Dholuo. There are, however, a few exceptions:

3.6.1 Integration of [e]

This vowel is consistently nativized in the language as its counterpart [e], as in the following examples:

107).

Swahili	Dholuo
[debe] 'tin pot'	[debe]
[meli] 'ship'	[meli]
[kikombe] 'cup'	[okombe]
[tarumbeta] 'trumpet'	[turumbeta]
[mfereji] 'water tap'	[fereji]
[meza] 'table'	[mesa]

However, there are some few exceptions which may be regarded as cases of alternative rendering of the same sound. In some loanwords, [e] has been nativized as [a], as in the following examples:

108).

Swahili	Dholuo
[t♦erahani] 'sewing machine'	[caran]
[♦etani] 'satan'	[satan]

The vowel [e] is also rendered in a few loanwords as [i], as seen in the following examples:

109).

Swahili	Dholuo
[kiberiti] 'matchbox'	[kibirit]
[mkate] 'bread'	[makati]

3.6.2 Integration of [a]

This vowel is overwhelmingly nativized in the language as [a], with no exceptions. Below are some examples:

110).	Swahili	Dholuo
	[kabati] 'cupboard'	[kabat]
	[kanisa] 'church'	[kanisa]
	[birika] 'kettle'	[birika]
	[mabati] 'iron sheets'	[mabat]
	[sindano] 'needle'	[sandan]
	[karai] 'pan'	[karaya]

3.6.3. Integration of [i]

As with the other vowels, this high Swahili vowel is integrated into Dholuo as its counterpart [i], as in the following examples:

111).	Swahili	Dholuo
	[meli] 'ship'	[meli]
	[dirisha] 'window'	[dirisa]
	[fundi] 'artisan'	[fundi]
	[sitima] 'electricity'	[sitima]

There are, however, a few exceptions to this rule. The vowel may in some loanwords be rendered as [e], [u], or [a], as in the following examples:

112).	Swahili		Dholuo
(a).	[i]	⟶	[e]
	[sukari] 'sugar'		[sikare]
(b).	[i]	⟶	[u]

[siruali] 'shorts'	[suruaru]
[pili pili] 'pepper'	[pilupilu] ~ [apilo]

(c). [i] ⟶ [a]

[karai] 'pan'	[karaja]
[sindano] 'needle'	[sandan]

Since there are only a few examples of each occurrence, it is not possible to make generalisations about this integration

3.6.4. Integration of [o]

This back Swahili vowel comes into Dholuo as [o] in nearly all the cases, as shown below:

113).

Swahili	Dholuo
[soma] 'read'	[som]
[mbao] 'timber'	[bao]
[↘undo] 'hammer'	[↘undo]
[↳orofa] 'high-rise building'	[g✋r❷fa]
[kikombe] 'cup'	[okombe]

There are, however, a few exceptions, where the vowel is rendered in some loanwords as [i], as in the following examples:

114).

Swahili	Dholuo
[↳orofa] 'high-rise building'	[g✋r❷fa]

3.6.5. Integration of [u]

This high, back vowel is also always integrated into Dholuo as its counterpart [u], as in the following examples:

115).	Swahili	Dholuo
	[msumari] 'nail'	[musimal]
	[kufuli] 'padlock'	[kiful]
	[ʂundo] 'hammer'	[ʂundo]
	[ɸuka] 'wraparound'	[suka]
	[bakuli] 'bowl'	[bakul]
	[bunduki] 'gun'	[bunde]

However, there are a few loanwords in which the vowel may be rendered as either [i] or [o], as can be seen in the following examples:

116).	Swahili		Dholuo
(a).	[u]	⟶	[i]
	[kufuli] 'padlock'		[kiful]
(b).	[u]	⟶	[o]
	[simu]		[simo]

Since there are only one example of each occurrence, it is not possible to make generalisations about this integration.

3.7.0. Integration of Swahili Consonants.

Unlike in the case of vowels, Swahili has some consonants which are not present within the Dholuo consonant system. This means that when such consonants come into the language, they are adapted as the nearest phonemes within the Dholuo system, and then allowed to undergo the normal phonological processes common to members of that phoneme, and then realised at the surface level as the integrated forms. In this section, only those consonants not

present in the language will be considered, as the other consonants found in Dholuo are regularly nativized as the corresponding consonants in the language.

3.7.1. Integration of [ɣ]

This voiced velar fricative occurs mainly in Swahili loanwords from Arabic. When they come into Dholuo, they are integrated as the voiced, velar plosive [g] as in the following examples:

117).	Swahili	Dholuo
	[ɣorofa] 'high-rise building'	[gr❷fa]
	[luɣa] 'language'	[luga]
	[ɣafula] 'unexpectedly'	[gafula]

This derivation is both predictable and natural, since both sounds share all properties except the manner of articulation. It is therefore natural for the fricative to be realised as its plosive counterpart.

3.7.2. Integration of [ʃ]

This voiceless palatal fricative does not exist in Dholuo. When it comes into the language through loanwords, it is integrated as the voiceless alveolar fricative [s], as can be seen in the following examples:

118).	Swahili	Dholuo
	[diriʃa] 'window'	[dirisa]
	[ʃuka] 'wraparound cloth'	[suka]
	[ʃetani] 'satan'	[satan]
	[mʃahara] 'salary'	[misara]

The plausibility of this derivation arises from the fact that [s] is the nearest phoneme perceptively, so it is only natural that /ʃ/ should be rendered as [s] in the loanwords.

3.7.3. Integration of [z]

The voiced alveolar fricative is also not present in the Dholuo phoneme inventory. When it comes into the language, it is integrated as its voiceless counterpart [s], as seen in the following examples:

119).	Swahili	Dholuo
	[meza] 'table'	[mesa]
	[zinia] 'tray'	[sinia]
	[mandazi] 'scone'	[mandas]

As was seen in the integration of the English /z/, Dholuo operates only on one alveolar fricative, and so the derivation of [s] is the only predictable outcome in this integration.

3.7.4. Integration of [v]

This labio-dental fricative, which is also absent in the phoneme inventory of Dholuo, is usually integrated in loanwords as the voiced bilabial plosive [b], especially in the speech of monolingual speakers. A variant usually favoured by bilinguals is [f], as seen below:

120).	Swahili	Dholuo
	[divai] 'church wine'	[dibai] ~ [difai]

As observed above in the nativization of the English /v/, /b/ is the closest native phoneme to /v/, differing from it in only their manner of articulation. It is therefore a natural derivative for /v/ in the language. The alternant [f] is expected among bilinguals.

3.7.5. Integration of [X]

This voiceless velar fricative, found in some Swahili loanwords, is usually integrated into Dholuo as the voiceless glottal fricative [h], as seen below:

121). Swahili Dholuo

[☒abari] 'news' [habari] ~ [abari]

3.7.6. Integration of the affricates [▲□] and [d□]

As with their English counterparts, the palatal affricates are normally nativized in the language as their counterpart palatal plosives [c] and [⇦]. This can be seen in the following examples:

122). Swahili Dholuo

[t♦umvi] 'salt' [cumbi]

[t♦uma] 'iron' [cuma]

[mfered☪i] 'water tap' [fere⇦i]

It should be noted that some of the Swahili consonants which are themselves loan phonemes from Arabic have already been integrated into the Swahili structure and may come into Dholuo not as the original Arabic forms, but as the already integrated Swahili forms. However, some words may have come into the language through the speech of Islamised/Arabic Swahili speakers, in which case they tend to retain their Arabic forms. Included here are sounds such as [☒] and [↳].

The data on loanwords has shown that there are relatively fewer loanwords of Swahili origin in Dholuo than those from English. It means that Dholuo has borrowed more heavily from English than from Swahili. This may be due to the different overall prestige levels of the two languages, with Swahili at the lower end. English is the official language of Kenya, while Swahili is the national language. As the medium of instruction beyond the lower primary grades, English is the language of education, and thus of the educated elite. Because of the prestige attached to English, loans from English are common, especially among the young and educated. Also, because English is the transmitter in the whole East Africa region of both new

items and new industrial and social concepts, English words are inevitably borrowed with the new items or concepts by a wide variety of persons, educated or not.

3.8.0. Reasons for Partial Nativization of Loanwords

When a target language speaker uses loanwords, he may choose to either integrate them into his phonological system, or he may make an effort to retain, as much as possible, the source language forms and sounds. This kind of choice may be dictated by a number of factors.

Looking at the Dholuo borrowing situation, it is apparent that if the speaker is bilingual in both the source language and the target language, he will try to reproduce the borrowed forms with their original sounds and syllable structures. The unilingual native speaker, on the other hand, would try to make the loanwords to conform to the native phonological pattern. In this way, one often ends up with two renderings of one loanword: one partially integrated and the other largely unintegrated into the phonological structure of the target language.

This view has also been advanced by Haugen (1953), who argued that in borrowing, one of the main determinants of phonological integration is the degree of bilingualism of the target language speakers. Ohly (1987) also posits that a loanword acquires an ideal native pattern if the community of the target language do not speak the source language. In this way, loan phonemes are avoided and syllable patterns foreign to the target language are not admitted.

Another view that has been advanced to explain the cases of partial nativization is the prestige factor. Weinreich (1963), Lovins (1975), and Ohly (1987) argue that the prestige factor plays an important role in loanword integration. Their main argument is that there are language contact situations where there may exist a symbolic association of the source language with social values, either negative or positive. If one language is considered prestigious, then the bilingual is likely to use what are identifiable loanwords from it as a means of displaying the social status which its knowledge symbolises. Thus with a source language like English which enjoys great social and cultural prestige among Dholuo speakers, the pronunciation of loanwords in a phonic form closer to the source language forms actually serves as a mark of

greater education or status. As a result, English here functions as a distinguishing social value. Thus psychological reasons would induce the retainment of some elements of English pronunciation.

Lovins (1975), commenting on the role of attitudes in a borrowing situation, argues that the degree to which a borrowing is constrained by the processes of the target language, and possibly relexicalized according to the rules of the language, is universally recognized as dependent on who borrows or uses the loanword, and their attitudes towards the source and target languages, and the question of linguistic purity of the latter.

In this case then, a Dholuo speaker, based on limited acquaintance with English and Swahili, may have certain preconceived notions about how loans should be adopted so as to end up sounding as close to the source language forms as possible, while still conforming to the phonological constraints of Dholuo; or about how to make loanwords sound as much like his native vocabulary as possible. These preconceptions may distort his adaptation of borrowings from the source language from what it might otherwise be.

Attitudes towards phonological integration itself may also cause otherwise unmotivated changes in loanwords. Some unintegrated forms may be cases of hypercorrection, which would be "…a sort of insurance against the possibility of making a certain type of error in unfamiliar phonetic distinctions" (Lovins 1975:39).

Hyman (1970b) has also advanced another reason for the partial nativization of loanwords. He claims that many languages are for one reason or another prone to borrowing words as exceptions and do not fully nativize them. This means that the loanwords would therefore preserve the characteristics by which their foreign origins can be discerned. Another reason advanced by Hyman for partial nativization of loanwords is stylistic. He views loanwords not fully nativized as part of stylistically marked discourse in an attempt by the user to achieve some stylistic effects.

A major tendency in loanword adaptation, especially the adaptation of English vowels into Dholuo, is the tendency to choose various alternatives when adopting a vowel in a loanword. Stampe (1972), commenting on this, argues that a given language tends to take one alternative as its norm, though the other alternatives may sometimes remain marginally available. This is

clearly the case in the integration of some vowels into Dholuo, such as the vowel /ʉ/ (3.1.11). This vowel is rendered in the language as /i/, although other alternative renderings as /a/ and /e/ also exist. The language, however, seems to have chosen /i/ as its norm. This kind of tendency may just be interpreted as a defining characteristic of human language.

Baldunchiks (1991) argues that when several possibilities for the substitution of foreign phonemes occur in a target language, this may depend on several factors: the type of language contact, (that is whether oral or written), the influence of an intermediary language, and the introducer's level of education. Thus different formal variants may appear, each bearing a particular influence. He maintains that although formal variants may exist for a considerable length of time, the prevailing direction of phonological adaptation is from polyformity to uniformity.

The existence of a correlation between phonological integration of loanwords and demographic variables has been suggested by a number of studies. In one of the earliest studies focusing on sociocultural characteristics of the borrowing situation, Scotton and Okeju (1972) found a relationship between speakers' subgroup membership and their borrowing patterns in Swahili and Luganda borrowings in Ateso. Mougeon and Beniak (1991) provide a more quantitatively based study on English loans into Canadian French. Such studies have concluded that there was:

- less integration among urban than rural speakers;
- less integration among the more educated speakers;
- less integration among men than women;
- less integration among younger than older speakers.

In conclusions that echo Baldunchiks' views above, Bernsten and Myers-Scotton (1993) found out that certain social correlates do have a bearing in the partial integration of loans in a borrowing language. They found out that the degree of urbanization, educational level of the interviewees and their gender were significantly correlated with the degree of phonological integration of loanwords. In a study on English loans in Shona, they argue that the differences in life experiences among groups of speakers could help to explain why there is so much variability in how the Shona phonological system realizes lexical loans.

The key factor in urban settings that is absent in rural areas is the necessity to use two or more languages in order to fulfil the functions of daily living. The heavy contact between the languages appears to inhibit the assimilation of English borrowings as they enter the language.

Educational level of the speaker also significantly determines the extent of loanword integration. In the case of Dholuo, since the speakers with more education have had more instruction in English, it is to be expected that they would show less assimilation of English words in their Dholuo speech. They have the skills to pronounce loanwords in their original form, and it may actually be easier and potentially more efficient for them to pronounce the word the same way in both languages than to have to carry two forms of the word in their mental lexicon.

Although there are not many studies in this area, some studies have cited gender as accounting for significant differences in loanword integration. McClure (1981) (cited by Bernsten and Myers-Scotton (1993), points out that in many societies, women have fewer identity relationships requiring the use of a second language. Women who work at home in Kenya in both urban and rural settings have fewer opportunities and requirements to use English daily. We would then expect that English would have less of an impact on their Dholuo. Whiteley (1967) found that women used significantly fewer loans in their first language than did men.

Bernsten and Myers-Scotton (1993) also further argue for the existence of other reasons for different renderings of the same loanword. They posit that one source of this variability may be the fact that in situations of long term language use, loans are subject to continual interference from the model in the other language. The result over time is that a word can be "reborrowed" in a different form by later groups of speakers in the speech community. They further argue that in the earlier period of language contact, before widespread bilingualism, loans come into the language through a relatively small group of bilinguals and are spread by a large monolingual majority that fully integrates the loans into the local language. In later periods of language contact, when there are a number of adult bilinguals, words that had been borrowed in a fully assimilated form may be reborrowed without complete integration. They submit that since the bilingual innovators already control the phonology of the second language, they are able to bring in the new expressions unassimilated to the recipient

language. Such bilinguals may often view full integration of such words as unnecessary or at odds with their bilingual identity. Such bilingual skills thus end up having a confounding effect on the "natural" tendency to integrate loanwords.

The process of borrowing and reborrowing of loanwords is a good explanation for the presence of doublets in the language. It is possible to project that in this later period of language contact, with substantial bilingualism in the urban areas, newer loans have come unassimilated into the speech of Dholuo bilinguals, resulting in loan doublets, with one loanword having different renderings for example [disel] and [d✋s☜l].

CHAPTER FOUR

4.0.0. SYLLABLE STRUCTURE NATIVIZATION

It is quite apparent that most processes at the syllable level, which derive new syllable structures in loanwords, or new association patterns at the lexical level in Dholuo, are motivated by the requirement in the phonological system of the language to make marked associations unmarked. The notion of markedness here is used in the generative phonology format in which the markedness values are considered universal and natural (Chomsky and Halle 1968, Hyman 1975, Katamba 1989, Cairns and Feinsten 1982). Generally speaking, the unmarked members of a system are the productive or regular ones and are therefore more likely to occur universally. The principal of markedness has also been extended to autosegmental phonology studies (Clements 1986:46) to include irregular tier associations such as a C-element in the skeletal tier associating with a vowel segment, a V-element being linked to a consonant segment or a single segment being associated with two timing units. These types of occurrences are considered as marked cases.

In the following section, we use the conception of markedness, within the CV-phonology, to argue that whenever there is a markedness at the underlying representation of Dholuo syllable structure, be it at the level of the segmental tier, the syllable tier or the skeletal tier, or in the association of these three tiers, there are necessarily adjustments in the phonological structure of the language to redress this anomaly.

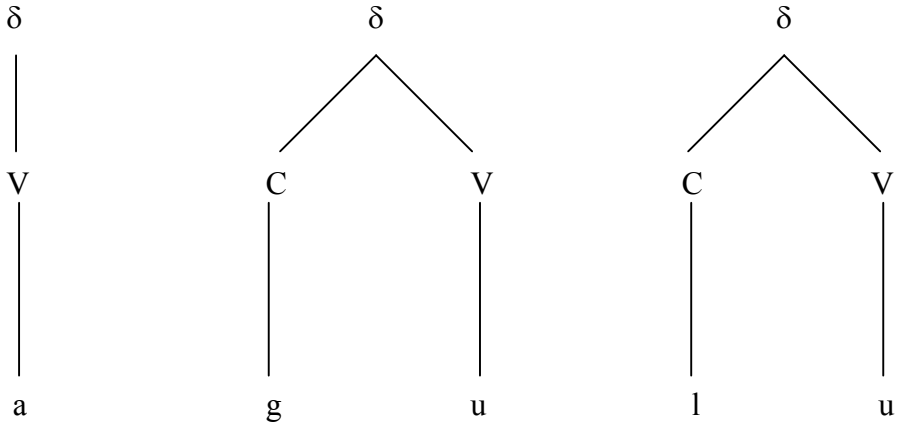
4.1.0. Segmental Associations in Dholuo Syllable Structure

4.1.1. The unmarked associations

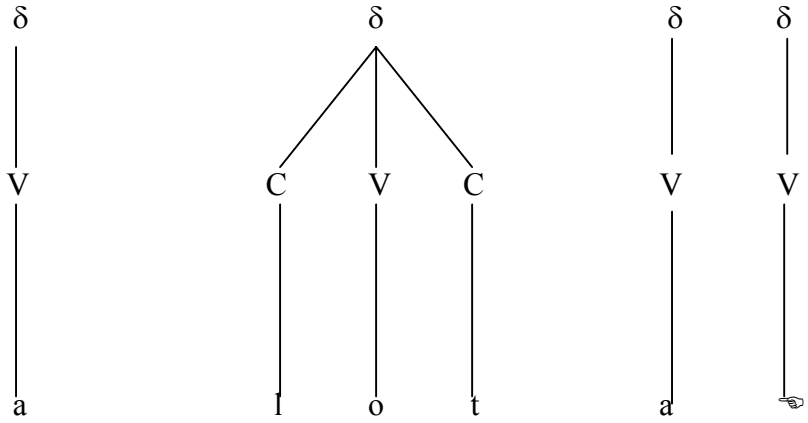
As already stated earlier, Dholuo has the canonical syllable structure of CV, V, CVC and VC syllable types. The syllable therefore may dominate a single vowel, a combination of a consonant and a vowel, a consonant followed by a vowel and then another consonant, or a vowel plus a consonant. I will restate below the syllable structure of the language as shown in section 2.7

The Dholuo Syllable structure

123).



[agulu] ‘pot’.



[alot] ‘vegetable’ [a☜] ‘leave’

These syllable types can be exemplified as shown below:

124 (a) V

[a] ‘a’ leave

[❷] ‘o’ ‘to pour’

[☜] ‘e’ ‘in’

(b) CV

[l☜] ‘le’ ‘axe’

[le] ‘le’ ‘animal’

[ti] ‘ti’ ‘grow’

[k❷] ‘ko’ ‘guard’

[ᗒ❷] ‘tho’ ‘death’

[ᗒo] ‘tho’ ‘dew’

[p☜] ‘pe’ ‘hailstone’

(c) CVC

[k❷ᗒ] ‘koth’ ‘rain’

[ᗒ✝ᗒ] ‘thuth’ ‘weevil’

[lak] ‘lak’ ‘teeth’

[bur] ‘bur’ ‘hole’

[rem] ‘rem’ ‘pain’

[bul] ‘bul’ ‘drum’

[kul] ‘kul’ ‘cattle shed’

(d) VC

[❷t] ‘ot’ ‘house’

[em] ‘em’ ‘thigh’

[it] ‘it’ ‘ear’

[um] ‘um’ ‘nose’

[an] ‘an’ ‘me’

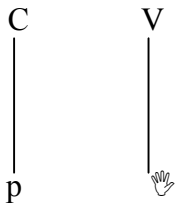
[el] ‘el’ ‘open’

(e) VV

[a☜] ‘ae’ ‘leave’

At the skeletal level, all associations are unmarked in that a C-element always dominates a consonant, and a V-element always dominates a vowel, as shown below:

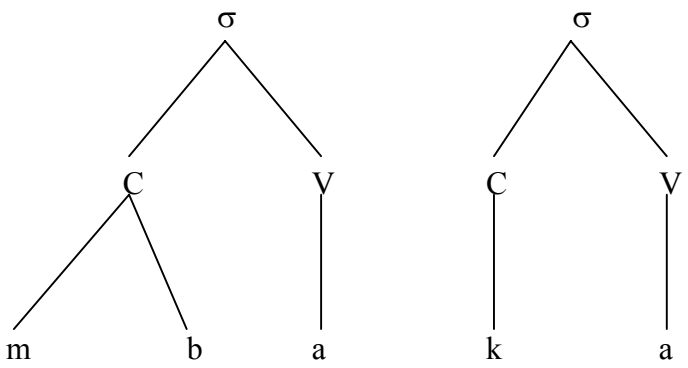
125).



[p] 'water'

Although the language lacks consonant clusters in the core syllable inventory, a limited number of clusters do occur in certain representations, typically containing glides and prenasalized consonants. This means that the core syllable can be slightly expanded by allowing a branching C slot which dominates a complex segment in the shape of a prenasalized consonant or labialised and palatalised consonants. The two elements of the prenasalised consonant must agree in place of articulation and voicing and operate as a unit phoneme in the language, as shown below:

126).



[mbaka] 'conversation'

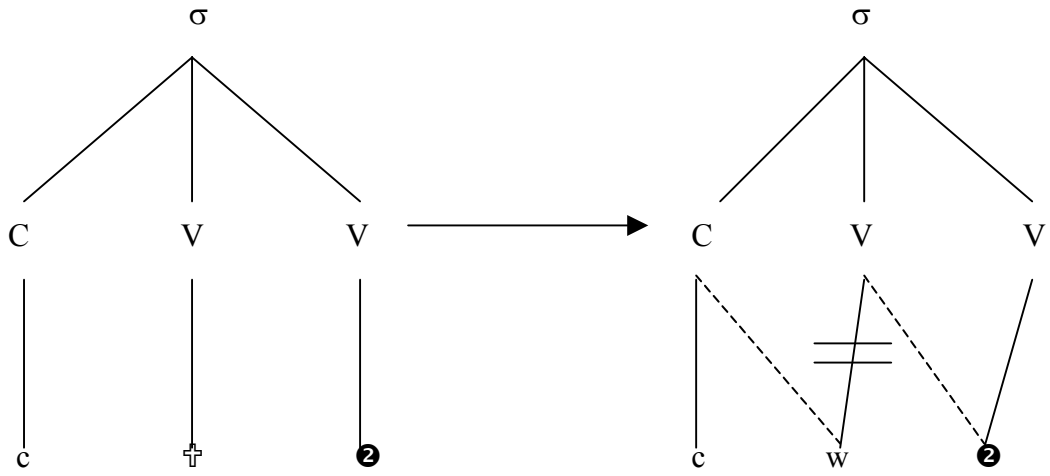
Most glides in the language are derived from underlying vowels, dominated by a V node. But during derivation, a glide formation rule applies, which delinks them from the V node and then associates them with the C node to the left. The vacant V is then hooked to the following vowel. Thus the compensatory lengthening that accompanies glide formation (Clements 1986) is accounted for. This can be seen in the following examples:

127). English Dholuo

dwaro	‘to desire’
cwako	‘to boil’
↘wando	‘to muddle’
☠gw☜l❷ (wuoth)	‘to walk in style’
miel ~ myel	‘dance’
mier ~ myer	‘villages’

The rule for deriving glides in the language can be seen diagrammatically below :

128).



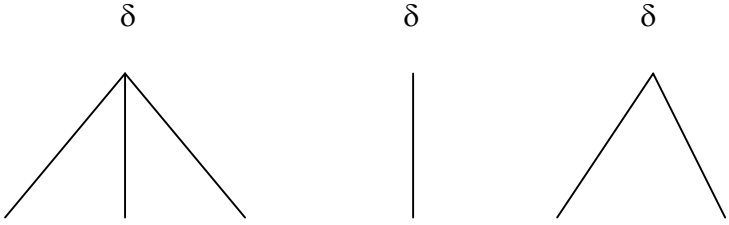
[cw❷] ’chwo’ men.

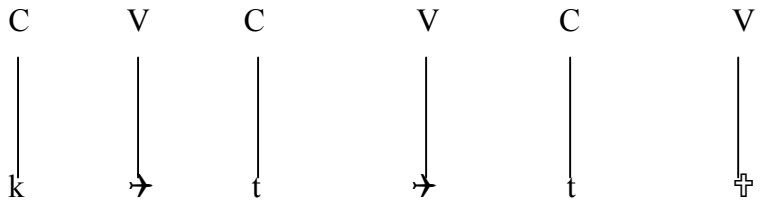
This language, therefore, does not allow consonant sequences at the syllable level. Thus C is the maximum permissible C-element in the onset and coda positions in the syllable, and a single V is also the maximum permissible V-element in the syllable nucleus, although a sequence of two vowels is acceptable in the language.

English, on the other hand, has the following syllable structure:

English Syllable Structure

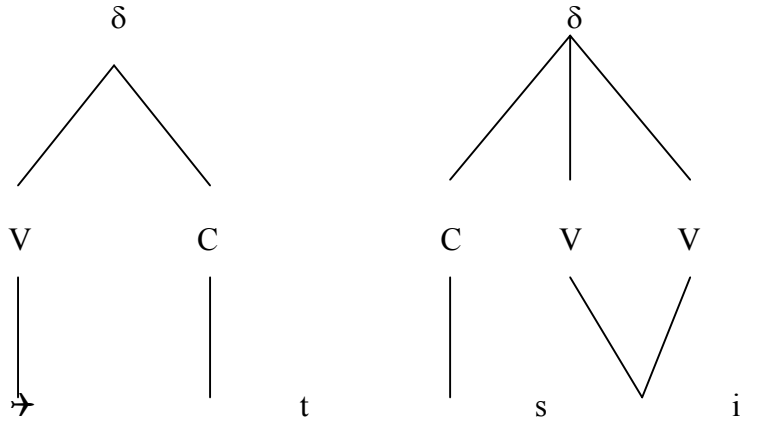
129a).





[k✈t] ‘cat’ [✈] ‘a’ [t ✞] ‘to’

129b).



[✈t] ‘at’ [si:] ‘see’

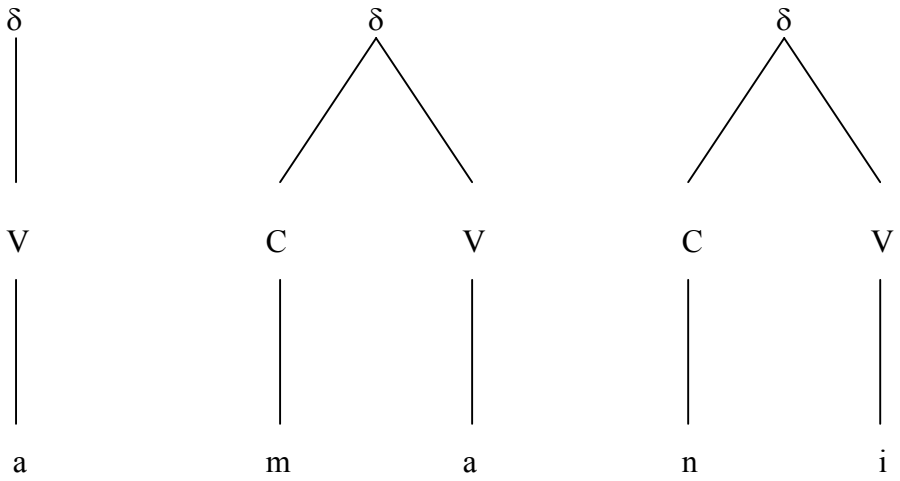
(Adopted from Katamba & Rottland 1987)

English further allows the possibility of increasing the structures above: there may be up to three consonants in syllable initial position and final positions, e.g. **scraped**, **texts** and **glimpsed**. However, as Halle and Vergnaud (1981) have pointed out, any consonants after the first two following the vowel can be treated as extrasyllabic consonants. This means that such marginal segments are not dominated by a syllable node underlyingly.

Swahili has the syllable structure shown below:

Swahili Syllable Structure

130).



[amani] 'peace' (Adopted from Batibo 1994)

As can be seen from the diagrams above, the syllable structures of the three languages have salient similarities and differences which have implications for borrowing, as will be seen in the next section.

The representation of the Dholuo syllable structure shown earlier has the following implications for markedness.

- Given that there are no consonant clusters either at the syllable onset or coda positions in Dholuo, any CC sequences in the language will be considered as marked.
- Since V is usually the nucleus of the syllable, only a [-cons] (and by implication a vocalic segment) will be dominated by a V- element. In situations where a V element dominates a [+cons] or [- voc] segment, or where a C-element dominates a V-segment, this will be considered as marked.
- Only a single, short vowel will be associated with a V-element at the skeletal tier. Any occurrence of two qualitatively different vowels (diphthongs or vowel sequences) within the same syllable will be regarded as a marked case.
- Since the maximum number of V-elements in one syllable is one, any cases of more than one V-element being associated with one syllable will be considered as a marked sequence.

4.1.2. Marked Associations and Sequences

In this section, I attempt a discussion on some of the marked cases mentioned above together with the adjustment or resyllabification rules they call for.

4.1.2.1. Association of a V-element to a C-segment.

There are few cases of this type of marked association where a V-element dominates a [+cons] segment. The few occurrences of this marked association are in loanwords coming into the language from Swahili. Swahili, as noted earlier, allows syllabic consonants in some formatives, mainly the bilabial nasal [m]. Examples of such Swahili words are **mpira** 'ball' and **mnazi** 'coconut'. The only way to explain the syllabic nature of the nasal component is to assume that the nasal is linked underlyingly to a V-element.

But this means that such kind of associations violate one of the conditions stated above, which stipulates that only a C-element may dominate a consonant segment. It will therefore trigger adjustment rules to redress this situation.

4.1.2.2. The marked occurrence of consonant clusters

The occurrence of consonant clusters is one of the most common cases of markedness in Dholuo loans. It is very common with loanwords originating from English, since Swahili does not have consonant clusters. This is seen in English words such as *marks, picture, inspection.*

When such words with consonant clusters enter the language, they violate one of the conditions above, which does not allow the occurrence of consonant clusters either at syllable onset or coda positions. These clusters in loanwords will therefore trigger adjustment rules to redress the markedness situation, depending on the degree of bilingualism of the speaker, the stylistic domain in which the word is used, and the type of cluster (i.e. whether the cluster forms an unmarked sequence according to universal parameters (Cairns & Feinstein 1982:198).

4.2.0. Syllable Structure Nativization.

Since Dholuo allows only the syllable types mentioned above in its core syllable structure, how are complex foreign syllables modified? One would not assume here the existence of a specific set of rules which have the special function of modifying incoming loanwords. It is the syllable structure rules that are at the heart of Dholuo phonology that are required to handle unacceptable syllable structures. As Katamba and Rottland (1987) argue, syllable structure rules function as a filter placed at the entry of the phonological component. They filter out or adjust putative loans in several ways. There is therefore hardly any special treatment of loanwords as far as the syllable structure is concerned.

Since CVC is the optimum syllable structure, sequences of CC or VV in a syllable which bring about complex onset/coda or nucleus must be simplified so that the optimum syllable, or an approximation of it, is obtained. The language therefore applies a filtering process whose naturalness has to be viewed in terms of maximising the optimum syllable structure. This filtering process results in modifications of the incoming loans in a number of ways, including extrasyllabic consonant deletion, vowel and consonant epenthesis, vowel coalescence and homorganic nasal assimilation.

4.2.1. The Extra-syllabic consonants

As stated earlier, the syllable onset and coda positions in Dholuo may be filled by a maximum of one C element. As such, consonant clusters are not permissible sequences in the language. The extra-consonants occurring within syllable onsets or coda, are considered extra-syllabic, after Halle and Vergnaud (1980), and Clements and Keyser (1983), who have argued that any consonants after the one bordering the syllable peak can be considered as extra-syllabic. This means that such segments are not underlyingly dominated by a syllable node.

Since Dholuo does not have consonant clusters within its core syllable structure, the loanwords coming into the language with extra-syllabic consonants end up being resyllabified by the native structure, leaving behind a residue of marginal consonants not assigned to any

syllable because they have no vowels immediately preceding or following them. Examples of such extra-syllabic consonants are shown below:

131).	English	Dholuo
	[✋nspek♦★n] ‘inspection’	[pekisen]
	[skru:] ‘screw’	[sikuru]
	[spr✋☠] ‘spring’	[sipiri☠]
	[p✍☠t♦★] ’puncture’	[pa☠ca]
	[f✈kt★ri] ‘factory’	[fakitori]
	[k★nd✍kt★] ,conductor’	[k❷ndak✋ta]
	[sek♦★n] ‘section’	[sekisen]
	[✈ks✋d★nt] ’accident’	[ak✋s✋d☜nd]
	[t✈☠k] ’tank’	[ta☠gi]
	[bl①k] ’block’	[b✋l❷k]
	[st①k] ’stock’	[s✋t❷k]
	[bent♦] ‘bench’	[b☜⇘⇦]
	[★dres] ‘address’	[adires]

The extrasyllabic consonants will therefore have to be resyllabified in order to redress this marked situation. If this is not done, the string will violate the constraints on core syllables in Dholuo.

There are several ways in which the language resyllabifies extra-syllabic consonant clusters in loanwords:

- by an epenthetic vowel insertion,
- deletion of the marginal consonants,
- addition of a final vowel,
- in some cases, consonant clusters may be tolerated.

4.2.2. The epenthetic vowel insertion

The phonological process of epenthetic vowel insertion acts to bring underlying forms into conformity with restrictions on possible surface syllable structures. When a loanword contains consonants which cannot be analysed as grouping into sequences of acceptable syllables in the language, epenthesis applies to create permitted syllables. It therefore acts in order to maintain the desired syllable structure. The vowels normally preferred by the language for this process are the high vowels [i] and [u]. Below are some examples of epenthetic vowel insertion:

132). Epenthetic [i] insertion

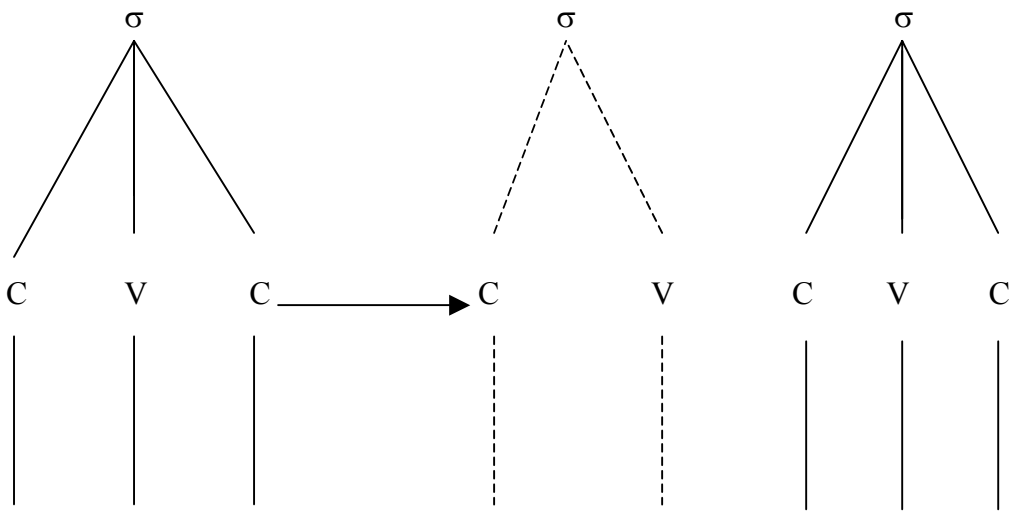
English	Dholuo
[skit] 'skit'	[sikit]
[b①ks] 'box'	[b❷k✋s✋]
[skru:] 'screw'	[sikuru]
[★dres] 'address'	[adires]
[d✋gri:] 'degree'	[digiri]
[b✈t★ri] 'battery'	[betiri]
[st✈mp] 'stamp'	[sitamb]
[spi:k★] 'speaker'	[sipika]
[b①tl] 'bottle'	[b❷t✋l❷]
[gl★✞b] 'globe'	[gilop]
[h①sp✋tl] 'hospital'	[osipital]
[kl✍t⧫] 'clutch'	[kilac]
[ska✞t] 'scout'	[sikaot]
[sk⍉:t] 'skirt'	[sikat]
[sma:t] 'smart'	[simat]
[ste✋⧫★n] 'station'	[sitesen]
[st①k] 'stock'	[s✋t❷k]
[sta✋l] 'style'	[sitael]
[st❷:] 'store'	[sito]

133). Epenthetic [u] insertion:

English	Dholuo
[blu:] 'blue'	[mbulu]
[bl①k] 'block'	[bul❷k]
[bl✈d★] 'bladder'	[bulada]
[bla✞z] 'blouse'	[bulaos]
[k✈pt✋n] 'captain'	[kaputen]
[k❷:p★r★l] 'corporal'	[k❷b✞l❷]
[d✋pl★✞m★] 'diploma'	[dipuloma]
[s★pra:n★✞] 'soprano'	[supurano]

The epenthetic vowel insertion rule can be schematized as shown below:

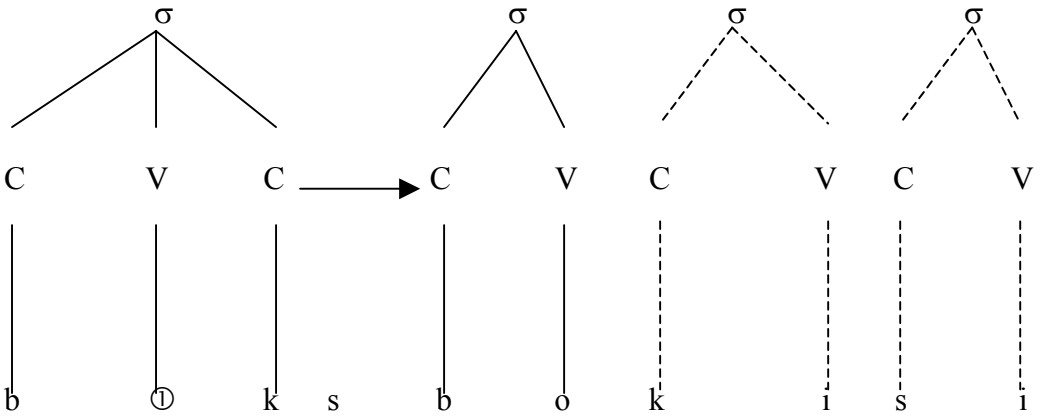
134). Epenthetic vowel insertion.



s k i t s i k i t

[skit] ‘skit’ [sikit] ‘sikit’

135).



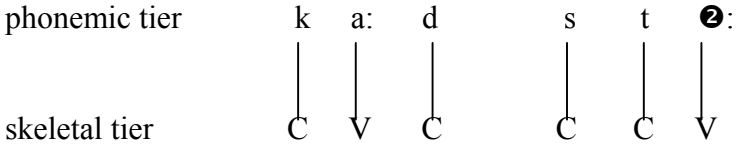
[b①ks] ‘box’ [bokisi] ‘bokisi’

It is apparent that when native speakers are confronted with loanwords from English, there is a total syllabification process. The regular syllable structure is imposed on all loans. If no segment is available for an obligatory skeletal position, the structure is built anyway, modelled on the optimal syllable. This approach is both natural and direct in its application.

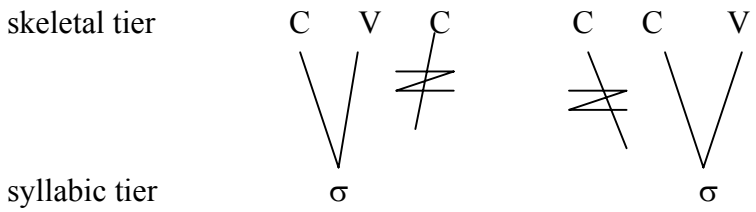
The primary phonotactic adaptation incorporates two processes: syllabification and skeletal modification. This is seen here as applied simultaneously:

136)

a). Underlying representation



b). Syllabification:



A language particular syllabification principle links a V to the preceding C, and a C to the following V. The application of this principle results in unlinked Cs, which is inadmissible in this language. In order to correct the inadmissible structure, a V unit is inserted as part of the skeletal modification, as seen in (134) & (135) above.

The vowel epenthesis is interpreted as a language specific solution to unsyllabifiable wordforms. The epenthetic vowel functions to fill an empty skeletal position. The notion of an empty position derives from the obligatory nature of the V rhyme in the syllable structure conditions (SSC) of Dholuo. Thus vowel epenthesis functions as a strategy for the preferred structure preservation.

On the whole, the fundamental significance of vowel epenthesis can be found in the fact that specifiable phonetic features motivate the insertion of particular vowels. A motivated association implies the existence of a strong phonetic correlation of properties of certain vowels and those of particular classes of consonants in Dholuo. Thus [u] inserted after labials leads to the conclusion that [u] and labials share perceptual correlates to the extent that [u] can be perceived to be a labial vowel. The plausibility of this is found in the fact that [u] shares a phonetic affinity with the labiovelar glide.

The vowel [i] associates with the rest of the consonants. This manifest flexibility of [i] is attributed to an approximate palatal position (see Fromkin 1985:86-88). In this position, [i] is centrally placed to diffuse forwards and backwards, linking to tongue stricture consonants.

Furthermore, the choice of [i] as the other epenthetic vowel by the language is not arbitrary. The default epenthetic vowel in Dholuo is [+ high], and acquires a value for the feature labial from the preceding consonant. If the neighbouring (spreading) consonant is not labial, then the accompanying epenthetic vowel is [i].

4.2.3. Insertion of final vowel

Although the syllable structures of both English and Dholuo are similar in that they allow for closed syllables, Dholuo sometimes adds a final epenthetic vowel to some loanwords coming into the language having closed syllables. This is especially observed where such loanwords are monosyllabic. The motivation for this is the maintenance of the preferred Dholuo word shape of CVCV.

When the final vowel is added to such loanwords, the following pattern is observed:

The bilabial high vowel [u] will be added after labial consonants, as seen in the following examples:

137).

English	Dholuo
[kl✍b] 'club'	[kilabu]
[ti:m] 'team'	[timu]
[pa✋p] 'pipe'	[paipu]
[m✈p] 'map'	[mapu]

The final [u] insertion, however, is not as clearly productive in the standard (South Nyanza) dialect as it is in the Trans-Yala dialect. However, it can be heard clearly in the standard dialect in slow speech. On the other hand, it is very productive when it comes to epenthetic labial vowel insertion.

The front, high non-labial [i] will be added after [-back], [-labial] consonants, as seen in the following examples:

138).

English	Dholuo
[t✋k✋t] 'ticket'	[tikiti]
[ja:d] 'yard'	[jadi]
[b★✞lt] 'bolt'	[boliti]
[b✈☠k] 'bank'	[be☠gi]
[✋☠k] 'ink'	[i☠gi]

[ka:d] ‘card’	[kadi]
[k❷:t] ‘court’	[kot]
[l★✞d] ‘load’	[lodi]
[b✈dC⋆] ‘badge’	[ba⇦i]

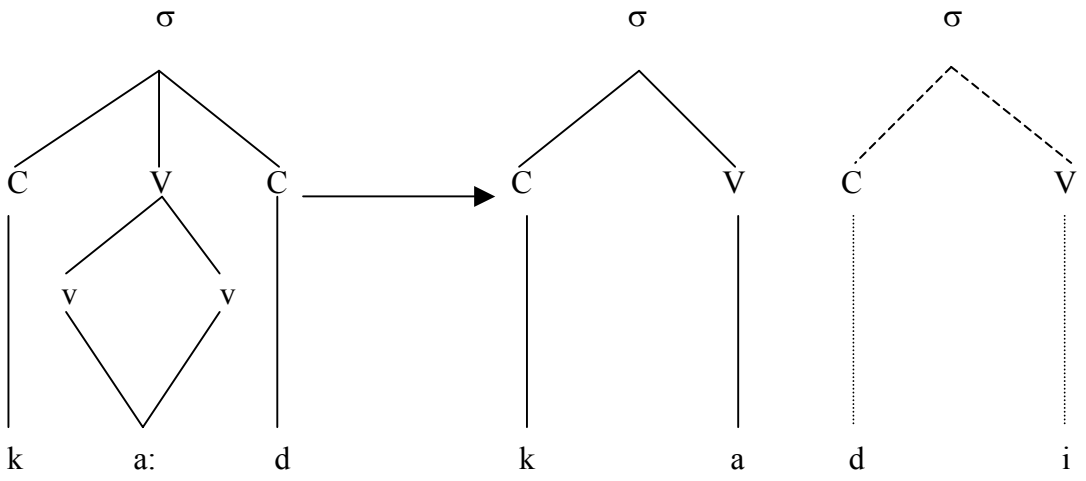
An exception to the first rule of final vowel epenthesis is where the back vowel [a] is added after non-back, non-labials, e.g.

139). [p★✞st] ‘post’ [posita]

The path of borrowing for this loanword seems to be different. It was initially a portuguese loanword borrowed into Swahili as *'posta'*, from where it was borrowed into Dholuo, where it retained the final vowel [a].

The final vowel epenthetic rule can be diagrammatically shown as follows:

140). Final vowel epenthesis rule.



The following rules are proposed for the final epenthetic vowel addition in Dholuo:

141).

(a) $\varnothing \longrightarrow V \;/\; C\_\_\_\_\_\#$, i.e. [u] insertion.

$$\begin{bmatrix} +\text{high} \\ +\text{back} \\ +\text{labial} \end{bmatrix}$$

(b) $\varnothing \longrightarrow V \;/\; C\_\_\_\_\_\#$, i.e. [i] insertion.

$$\begin{bmatrix} +\text{ high} \\ -\text{ back} \\ -\text{ labial} \end{bmatrix}$$

The choice of [i] and [u] as the default epenthetic vowels is not arbitrary. Borrowing from underspecification theory (Pulleyblank (1983), Katamba & Rottland (1987)), it is suggested here that epenthetic vowels in Dholuo are underspecified, being only assigned the feature [+high]. The labial specification on the final consonant then spreads onto the final epenthetic vowel. Redundancy rules in the language will then assign the particular segments: a high, labial vowel in Dholuo has to be [u], while a high, non-labial vowel is none back, that is [i].

4.2.4. Extra Syllabic Consonant Deletion Rule

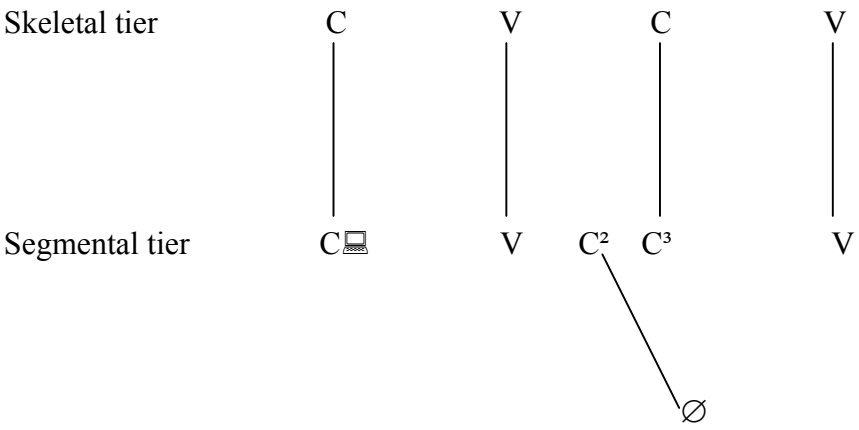
Sometimes loanwords coming into the language introduce unacceptable consonant clusters which would then be considered as marked by the native system. The language then applies this rule to such loanwords to make such unacceptable structures conform to the native system. The rule is also favoured where the use of other methods, for example epenthetic vowel insertion, would result in undesirably long structures.

The extrasyllabic consonant deletion rule can be seen in the following examples:

142).

English	Dholuo
[✋nspek♦★n] ‘inspection’	[pekisen]
[s★✞ld☪★] ‘soldier’	[so⇦a]

143). Extra-syllabic consonant deletion rule:



In the above rule, C^2 is considered extrasyllabic since it is not dominated by any node within the skeletal tier, so it is deleted. English, as already stated, allows extrasyllabic consonants within its syllable structure.

4.2.5. Homorganic Nasal Assimilation.

As stated earlier, the Dholuo syllable structure can be further enriched by allowing combinations of nasal and consonant within the syllable onset or coda. Prenasalization can be regarded as a case of a [nasal] archisegment, **N**, unspecified for place of articulation and receiving its specification from the accompanying obstruent by spreading of the place node. Since the nasal is unspecified for place of articulation, the archisegment is written with a capital **N** in the underlying representation. It receives its feature specification by spreading from the stop. The two elements of the prenasalized stops must agree for the feature [voice] and their points of articulation must also be the same.

Any sequences of prenasalized segments coming into the language must therefore agree in place of articulation and voicing. A violation of this rule would be considered marked, and would trigger adjustment rules to produce native-like forms. This is the homorganic nasal assimilation rule. As with other assimilation rules, this rule must modify underlying segments so that they are made similar to the other phonological elements in their environment in order

to facilitate articulation. The homorganic nasal assimilation rule is one rule that is very productive in the language, with no cases of tolerated consonant sequences violating this rule.

The following loanwords with none homorganic cases of prenasalization have therefore been integrated in the following manner:

144).

English	Dholuo
[k✍mp★ni] 'company'	[kambi]
[k①nkri:t] 'concrete'	[ko☠giret]
[t✈☠k] 'tank'	[ta☠gi]
[b✈☠k] 'bank'	[be☠gi]
[✋nt♦] 'inch'	[i⇘⇦i]
[✋☠k] 'ink'	[i☠gi]
[bent♦] 'bench'	[b☜⇘⇦]
[st✈mp] 'stamp'	[sitamb]
[bl✈☠k✋t] 'blanket'	[bara☠get]
[t♦umvi] chumvi 'salt' Swa.	[cumbi]
[sent] 'cent'	[sendi]
[h✈☠k★t♦✋f] 'handkerchief'	[a☠gacif]

Using the devices of generative phonology, this process can be formalised as follows:

145).

$$C \\ [\text{nasal}] \longrightarrow \begin{bmatrix} \alpha \text{ anterior} \\ \beta \text{ coronal} \\ \text{↳ back} \end{bmatrix} \Big/ \_\_\_\_ \begin{bmatrix} \alpha \text{ anterior} \\ \beta \text{ coronal} \\ \text{↳ back} \end{bmatrix}$$

There is a tendency to apply the rule more productively in the cases of loanwords from English, while the language tends to eliminate the consonant clusters in Swahili loanwords. These clusters normally consist of the nasal and a consonant. Often the nasal is a class marker, usually denoting class 3, the **m/mi-** class of some objects. When such Swahili loans get fully nativized in Dholuo, the deleted nasal (the person or object marker) is often replaced by o-, which is the Dholuo prefix for designating non-human objects. This can be seen in some of the examples in (146) below:

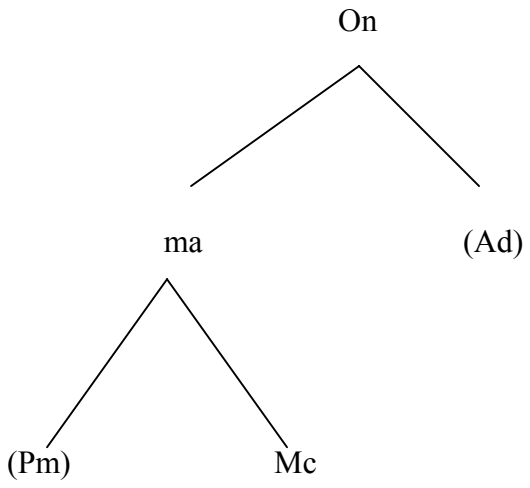
146).

Swahili	Dholuo
[mpira] 'ball'	[opira]
[mt♦ele] 'rice'	[ocele]
[m♦ahara] 'salary'	[osara]
[mnazi] 'coconut'	[nas]
[m♦enzi] 'uncouth'	[s☜n☟✋]
[mdC⋆i☠ga] 'stupid person'	[dC⋆i☠ga]
[m↘apara] 'foreman'	[↘apara]
[mferedC⋆i] 'water tap'	[feredC⋆i]
[mfarisajo] 'pharisee'	[farisajo]
[mbao] 'timber'	[bao]

4.2.6. Consonant clusters accommodated by the native system

Cairns and Feinstein (1982:200) have posited that the syllable onset could be structured as shown below, where it dominates a margin (Ma) that can be optionally followed by an adjunct (Ad). The onset margin dominates the margin core (Mc) which, in turn, may be optionally preceded by a pre-margin. This can be seen in the following diagram:

147). The onset structure



(Cairns & Feinstein (1982:200)).

The most unmarked margin cores, according to implicational universals (Greenberg, 1966, Cairns, 1969), are the stop consonants and the most unmarked premargins are nasals and the voiceless fricative [s]. The most unmarked adjunct segments are the sonorant consonants, especially glides and liquids. Clusters that are likely to be accommodated in loanwords in a language are therefore those that correspond to universally unmarked onset clusters, e.g.

148).

- mb, nd, nj, ng
- sp, st, sk
- pw, tw, kw, py, ty, ky
- pr, tr, kr, pl, tl, kl,

In that order.

However, the first series of consonant clusters, the prenasalized consonants, exist in the language, with the only rule in the system being that the two segments must agree in voicing and place of articulation. The third series of clusters, the instances of labialization and palatalization, also exist in the language, where they operate as single units and often alternate with the high vowels.

The above examples of universally unmarked consonant clusters explain why Dholuo has retained some consonant clusters (second and fourth series) although it is generally sensitive to such clusters.

The few cases of consonant sequences being accommodated in the language may be due to one of the following factors: the level of bilingualism of the speaker, his attitude towards the source language, and the stylistic environment. Often a speaker with little access to the source language may produce structures more closer to the native language system than the speaker more exposed to the SL. And if he considers that the proper articulation of SL forms may improve his social standing, then he will produce structures closer to the source language forms. The same is also true when the source language enjoys prestige status among the target language community.

The following are examples of some of the tolerated consonant structures found in the language. Often they have more native-like variants among the speakers, as shown in the examples below. The tolerated consonant clusters may fall in the following groups:

(a) Obstruent followed by liquid
(b) [s] preceded or followed by a voiceless stop.
(c) Nasal followed by [s]

These groups coincide with the sequences universally accepted as cases of unmarked consonant clusters:

149 (a)	English	Dholuo
	[b①tl] 'bottle'	[b❷tl❷]
	[b✈t★ri] 'battery'	[betri]
	[kr✋sm★s] 'christmas'	[krismas]
	[sp✋r✋t] 'spirit'	[siprit]
	[kl✋n✋k] 'clinic'	[klinik]
(b)	[ma:ks] 'marks'	[maksi]
	[p★✞st] 'post'	[posta]
	[✋nspek◆★n] 'inspection'	[peksen]
	[h①sp✋t★l] 'hospital'	[osiptal]
	[pl✈st✋k] 'plastic'	[pilastik]
(c)		
	[★ten◆★n] 'attention'	[atenson]
	[hel✋k①pt★] 'helicopter'	[elekopta]
	[k★nd☙kt★] 'conductor'	[k❷ndakta]
	[sa:d☪★nt] 'sergeant'	[sajni]
	[t✋k✋t] 'ticket'	[tikti]

The second group of words in (c) above represent the speech of some bilingual speakers who insist in maintaining forms as close to the source language as possible.

4.3.0. Integration of vowel sequences

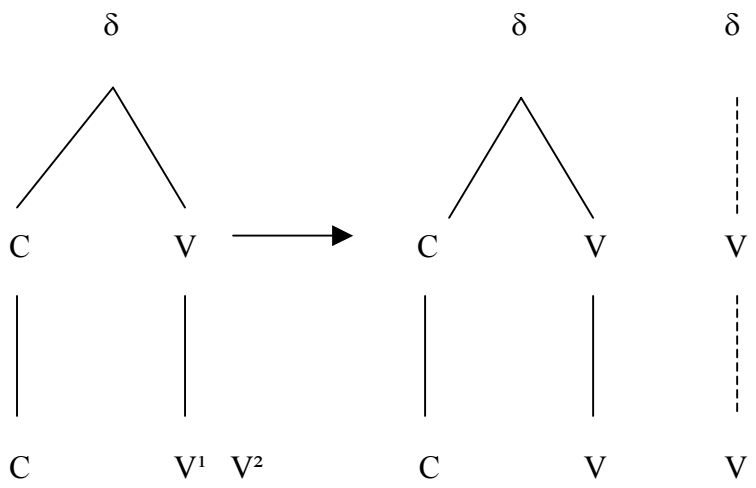
Although the phoneme system of Dholuo includes vowel sequences, their exact nature is not very clear. They do not behave exactly like diphthongs (the second element often is deleted in word boundaries, leaving the first element intact), nor do the native speakers make a distinction between vowel-vowel and vowel-glide sequences.

However, when vocalic sequences come into the language through loanwords, they may either be resyllabified, or modified, or the whole complex may be coalesced into a single vowel.

One of the processes of integrating vocalic sequences is resyllabification. In resyllabification, the strategy is to allocate each of the constituent vowel segments to separate syllables. Thus each segment would be dominated by different syllable nucleus V-elements. Each V-element, in turn, is dominated by a separate syllable node. When the incoming loanwords contain a diphthong, then the two vowel segments are separated so that the satellite vowel forms its own syllable, becoming a fully independent vowel capable of taking its own tone, as seen below:

4.3.1. Dholuo resyllabification rule 1

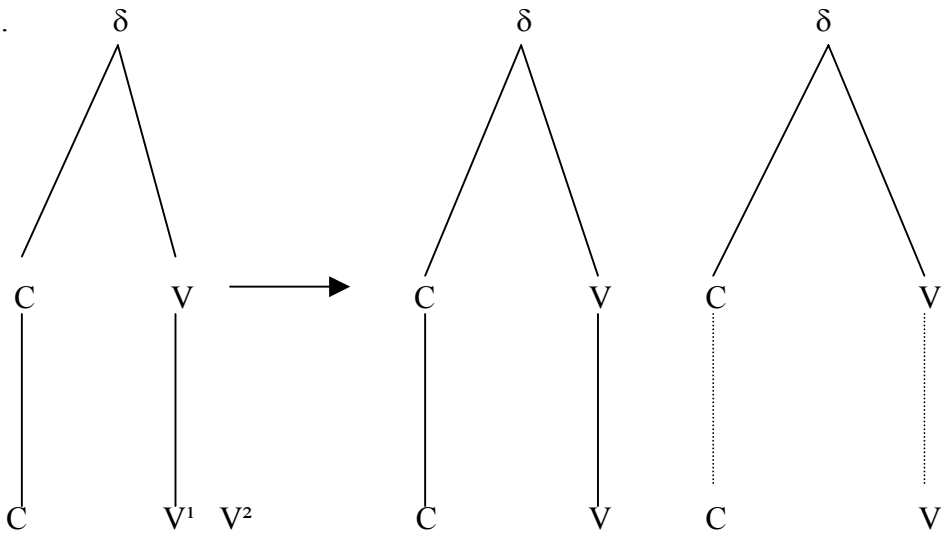
150).



Another resyllabification strategy the language employs is to create a consonant and then attach it to the left of V^2 and to the same syllable node, ending up with a CV syllable. The epenthetic consonant inserted functions as onset to the second syllable. In this case, it is usually the semi-vowels [j,w] which act as epenthetic consonants. This can be seen below:

4.3.2. Dholuo resyllabification rule 2

151).



In this case therefore, a monosyllabic loanword like "*dear*" gets resyllabified in the language as *dia* or *diya*, ending up as a disyllabic word. This glide insertion rule can be formalised as follows:

152). Dholuo glide insertion rule

$$\begin{bmatrix} -\text{ syll} \\ -\text{ cons} \end{bmatrix} / \begin{bmatrix} +\text{ syll} \end{bmatrix}$$

Ø ⟶ α round α round _____ [+ syll]

4.3.3. Extrasyllabic vowel deletion

There are instances when the language deletes the extrasyllabic vowels that come with the loanwords. This is common especially in the case of triphthongs and diphthongs where the extra-syllabic vowel, if integrated in any other way, may result in longer or unacceptable sequences in the language. In this case, the deleted vowel is often the marginal one, such as the satellites in the diphthongs. When the marginal vowel is deleted, what remains is often a monophthong, thus allowing the language to retain the preferred syllable structure. This is seen in the following examples:

153).

English	Dholuo
[b❷✋l★] 'boiler'	[b❷la]
[ge✋t] 'gate'	[get]
[t♦eindC] 'change'	[ce⇘⇦]
[me✋d] 'maid'	[med]
[p★re✋d] 'parade'	[pared]
[ke✋s] 'case'	[kes]

This rule also applies where the incoming loans have long vowels. Although in English the V-node can dominate a long vocalic segment, this is not acceptable within the Dholuo system, since the V-node can only dominate a single, short vowel within the syllable structure. The long vowel is therefore often deleted so as to attain the acceptable syllable structure, as in the following examples:

154).

English	Dholuo
[t♦i:f] 'chief'	[cif]
[m★♦i:n] 'machine'	[masin]
[♦i:t] 'sheet'	[sit]
[b❷:d★] 'border'	[b❷da]
[r✋k❷:d] 'record'	[r☜k❷d]

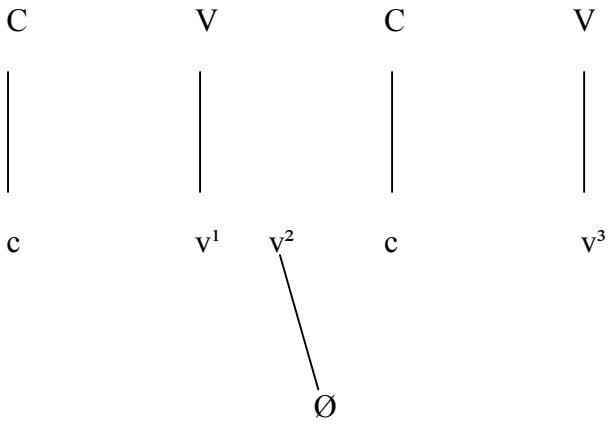
[k❷r★s] 'chorus' [k❷ras]

[t❷: t♦] 'torch' [t❷c]

[k★✞t] 'coat' [koti]

The extra-syllabic vowel deletion rule in Dholuo can be formalized as shown below:

4.3.4. Extrasyllabic vowel deletion rule:



In the above rule, the marginal vowel v^2 is ignored by the templatic structure. It is therefore considered extra-syllabic and thus deleted. v^1 therefore remains as the only nucleus within the syllable, thus attaining the preferred syllable structure.

4.3.5. Vowel coalescence

One of the strategies that the language uses to adapt the incoming unacceptable vocalic sequences is to coalesce them so as to form the acceptable monophthongal structure. Vowel coalescence usually involves the collapsing of the two vowels into a single vowel with intermediate quality, as shown in the following examples:

155). English Dholuo

[k★✞t] 'coat' [koti]

[st★✞v] 'stove' [sitof]
[j★✞k] 'yoke' [⇦ok]
[g★✞l] 'goal' [gol]
[gl★✞b] 'globe' [gilop]
[h★✞tel] 'hotel' [otel]
[b★✞lt] 'bolt' [boliti]
[s★✞ldC★] 'soldier' [so⇦a]
[n★✞t] 'note' [not]
[re✋di✞★] 'radio' [redio]

The coalescence rule is not very productive in the language. It only applies to some forms and fails to apply to the examples below although its structural description is satisfied, e.g.

156). English Dholuo
[bla✞z] 'blouse' [bilaos]
[ska✞t] 'scout' [sikaot]
[ga✞n] 'gown' [gaon]

4.3.6. Vowel sequence nativization through reduction of vowel length

As earlier indicated, the nucleus position within the Dholuo syllable can be occupied by a maximum of one short vowel. In other words, the language does not allow long vowels in its syllable structure, unlike the English syllable, which may contain long vowels as syllable nuclei. When loanwords enter the language with long vowels, they are systematically deleted by the native system. This can be seen in the following loanwords:

157). English Dholuo
[b❷:d★] 'border' [b❷da]
[t❷: t♦] 'torch' [t❷c]
[k❷:r★s] 'chorus' [k❷ras]
[r✋k❷:d] 'record' [r☜k❷d]
[k❷:p★r★l] 'corporal' [k❷b✞l❷]
[bl✈kb❷:d] 'blackboard' [bilakib❷d]

[gri:s] ‘grease’	[giris]
[t♦i:f] ‘chief’	[cif]
[spi:k★] ‘speaker’	[sipika]
[♦i:t] ‘sheet’	[sit]
[m★♦i:n] ’machine’	[masin]
[d✋gri:] ’degree’	[digiri]
[g✈r★nti:] ‘guarantee’	[garanti]
[★mi:b★] ‘amoeba’	[am✋ba]
[di:z★l] ‘diesel’	[d✋s☜l]
[g✈ra:☪] ‘garage’	[garac]
[gla:s] ‘glass’	[gilas]
[ka:d] ‘card’	[kadi]
[sma:t] ’smart’	[simat]
[ka:bj✞ret★] ’carburettor’	[kabureta]
[m★✞t★ka:] ‘motorcar’	[m✋t❷ka]
[sk✆:t] ‘skirt’	[sikat]
[♦✆:t] ‘shirt’	[sati]
[r ✋z✆:v] ‘reserve’	[risaf]
[t✆:m] ‘term’	[tam]
[n✆:s] ‘nurse’	[nas]
[skru:] ‘screw’	[sikuru]
[b★lu:n] ‘balloon’	[balun]
[sku:l] ‘school’	[sikul]
[blu:] ’blue’	[mbulu]
[su:t] ‘suit’	[sut]
[s★lu:t] ‘salute’	[sarut]

As was the case with homorganic nasal assimilation, vowel length reduction through deletion is one of the most productive rules in this language. There are therefore no cases of long vowels being accommodated in loanwords in Dholuo.

4.3.7. Vowel sequence nativization through devocalization

Sometimes the loanwords coming into the language having triphthongs are nativized through devocalization, or the glide formation process. In this process, one of the vowels is devocalised by becoming a glide. It is normally the high vowels [i] and [u]. The glide formation rule causes such high vowels followed by a non-high vowel or a high vowel of opposite value to be non-syllabic. The loss of the moraic value of the devocalised segment will be compensated for by the lengthening of the previous vowel. The resultant glides themselves do not have any moraic value, and so must be considered as dominated by a C-element within the syllable structure.

The operation of the gliding rule results in resyllabification, the language thus attaining the acceptable syllable structure, as seen in the following examples:

158).

English	Dholuo
[kwa✋★] 'choir'	[kwaja]
[wa✋★] 'wire'	[waja]
[ha✋★] 'higher'	[haya]
[b✋★] 'beer'	[biya]
[d✋★] 'dear'	[diya]
[taa] 'lamp' (swa)	[taya]

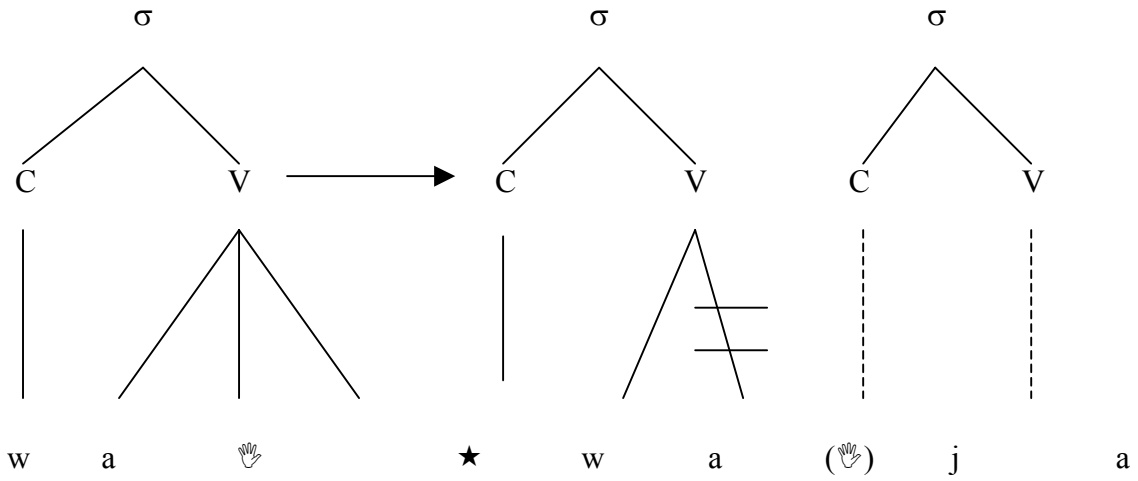
The Dholuo glide formation rule, formulated in Omondi (1982), is restated below:

159). Dholuo glide formation rule.

$$\begin{bmatrix} +\text{syll} \\ +\text{high} \\ \alpha\text{ back} \end{bmatrix} \longrightarrow [-\text{syll}] / \_\_\_\_ \left\{ \begin{bmatrix} \text{V} \\ -\text{high} \end{bmatrix} \begin{bmatrix} \text{V} \\ +\text{high} \\ -\text{back} \end{bmatrix} \right\}$$

The operation of the glide formation rule in the language normally results in resyllabification, as shown below:

160).



The redrawing of the association lines above express the gliding and resyllabification that takes place when such words are borrowed. Since Dholuo has no sequences of CVVVs, the language has to reinterpret the vowel segments with such complex internal structures in order for them to be accommodated within its syllable templates.

4.3.8. Accommodated vowel sequences

The language, as noted in the previous section, has vowel sequences in its inventory. Loanwords that come into the language with vowel sequences are often tolerated, or the sequences moderated to approximate the native system. There are rare cases of vowel sequences being adopted wholly into the native system without modification.

The vowel sequences that were accommodated in the loanwords were those that have the diphthongs [a] and [a]. This could be because of the extreme degrees of aperture between the constituent segments, and also because they contained the most common vowels in the language.

Below are some examples of the accommodated (but slightly modified) vocalic sequences:

161).	English	Dholuo
	[bla✞z] 'blouse'	[bilaos]
	[ga✞n] 'gown'	[gaon]
	[ska✞t] 'scout'	[sikaot]
	[k①mpa✞nd] 'compound'	[kompaond]
	[fa✋l] 'file'	[fael]
	[sta✋l] 'style'	[sitael]
	[ma✋l] 'mile'	[mael]
	[ta✋] '(long) tie'	[tae]
	[la✋n] 'line'	[laini]
	[fa✋n] 'fine'	[faini]
	[na✋l①n] 'nylon'	[nailon]
	[swa✋n] 'swine'	[suwayini]

All these examples in the above section show that Dholuo applies several phonological processes whose naturalness has to be viewed in terms of maximising the optimum syllable in the language.

A possible conclusion deriving from this section is that, apparently, the native speaker-hearer has knowledge of the possible phonetic sequences in his language and performs the simplest possible adaptation in the loan word to make it correspond to these well-formed sequences. This extends to the insertion or deletion of foreign segments to make a loanword conform to the syllable structure constraints of the native system.

CHAPTER FIVE

5.0. PROSODIC ADAPTATION

Whereas all the instances of borrowing concern addition of phonological elements which fit into gaps in certain patterns at various levels in the phonological system of the target language, there are certain features for which this concept seems inappropriate. Typically, these are prosodic elements such as stress or vowel harmony which distinguish whole words from one another, which are basically of one "fixed" type for any given language (i.e., either you have some degree of harmony or you don't, or your type of contour is fixed to give a sort of "iambic" or some other effect), and as such, do not establish or enter into the kinds of patterns necessary by definition for the existence of a 'gap'.

Furthermore, it is also necessary to consider suprasegmental aspects of nativization into a target language because each language has unique prosodic patterns: stress, vowel harmony, tone e.t.c. Also these prosodies often interact closely with segmental phonology. As Asher and Sympson (1994:385) have correctly pointed out, the most significant recent revisions of the phonological theory have involved the recognition of previously unnoticed syllabic and rhythmical bases for many phonological phenomena.

Prosodic features, as Crystal (1976) argues, are not as rigidly or discretely definable as segmental phonemes, although the criterion for establishing them is similar. The only prosodic features discussed in this section, and which are of some distinctive importance in the languages concerned, are stress, tone and vowel harmony. Features such as pause, tempo, pitch, intonation, loudness, rhythm, tension, although prosodic, are not considered here as they largely are not distinctive in Dholuo, English or Swahili.

In the following section, we examine the various ways in which these prosodies from the source languages are adopted to fit the native prosodic structure of Dholuo.

5.1. Integration of the English stress in Dholuo

Of significance to the notion of stress modification are distinct accentual constraints for the languages of this study. English stress, unlike Swahili, is not fixed. It can be ultimate, penultimate or antepenultimate, depending on the phonetic weight in the word (Hogg & McCully, 1987:75-82; Goldsmith 1990:208-13; Roach 1993). As a rule therefore, the English stress will coincide with high pitch in the words, and is thus variable, falling on any syllable in the word.

When monosyllabic loanwords, which are therefore stressed, come into Dholuo, the language routinely renders them with two syllables, with the tone of the first syllable spreading to the second syllable. This also goes a long way to prove the preference of the CVCV shape of the phonological word. The two syllable word shape is the preferred pattern in the language, seen especially in the verb system, where all verbs, without exception, consist only of two syllables. The primacy of the CVCV word shape, in so far as the phonological structure of Dholuo is concerned, is further inferred from the treatment of the CVC syllable loanwords. Despite being permissible structures in this language, a second syllable is usually added to the loanwords to create the preferred syllable structure.

Below are examples of monosyllabic loans adapted into the language:

162)	English	Dholuo	Tone pattern
	[k✈mp] ‘camp’	[kambi]	LL
	[t✈☠k] ’tank’	[ta☠gi]	LL
	[b✈dC] ‘badge’	[ba⇦i]	LL
	[k★✞t] ‘coat’	[koti]	LL
	[la✋n] ‘line’	[laini]	LL
	[fa✋n] ‘fine’	[faini]	LL
	[ka:d] ‘card’	[kadi]	LL
	[♦ᘎ:t] ‘shirt’	[sati]	LL
	[wa✋★] ’wire’	[waja]	LL
	[b✈☠k] ‘bank’	[be☠gi]	LL
	[✋nt♦] ‘inch’	[i⇘⇦i]	LL

[✋☠k] 'ink'	[i☠gi]	LL
[dC✍g] 'jug'	[⧅⇦age]	LL

The rendering of the monosyllabic loans into the Dholuo LL pattern is predictable since low tone is apparently the natural, 'default' tone in the language.

This pattern is also observed in such monosyllabic loans which have unacceptable CCs or VVs in their structure. Such loans are resyllabified through epenthetic vowels, ending in trisyllabic words, all having low tone. Even the epenthetic vowel assumes the low tone, as seen below:

163).

English	Dholuo	Tone pattern
[skru:] 'screw'	[sikuru]	LLL
[spr✋☠] 'spring'	[sipiri☠]	LLL
[ta✞★l] 'towel'	[tawulo]	LLL
[s①ks] 'socks'	[sokisi]	LLL
[b①ks] 'box'	[bokisi]	LLL

A different pattern, however, is observed where the loanwords with unacceptable syllable structures are rendered in the language as two syllable words. In these cases, an epenthetic vowel is used to resyllabify the loan, and the resultant tonal pattern is LF. This is seen in the following words:

164).

English	Dholuo	Tone Pattern.
[kl✍t♦] 'clutch'	[kilac]	LF
[fre✋m] 'frame'	[f✋r☜m]	LF
[bl①k] 'block'	[bul❷k]	LF
[bla✞z] 'blouse'	[bulaos]	LF
[br✍♦] 'brush'	[biras]	LF

The second syllable actually has high (H) tone, while the first one has low (L) tone. However, the resultant F tones on the second syllable can be considered as the result of spreading of L tone of the first syllable into the second syllable having H. The H tone receives the spreading and is affected by it in the following way:

L.H is realised as L.HL f ì r ê m [` ˥]
b ì r â s [` ˥]

There are a few instances where the monosyllabic shape of some loanwords is retained in the language. When this occurs, the resultant word predictably has a low tone, e.g.

165).	English	Dholuo	Tone pattern
	[k❷:t] 'court'	[kot]	L
	[d✋♦] 'dish'	[dis]	L
	[ge✋t] 'gate'	[get]	L
	[t♦i:f] 'chief'	[cif]	L
	[♦i:t] 'sheet'	[sit]	L
	[b①m] 'bomb'	[mb❷m]	L
	[t♌:m] 'term'	[tam]	L
	[n♌:s] 'nurse'	[nas]	L
	[b✝k] 'book'	[buk]	L
	[me✋d] 'maid'	[med]	L
	[t♦ek] 'cheque'	[c☜k]	L
	[t❷: t♦] 'torch'	[t❷c]	L
	[t♦eindC] 'change'	[ce⇘⇦]	L
	[ke✋k] 'cake'	[k☜k]	L
	[dC✈k] 'jack'	[⇦☜k]	L
	[b✍s] 'bus'	[bas]	L

The motivation for retaining the monosyllabic shape of these loans is not clear. The language, of course, has monosyllabic words. In one example:

court > kot

the adaptation seems to be semantically conditioned. The rendering is motivated by the need for maximum differentiation of meaning, so as to avoid homonyms with other loanwords:

coat > koti

The previous loan is therefore maintained as a monosyllabic word. But of course, this rule cannot be applied to the rest of the data.

As has been seen in the above section, single rhyme stress is mostly maintained, with spreading.

5.1.1. Adaptation of multiple stress

Many disyllabic words originating from English are integrated into Dholuo with the two syllable word shape maintained. The incoming sounds, of course, are nativized according to the language's internal syllable constraints.

Below are examples of multiple stress nativization, beginning with double rhyme stress.

166).

English	Dholuo	Tone Pattern.
[☞k✈bid☪] 'cabbage'	[kabic]	HL
[☞g✈ra:☪] 'garage'	[garac]	HL
[☞g✈l★n] 'gallon'	[galan]	HL
[☞di:z★l] 'diesel'	[d✋s☜l]	HL
[☞kabati] 'cupboard'	[kabat]	HL
[☞di:k★n] 'deacon'	[d✋k❷n]	HL
[☞b✋●★p] 'bishop'	[bisop]	HL

Stressed syllables in English are normally rendered as high tone, as seen in the above examples, while the weak stress in the second syllable is rendered as low tone.

However, stressed syllables are also often rendered as low tone in Dholuo, the resultant derivative ending with LL pattern, as seen below:

167)

English	Dholuo	Tone pattern
[☞me✋d☪★] 'major'	[m☜⇦a]	LL
[☞n☟mb★] 'number'	[namba]	LL
[☞m✋st★] 'mister'	[mista]	LL
[☞le✋d✋] 'lady'	[ledi]	LL

[ɔb❷✋l★] 'boiler'	[b❷la]	LL
[ɔr☞b★] 'rubber'	[raba]	LL

An interesting case of integration occurs where the second syllable in the English loan is stressed. In this case the first syllable, being unstressed, will be rendered with a low tone. But the second, stressed syllable will have a falling tone, as seen below:

168).	English	Dholuo	Tone pattern
	[b★ɔlu:n] 'balloon'	[balun]	LF
	[s★ɔlu:t] 'salute'	[sarut]	LF
	[r ✋ɔz:v] 'reserve'	[risaf]	LF
	[h★☩ɔtel] 'hotel'	[otel]	LF
	[p★ɔre✋d] 'parade'	[pared]	LF
	[k★ɔset] 'cassette'	[kas☜t]	LF
	[g★ɔzet] 'gazette'	[gaset]	LF

As earlier argued in (2.8), the falling tone in Dholuo is actually derived from two level tones (H followed by L) in certain environments. Mostly it occurs where the second vowel in a two syllable word has been deleted, and the floating L tone is attached to the vowel of the syllable to its left, thus ending in a HL sequence over one vowel, or a falling tone.

We argue here that this is exactly the case in the above examples. In the English words, the stressed syllables tend to be long and of high intensity (Roach 1993:81). As such the stressed syllables in the above loans are perceived as long by the native speakers, who then assign two tones to them at the underlying level. The long vowel then gets shortened by a phonological process which then leaves a floating tone, the latter then being assigned to the syllable to the left, resulting in the F tone in the derivatives.

5.1.2. Stress adaptation in trisyllabic loanwords

When trisyllabic loanwords are integrated into the language, the three stress patterns are adapted to fit into the prefered tonal pattern of Dholuo trisyllabic words, which is LHL. This can be seen in the examples below:

169).	English	Dholuo	Tone pattern
	[✋n🖝s☩★r★ns] 'insurance'	[insuarens]	LHL
	[★🖝mi:b★] 'amoeba'	[am✋ba]	LHL
	[l★☩🖝ke✋◆★n] 'location'	[lokesen]	LHL
	[🖝k✈l✋nd★] 'calendar'	[kalenda]	LHL
	[🖝sin★m★] 'cinema'	[s✋n☜ma]	LHL
	[k★🖝m✋◆★n] 'commission'	[komisen]	LHL
	[🖝r★☩z★r✋] 'rosary'	[lusari]	LHL
	[🖝ambj★l★ns] 'ambulance'	[ambiules]	LHL

The LHL pattern also occurs for the disyllabic loans being rendered in the language with three syllable word shape through creation of an extra syllable. Here are the examples:

170).	English	Dholuo	Tone pattern
	[🖝sp✈n★] 'spanner'	[sipana]	LHL
	[🖝bl✈d★] 'bladder'	[bulada]	LHL
	[gre✋d] 'grade'	[giredi]	LHL
	[🖝spi:k★] 'speaker'	[sipika]	LHL
	[🖝ste✋◆★n] 'station'	[sitesen]	LHL
	[🖝dra✋v★] 'driver'	[dir☜ba]	LHL

The epenthetic vowels being inserted in these examples to resyllabify the loans simply acquire the preferred level tone in the syllable position.

There are, however, some exceptions to this rule. Three loans had tonal patterns not conforming to the preferred LHL pattern. Such loans had either the patterns LLH, or HHL, as shown in the examples below:

171).	English	Dholuo	Tone Pattern
	[★🖝dres] 'address'	[adires]	LLH
	[d✋🖝gri:] 'degree'	[digiri]	LLH
	[🖝pensl] 'pencil'	[penisil]	HHL
	[🖝b✈t★ri] 'battery'	[betiri]	HHL
	[🖝sek◆★n] 'section'	[sekisen]	HHL

[✋n✍spek●★n] ‘inspection’ [pekisen] HHL

In these examples, the tone of the syllable created by epenthesis or resyllabification is a copy of the phonological tone of the previous syllable.

5.1.3. Stress adaptation in four syllable loanwords

The four syllable English loans also tend to be integrated with the stressed syllable being rendered as high tone in Dholuo. However, there are some exceptions to this, with unstressed syllables being rendered with high tone, as seen in the examples below:

172).

English	Dholuo	Tone pattern
[✍k✈t✋k✋z★m] ‘catechism’	[katikaisim]	LLHL
[m✋✍k✈n✋k] ’mechanic’	[makanika]	LHLL
[end☪✋✍n✋★] ’engineer’	[i⇘⇦inija]	LLHL
[✍kr✋sm★s] ‘christmas’	[kirisimas]	LHHL
[✍bl✈kb❷:d] ’blackboard’	[bilakib❷d]	LHHL
[ka:bj✞✍ret★] ’carburettor’	[kabureta]	LLHL
[✍tel★v✋☪★n] ‘television’	[telefison]	LLHL
[k★n✍d☞kt★] ‘conductor’	[k❷ndak✋ta]	LHHL

In the above examples, one also finds that the tone of the epenthetic vowel is a copy of the tone on the previous syllable.

5.2. Stress adaptation in Swahili loanwords

The stress pattern in Swahili, unlike English stress, is predictable. As stated earlier, stress in Swahili will always fall on the penultimate syllable. When Swahili loans enter Dholuo lexicon, the stress is rendered as high tone, as can be seen in the following examples:

173).

Swahili	Dholuo	Tone pattern
[ka✍nisa] ‘church’	[kanisa]	LHL

[m↘a↗para] 'foreman'	[↘apara]		LHL
[m♦a↗hara] 'salary'	[misara]	LHL	
[di↗ri♦a] window	[dirisa]	LHL	
[mfe↗redC•i] 'warer tap'	[fire⇦i]		LHL
[su↗kari] 'sugar'	[sikare]	LHL	
[ma↗t♦u☠gwa] 'orange'	[macu☠ga]	LHL	

However, as in the case of English loans, there are derivations where stress is rendered as L tone, as seen in the following examples:

174).	Swahili	Dholuo	Tone pattern
	[↗simu] 'telephone'	[simo]	LL
	[↗taa] 'lamp'	[taja]	LL
	[↗t♦umvi] 'salt'	[cumbi]	LL
	[↗t♦upa] 'bottle'	[cupa]	LL
	[↗fundi] 'artisan'	[fundi]	LL
	[↗nusu] 'half'	[nus]	L

This, however, is only evident in disyllabic loanwords. Again, this is predictable as Dholuo prefers an LL tonal pattern in disyllabic words.

In the case of trisyllabic loanwords, the preferred pattern of LHL is maintained for all the loans, as seen in the examples above, with the stress on the penultimate syllable being rendered by H tone.

One process of nativization worth examining here is the reduction, through deletion, of some trisyllabic Swahili loanwords. When the three syllable loan is reduced to two syllables, the floating tone, which is normally L, is attached to the H tone of the previous syllable, resulting in a falling tone, F. These loans therefore have the LF tonal pattern, as shown in the following examples:

175).	Swahili		Dholuo	Tone pattern
	[ma⇗ndazi]	'buns'	[mandas]	LF
	[ku⇗fuli]	'padlock'	[kiful]	LF
	[ba⇗kuli]	'bowl'	[bakul]	LF
	[si⇗ndano]	'needle'	[sandan]	LF
	[♦e⇗tani]	'satan'	[satan]	LF
	[ma⇗dɔani]	'tea'	[ma⇦an]	LF
	[sa⇗nduku]	'box'	[sanduk]	LF

The same tonal pattern is observed in four syllable Swahili loans which have been reduced to three syllables. Again here, the preferred tonal pattern of the loanwords is LLF, as shown below:

176).	Swahili	Dholuo	Tone pattern
	[kibe⇗riti] 'matchbox'	[kibirit]	LLF

The modifications in this section in the adaptation of stress conforms to the constraints of a tone language like Dholuo. In a tone language, pitch variation is a dynamic feature of the lexicon. For such a language, it is important to consider tone an inherent property of the syllables as constituents of individual words. In effect, tone assignment is a well-formedness requirement of the structure of Dholuo.

5.3. Derivation of vowel harmony in loanwords

Vowel harmony in Dholuo is a word level feature that distinguishes words of +ATR (advanced tongue root) from those in the -ATR harmony. Generally speaking, Dholuo focuses on the stressed value of the first syllable in the incoming loanwords, and from it determines what the rest of the vowels in the assimilated word will be. There is a tendency to integrate the whole loanword as +ATR if the first syllable in the loanword is stressed. If, however, the first syllable is unstressed, a majority of the loanwords show that the rest of the word will be –ATR. This probably follows from the fact that in Dholuo, it is the first vowel in

the stem (which is also normally stressed), that determines the tongue root harmony of the words in the language (Tucker 1994:23). This can be seen in the following examples:

177).	English	Dholuo
	[le d] 'lady'	[ledi]
	[l sili] 'shilling'	[sili]
	[d] 'dish'	[dis]
	[kl n k] 'clinic'	[kilinik]
	[f lm] 'film'	[filim]
	[t k t] 'ticket'	[tikiti]
	[b p] 'bishop'	[bisop]
	[k l k] 'catholic'	[ka olik]
	[k m ti] 'committee'	[komiti]
	[kr sm s] 'christmas'	[kirisimas]
	[end n] 'engine'	[i ini]
	[d k n ri] 'dictionary'	[dikisonari]
	[st r] 'steering'	[sitari]
	[sp r t] 'spirit'	[sipirit]
	[h st ri] 'history'	[hisitori]
	[m st] 'mister'	[mista]
	[h sp tl] 'hospital'	[osipital]
	[k] 'ink'	[ingi]
	[m n] 'mission'	[misen]
	[kwe t] 'equator'	[ikweta]

The rendering of vowels in stressed syllables as +ATR is predictable because +ATR vowels in Dholuo are articulatorily produced with the tongue root pushed forward, thus sounding high up within the vocal tract. They therefore get more prominence in their production, which would make them acoustically similar to vowels in stressed syllables, which are also prominent (Roach 1993). This acoustic similarity makes the rendering of stressed vowels as +ATR phonetically plausible.

Generally, the monosyllabic English loanwords, which are essentially stressed, are integrated into the language with +ATR harmony for the vowels. This is also true of most of the monosyllabic loans having diphthongs.

An exception to the above general rule on ATR harmony concerns the adaptation of loans with [❷] and [①], which are consistently nativized into the –ATR harmony. This is likely due to the fact that both vowels are acoustically and articulatorily similar to the –ATR Dholuo vowel [❷].

The observations noted above are also true for most loanwords originating from Swahili, where stress will always fall on the penultimate syllable. Most of the disyllabic words, which have stress on the first syllable, are rendered in Dholuo with +ATR harmony, as seen below:

178).	Swahili	Dholuo
	[meli] 'ship'	[meli]
	[fundi] 'artisan'	[fundi]
	[soma] 'read'	[som]
	[mbao] 'timber'	[bao]
	[↘undo] 'hammer'	[↘undo]

There are, of course, some exceptions to the vowel harmony nativization rule in Dholuo, especially where the first syllable may be unstressed but still the whole word is harmonised as –ATR. The general tendency, however, is for the stressed vowels in the first syllable of the loan to determine the harmony of the loanword.

The examples of the harmony constraints playing their role in the adaptation of borrowings shows how stress could function as an acoustic cue for the perception of what vowel in the foreign word should determine vowel harmony in the target language. This would also mean that vowel harmony is probably the most extreme general case of the sequential constraints of the target language determining the path of adaptation of a loanword, for it is possible that almost half of the segments of an incoming word can be altered because of the single vowel harmony requirement.

The importance of such cases to a theory of loanword assimilation, however, is not in the magnitude of the change incurred, but in the support they give the phonetic model of the perception and assimilation of loanwords, as opposed to a model using the rules of the phonological component of a grammar.

CHAPTER SIX

6.0 FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Findings

A number of findings have come up in this study which may have implications for a theory of loan phonology. The examples analysed in this study, especially on integration of vowel phonemes, have clearly shown that there is little, if any, evidence to be found in loanword assimilation for any claims about abstract phonological representations. Instead, one finds a strong indication that the speaker-hearer of the target system can be very discriminating in his judgement of the phonetic value of the foreignisms as compared with the surface phonetics of his own system.

Furthermore, as seen in the study, some of the variable realizations reported for loanwords from the source language contradict the predicted direction of change under a markedness or naturalness model of language change (Hyman 1970b; Kaye & Nykiel 1979). For example, many of the loanwords have renderings in Dholuo with several consonant clusters. The appearance of consonant clusters disallowed in the phonotactic system take the Dholuo sound system away from the ideal CVCV structure predicted in the type 4 class of sounds by Clements & Keyser (1983:29). In fact, the very concept of an "unassimilated loan" is a contradiction in terms of many traditional texts. For example, in earlier studies of code-switching, the principle criterion for differentiating code-switching from borrowing is that borrowings are items from a foreign source that have been phonologically integrated, while code-switches are unassimilated items (Bentahila & Davies 1983; Berk-Seligson 1986; Lehiste 1988).

Obviously, if there are a number of high frequency loans in Dholuo which have not been assimilated, then phonological integration is not very useful as a criterion to set off borrowing from code-switching.

One interesting finding of the study concerns the rate of assimilation of the foreign segments. It is a rather obvious fact that most loanwords are not immediately assimilated and "de-

foreignized" when borrowed. Instead, a considerable length of time may pass before the word is felt to belong among the native vocabulary of the target language.

It is apparent that during this period, different segments behave differently to what may be a single constraint in the target language. This is why different segments within a loanword tend to display different rates of assimilation, even though all the segments entered the language at the same time (since they are part of the same loanword!) and are therefore equally subjected to the same constraints in the target language.

This can be interpreted to mean that individual segments or classes of segments might react differently to different constraints generated by a given rule, and thus for these different classes of segments, assimilation might be correspondingly accelerated or delayed.

6.2 Conclusion and Implications

An obvious conclusion on the acceptance of foreign consonant clusters within the native system would be in support of the 'phonological gaps' theory. Since it has been shown that the assimilated form of the word contains segments or clusters that were hitherto impermissible in the language, one can conclude that the reason for the acceptance of the new elements may be found in the formal structure of the grammar, that is the latter having certain gaps that need filling. This finding then would agree with one of the hypotheses of this study, that Dholuo adapts new phonemes and sequences in order to fill phonological gaps in the native system.

But the gaps theory would not be the only reason for Dholuo accepting foreign sounds and sequences. It is of course clear, when one considers the state of the fully assimilated loanwords and their position in the target system, that the newly adopted features exhibited by the borrowing constitute an integral part of the target system. But it cannot all be credited to the gap filling need. It is also clear that non-linguistic factors, mainly sociological, play a major role in this regard.

Indeed it is apparent in this study that non-linguistic factors do play a great role in a language's acceptance of foreign sounds and sequences. The prestige motive identified by Hockett (1958) is a clear motivating factor in the Dholuo borrowing situation. The Dholuo

bilinguals use foreign clusters and segments, indeed they use loanwords from English and Swahili as means of displaying the social status which its knowledge symbolises. Indeed many bilingual speakers of the language tend to pronounce Swahili loans like *luga* as [lu☞a] with the belief that that kind of pronunciation will reveal them as more urbanite and more exposed to Swahili than the Dholuo monolinguals who use the more natural *luga.* As Bernsten and Meyers-Scotton (1993) rightly put it, the extent of phonological integration of loanwords is a function of the social profile of the speakers, with more educated urban men showing less integration than other speakers.

A very obvious determinant of the level of adaptation of the loanwords is the structural differences between the source languages and the borrowing language. Dholuo and Swahili, as earlier noted in chapter 4, allow very few consonant clusters within their syllable structures, as opposed to English which permits upto 4 consonants within the syllable coda. This has resulted in loanwords from Swahili getting more fully integrated into Dholuo than those originating from English, where the structural difference between it and Dholuo is more pronounced. This also confirms the earlier hypothesis about the effect of structural differences between the source language and the target language on the level of integration of loanwords.

Over the last few decades, a major objective of linguists involved in loanword phonology has been to develop an explanatorily adequate model of loan phonology. Picard and Nicol (1982), for example argue that any explanatory model of loan phonology should be able to account for the various ways in which the target language handles incoming segments that are totally alien to its phonological system. They maintain that the goal of such a model should be to discover principles that would offer reliable predictions as to whether the target language will opt for substitution, deletion or adoption of a foreign segment in any given case. They further contend that such a model of loan phonology should be able to tell, once substitution has been predictably selected over the other two, what a foreign segment will be replaced with in any given situation.

In analysing the strategies used by Dholuo to simplify foreign consonant clusters, it is clear that the language employs several strategies to nativize unnatural, non-canonic syllable structures: epenthetic vowel insertion, extrasyllabic consonant or vowel deletion, devocalization of unnatural vowel sequences, addition of a final vowel, and in some cases, tolerating some consonant clusters. Of these strategies available to the langauge, Dholuo tends

to prefer simplifying the foreign clusters using epenthetic vowels rather than deleting the extra-syllabic consonants. This seems to be a defining characteristic of this language and there is no way of determining why this particular method of syllable structure adaptation is preferred by the language over the other methods.

A difficult question at this point, and which the study had initially set out to solve, revolves around the predictive powers of any theory of loan phonology. How would one predict what choice a language would make in dealing with unnatural, non-canonic foreign clusters? If we try to account for this type of nativization, and therefore predict it, in terms of morpheme structure, or some such similar rules in a grammar of the language, such as Chomsky and Halle's universal marking conventions (Chomsky & Halle 1968:404), then we immediately run into difficulties. These rules could only say that if the first segment is a vowel, then the next one must be a consonant, or, if the first segment is a consonant, then the next one must be a vowel. They can say nothing about what to do with a lexical representation which has two contiguous consonants: whether the extra consonant, whichever it is, should be deleted, or whether a vowel should be inserted, and if so, what vowel.

One could even tentatively hypothesise a general principle that if a language does not permit consonant clusters, as in the case of Dholuo, then loans with such clusters will be modified by inserting an epenthetic vowel. But this type of hypothesis, as other linguists have proved, can hardly withstand evidence from other languages.

Holden (1972), in pursuit of an explanatorily adequate theory of foreign segment replacement, came up with varying results. He examined Japanese replacement of consonant clusters and points out that Japanese, having a CVCV syllable structure, uses both epenthesis and consonant deletion. He comes up with the conclusion that the fact that both methods of simplification are used, casts serious doubts on a hypothesis favouring the preference of epenthesis over consonant deletion to eliminate unnatural clusters.

In a further analysis of Madagascan replacement of consonant clusters, Holden (1972:91) notes that Madagascan permits only clusters with nasals, otherwise the syllables are open as in Japanese. He discovers that in this language, the use of epenthesis to break up foreign clusters is more consistent, though he admits there is no way of predicting this particular preference.

A further examination of Kazakh and Turkish replacement of initial consonant clusters comes up with different results. Holden (1972:92) notes that neither Kazakh nor Turkish permit initial consonant clusters, and neither seems to favour any one of the three available means of eliminating such clusters in foreign words: prothesis of a vowel, epenthesis of a vowel, or simplification of the cluster. Both languages use the three strategies more or less in equal proportion, making a precise prediction very difficult.

Looking finally at Finnish replacement of initial consonant clusters, Holden again comes to the same conclusion. Finnish, although not permitting initial consonant clusters, shows a marked preference for the simplification of the incoming clusters by dropping one or more of the segments of the foreign cluster. Thus here is a language that, although having surface constraints similar to those of the foregoing languages, adopts consistently a very different way of handling non-native sequences.

The conclusion that can be drawn from all these examples, and which we are also forced to draw after examining the data in Dholuo, points towards the language specific nature of the assimilation process. The only possible conclusion at this point, then, is that the means employed by a given language for the adaptation of unnatural, non-canonic syllable shapes are, in a general sense, peculiar to that language, and have nothing to do with the internally-motivated morpheme structure or phonological rules, or with universal marking conventions which are also written in the form of rules.

At this juncture, one can point out broader implications of the study. The existence of borrowed phonemes in the speech of many Dholuo speakers point to a linguistic system that includes variability. In fact the study has shown great variability in the realisation of English loans, with an apparent relaxation of Dholuo phonotactic constraints on consonant clusters. The phonological inventory of Dholuo also appears to be expanding, with foreign sounds like [z, v, ♦] being added increasingly. But how is the existence of foreign sounds possible? Fries and Pike (1949:29) took up this question over 50 years ago when they argued that "…two or more phonemic systems may exist in the speech of a monolingual". They reported that in Mazateco, voiceless stops become voiced after nasals, except in high frequency loans like *siento* 'hundred', where such voicing does not occur. Fries and Pike suggest that there is a core phonemic system for Mazateco, and a peripheral system that is highly fragmentary, but

none the less a real portion of the linguistic system of the speaker. A similar case could be made for Dholuo in regard to borrowed words.

This study has practical implications for Dholuo orthography and lexicography. One of the major tasks of lexicographers and language academies is to decide on how to represent the dictionary entries or the standard forms in accordance with the actual language use. It is quite apparent that in the course of adaptation, several possibilities for the replacement of phonemes may occur, and these depend on various factors: the type of language contact (oral or written), the influence of an intermediary language, introducer's level of education, e.t.c. Thus different formal variants may appear, each bearing a particular influence, e.g. *matoka, mitoka, mtoka,* (car), *michele, ochele* (rice), *makati, makate, mkate* (bread). In a case like that of Dholuo, where there is instability or hesitation in the nativization process of its loanwords, a decision has to be taken: either to prescribe certain forms according to adopted criteria (e.g. *sipika* instead of *spika*) (speaker), or accept all the variations. Thus a word like *television* will be written with the three variants *telebison, telefison* and *televison.*

One thing that is certain is that although formal variants can co-exist for a considerable stretch of time, the prevailing direction of phonological adaptation is from polyformity to uniformity.

The other practical problem is whether to treat prenasalised, palatalised and labialised consonants as part of the Dholuo consonant inventory. As the study has clearly demonstrated, prenasalized consonants coming into the language are readily adopted if the nasal portion agrees in place of articulation with the plosive. Those not agreeing are immediately adapted to the place of articulation, showing that the language considers prenasalized consonants as single units. This finding validates the position already maintained by other linguists like Okombo (1982), Omondi (1982). The same applies for the palatalised and labialised consonants which are accepted by the native system, confirming the view that they are single units in the language.

6.3 Implications for source phonetics

One aspect of borrowing that has been used by historical grammarians is to employ assimilated borrowings as evidence of the phonetic state of the source language at the time of the borrowing. That is, it may be possible to reconstruct the phonetic system of the source language from the loans.

But before considering that a borrowing is a reflection of the state of the source language, one must first be certain that the target language has not altered the segment or sequence under consideration to obey certain of its own constraints.

An example of the problems which could be encountered in using borrowings as evidence of the source pronunciation, without consideration of the target constraints and possible assimilations is found in various renditions of the English loanwords as shown below:

English ***culvert*** > Dholuo ***kalavat /*** Kikuyu ***karavati***
English ***advance*** *(salary payment)* > Dholuo ***rubandhi*** / Kikuyu ***warufaji***
English ***battery*** > Dholuo ***betiri*** / Kikuyu ***mbethiri***
English ***agreement*** > Dholuo ***ogirimiti***
English ***trumpet*** > Dholuo ***tarumbeta***

It would not be possible to determine anything but the crudest outlines of the original English words, given these renditions in different borrowing languages.

6.4. Borrowing and Second Language Acquisition

In the borrowing situation, as depicted in this study, one can possibly outline two different kinds of contact between two languages. First, there is a type of sporadic or weak interaction between two languages. This happens during the very earliest periods of contact, where lexical items from one source enter the target language in small numbers and there is little bilingualism in the two relevant languages on the part of the speakers of the target language. The second borrowing situation may be considered the strong type, and involves large exchanges of lexical items along with considerable bilingualism. The first type of borrowing

often ends in adaptation of loanwords, while the second type usually ends in the retention of the foreign features in the target language.

This method of looking at borrowing may actually parallel two rather arbitrary stages in the learning of foreign languages: the initial stages when most of the pronunciation of foreign words is in terms of adapted, native segments and sequences; and the later stages when certain foreign sounds and sequences have been mastered (adopted) and coexist with native ones in the articulation of the foreign words. Of course there are differences between foreign language learning and borrowing, in that in one case, the objective is to keep the languages separate, while in the other one, a unified system is desired. Yet we feel that there is enough fundamental similarity in the two processes that insights from the one area might be exploited in the other.

Since language learning involves acquisition of the ability to perceive and produce foreign sounds and sequences of sounds, one would expect that there would be a close parallel between the difficulties experienced here by the language learner and the difficulties in adaptation (based on perception and adoption) experienced by the borrower. This is one interesting area that would definitely need further research.

6.5 Recommendations

The question that comes to mind at the end of such a study is what kind of phonological theory would be necessary in order to handle all of the facts of loanword assimilation, that is both adaptation and retention of foreign sounds and sequences, assuming that such a theory should account for such phenomena.

Such a theory should have some language specific mechanism for dealing with "pattern" adaptations, that is the adaptation of segments and sequences for which two or more replacements are available, but only one is consistently chosen. The theory should also be flexible enough to allow for change as a function of sociological pressures, for it would seem that these are fundamental in the acceptance of new elements.

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APPENDIX A

Dholuo Loanwords

Loanwords from English

Food, nutrition and household appliances

Dholuo	English
Kabich	cabbage
Karat	carrot
Apoyo	paw paw
Kek	cake
Baranda	veranda
Barangeti	blanket
Bola	boiler
Sofa	sofa
Kabat	cupboard
Njage	jug
Med	maid
Redio	radio
Sitof	stove
Bokisi	box
Bilok	block
Kompaond	compound
Sito	store
Toch	torch
Taulo	towel
Sit	sheet
Botilo	bottle
Soksi	socks
Nailon	nylon
Gilas	glass
Dis	dish

Motor and Agriculture industry

Dholuo	English
Bolti	bolt
Betiri	Battery
Sipana	spanner
Jek	Jack
Manyiwa	manure
Bilada	bladder
Garach	garage
Akisidend	accident
Makanika	mechanic
Kware	quarry
Takisi	taxi

Tangi	tank
Fakitori	factory
Masin	machine
Kongret	concrete
Galan	gallon
Dereba	driver
Kabureta	carburettor
Kalabat	culvert
Kondakita	conductor
Disel	diesel
Mitoka	motorcar
Insuarens	insurance
Bas	bus
kilach	clutch
Pancha	puncture
Fanel	funnel
Sitaring	steering
Pom	pump
Nat	nut
Sikuru	screw
Giris	grease
Fius	fuse
Injini	engine
Sipiring	spring
Injinia	engineer
Tandiboyi	turn boy
Mobael	mobile
Giya bokisi	gear box
Giya	gear
Waya	wire

Health, Leasure, Religion

Dholuo	English
Katikaisim	catechism
Balun	balloon
Not	note
Kirisimas	christmas
Koras	chorus
Kwaya	choir
Sinema	cinema
Misen	mission
Telefison	television
Bisop	bishop
Katholik	catholic
Dikon	deacon
Fason	fashion
Kilabu	club
Mbulu	blue
Sut	suit

Otel	hotel
Sipesial	special
Chek	cheque
Kaset	cassette
Firem	frame
Nas	nurse
Osipital	hospital
Kilinik	clinic
Sitael	style
Chenj	change
Simat	smart
Tikiti	ticket
Jok	yoke
Ledi	lady
Siling	shilling
Lusare	rosary
Sipirit	spirit
Filim	film

Civil and military administration

Dholuo	English
Bengi	Bank
Swaini	swine
Kambi	camp
Garanti	guarantee
Geng	gang
Atenson	attention
Koti	coat
Pared	parade
Sarut	salute
Sikwod	squad
Soja	soldier
Faini	fine
Samanth	summons
Kobilo	corporal
Ogirimiti	agreement
Bakira	buckle
Lokesen	location
Pekisen	inspection
Sekisen	section
Sitesen	station
Komiti	committee
Komison	commission
Sitep	step
Gaset	gazzete
Adires	address
Risaf	reserve
Mbom	bomb
Sitok	stock

Kot	court
Chif	chief
Boda	border
Sikaot	scout
Fael	file
Pared	parade
Sitesen	station
Pilan	plan
Kes	case
Eria	area
Meja	major

Education

Dholuo	English
Baji	badge
Bilakibod	blackboard
Sitamb	stamp
Get	gate
Dikisonari	dictionary
Pepa	paper
Gilop	globe
Raba	rubber
Sipika	speaker
Dasta	duster
Penisil	pencil
Firi	free
Histori	history
Bras	brush
Sikul	school
Buk	book
Desiki	desk
Benji	bench
Mista	mister
Ingi	ink
Sikat	skirt
Mael	mile
Tae	tie
Laini	line
Bilaos	blouse
Tam	term
Gol	goal
Sati	shirt
Kadi	card
Digiri	degree
Rekod	record
Gaon	gown
Gired	grade
Boyi	boy

Loanwords from Swahili

Food, nutrition and household appliances

Dholuo	Swahili
machunga	machungwa
taya	taa
cho	choo
sufiria	sufuria
chae	chai
Charan	cherahani
Kibirit	kiberiti
Makati	mkate
Sikare	sukari
Apilo	pili pili
Karaya	karai
Sandan	sindano
Girofa	ghorofa
Kiful	kufuli
Simo	simu
abari	habari
mawembe	mawembe
bao	mbao
okombe	kikombe
dirisa	dirisha
mesa	meza
sinia	zinia
mandas	mandazi
chumbi	chumvi
fireji	mfereji
musmal	msumari
randa	randa
otanda	kitanda
maskin	maskini
fundi	fundi
sanduk	sanduku
sandan	sindano
bunde	bunduki
nyundo	nyundo
ngas	ngasi
opanga	panga
dengo	dengu
musmeno	msumeno

Health, Leasure, Religion

Dholuo	Swahili
Satan	shetani
tarumbeta	tarumbeta
farisayo	mfarisayo
lakitar	daktari
malaika	malaika

Civil and military administration

Dholuo	Swahili
misara	mshahara
nyapara	mnyapara

Education

Dholuo	Swahili
Opira	mpira
Siruare	siruali
Luga	lugha
Gafla	ghafula

APPENDIX TWO

INTERVIEW

PLACE: Manyatta Location, Kisumu Town.

SUBJECT: Alphayo Odindo

AGE: 39 years old.

OCCUPATION: Factory worker.

DATE: 14th Dec 2000.

Question: Alfayo, odini in gi nyithindo adi?

Subject: An gi nyithindo auchiel mamaga, korka nitie ariyo mag nyamera.

Question: Nyameruno nitie?

Subject: Ooyo, nyamera to ne osenindo, kaachiel gi jaode, koro an ema akawo ting' makanyo.

Question: Mos gi ting'. Sida mane mineno kuom bedo gi famili maduong'?

Subject: Ok yot! Ok yot kata matin. Mokuongo wach fis tek, sikul idware nyathi ka nyathi gi yunifom, nyiri sikat ariyo gi bilaos, yawuoyi to siruari ariyo gi sati. Bas kila ng'ato idwaro gi sokisi, wuoche koda tae. Mano pok iketo transpot gi poket mani. Ting' ok yot sani. Ka ionge gi ohala moro mitimo to ok yot.

Question: To iparo nade, nitie yo ma sirikal nyalo konyo jonyuol e yor fis?

Subject: Sirikal onego konywa, kaber to onego sirikal miwa lon matin mar chulo fis, kata basari mar nyithindo. To ka mano tek, to koro sirikal onego konywa e yor bilding' fand, kata pes wochman, kata pes jotije mag kasuol, eka wanyalo winje yot matin.

Question: Itiyo tich mane Kisumo ka?

Subject: An kaka foman e fakitori mar jo Swan mar loso sabun.

Question: Itiyo gi yo mane kidhi tich?

Subject: Tich kadhi pile to aidho mitoka kaponi an gi pesa. Lakini ka an marach tatiyo gi ndiga.

Question: Faktoriu no iwachoni ulosoe sabunde?

Subject: E waloso sabunde mag miti, kod sabunde mag omo.

Question: Sida mage ma uneno kar tich?

Subject: Sida maduong‘ ahinya ma wan go en insuarens. Watiyo gi masinde madongo malich to kata po ni ng’ato ohinyre moter osipital to waonge gi insuarens malong’o manyalo chulo ng’ato koyudo ajali e yor tich. Ma en gima wase wacho ni jo leba nyaka jo yunian to ok wane pogruok. Wadwaro insuarens motegno manyalo chulo bil e osiptal kang’ato oyudo ajali e tich.

Question: Jo yunian donge bende konyou e yor tich ka uyudo tabu?

Subject: Jo yunian ok konywa. Joka chiemo gi wahindi: ka wahindi osemiyogi gimoro matin to kata watho to ok gidew. Gini ka sirikal ok oparowa to onge kaka wanyalo savaiv.

Question: Joka leba ok nyal konyou?

Subject: Joka leba, jogo duto chiemo gi wahindi. Jo yunian duto chiemo gi wahindi. Ka e ka ing’iyo jo yunian kata jo sirikal to idiwo. En koro mana gud rileson ma wan go e tich ema koro konyowa. Sirikal ok nyal konyowa.

Question: Iparoni ang’o ma sirikal onego tim, kata jopiny tim, mondo gikony go jotich masani?

Subject: Sirikal kaber to onego winjre gi jotich mondo wakonyre e yo maber. Jotich thagre, to josirikal ok konywa. Onego wabed gi komiti mar jotich kaachiel gi jo sirikal kod yunian mang’iyo masilahi mar jotich. Mano eka wabiro bedo gi tich maler.