VOWEL EPENTHESIS IN SYLLABLE STRUCTURES CONTAINING SYLLABIC CONSONANTS IN SWATI ENGLISH

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ABSTRACT

This study examined the nature of vowel epenthesis in syllable structures containing syllabic consonants in Swati English (SwE). Although this variety behaves differently from other African varieties of English concerning vowel epenthesis, the nature of the SwE vowel epenthesis process has not been a prominent subject for research. The investigation aimed to determine the linguistic factors that cause vowel epenthesis and analysed the variants of the epenthetic vowel and their contexts. This qualitative, cross-sectional study employed an experimental data collection method on 22 adults who have Siswati as their first language and English as their second language. Participants read 50 English words containing potential syllabic sonorants [l̩], [m̩], [n̩], and [ŋ̩]. The study used the Contrastive Analysis (CA) method to identify deviations from Standard British English pronunciation of words with potential syllabic sonorants in the participants' speech. The findings from the CA show a high preponderance of vowel epenthesis compared to the occurrence of the syllabic sonorants. Moreover, the findings demonstrate that the syllable structure of SwE is similar to that of Standard BrE English, in that it permits both closed syllable structures and consonant clusters syllable-initially and syllable-finally. These results refute earlier theories that suggest vowel epenthesis is caused by SwE speakers' propensity to adapt the Siswati CV syllable structure to English. Moreover, the results reveal a variety of epenthetic qualities and that various factors determine the occurrence of the different epenthetic qualities.

Further analysis couched within Optimality Theory (OT) was carried out to demonstrate the ranking of constraints that yield the different epenthesis patterns including splitting, true insertion, and the different epenthesis sites. Within OT, the study applied analytical insights drawn from the Basic CV Syllable Theory, Markedness Theory, Splitting, and

Unified Place Theory. It is revealed that the dominance of *P/C over NUCCOND is the source of vowel epenthesis. It is further revealed that the dominance of *il, OSW, SSP, vowel sonority non-DTE constraint, *ə, and IO-IDENT [place] is driving the different epenthesis patterns. Overall, this investigation reveals novel information about the nature of the SwE vowel epenthesis process and adds new data thus, increasing SwE's corpus database.

DEDICATION

I dedicate this thesis to my son, Siphosemusa Sibongumusa Dlamini, who gave me the reason to press on even when I was weary. Son, take this scroll and run with it!

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DECLARATION

I, **Thulisile Gcinile Dlamini,** declare that this thesis is my original work, except where I have indicated and acknowledged in full. The thesis has not, in its entirety or in part, been submitted for a degree at any other university.

Signature: 

Date: 7 November 2024

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LIST OF ABBREVIATIONS

BrE - British English

BSAE - Black South African English

BST - Basic Syllable Structure Theory

CA - Contrastive Analysis

CAH - Critical Age Hypothesis

CON -Constraint set

CV – consonant vowel

DTE - Designated Terminal Element

Non-DTE – non-Designated Terminal Element

EAE - East African English

EGCSE - Eswatini General Certificate in Secondary Education

EMT - English as a Mother Tongue

EPD - English Pronouncing Dictionary

ERC - Elementary Ranking Condition

ESL - English as a Second Language

EVAL – Evaluator

Ft – Foot

GEN -Generator

GhE - Ghanaian English

HSREC - Human Subjects Research Ethics Committee

IGCSE - International General Certificate of Secondary Education

IPA - International Phonetic Alphabet

ITB - Imdlawn Tashlhiyt Berber

LMS- Lesotho, Malawi, Swaziland

L1 – First language

L2 – Second language

MIB – Minimal Information Basis

NigE - Nigerian English

NUC - Nucleus

OT - Optimality Theory

RP - Received Pronunciation

RU-HREC - Rhodes University Human Research Ethics Committee

SBE - Southern British English

SGCSE - Swaziland General Certificate in Secondary Education

SLA - Second language acquisition

SwE – Swati English

UG - Universal Grammar

UNESWA – University of Eswatini

WAE - West African English

LIST OF SYMBOLS

σ : syllable

*** :** an unacceptable form in the language or variety; also used to indicate a constraint violation

[ ] : Phonetic or allophonic transcription

/ / : phonemic transcription

≤ : lower or equal sonority than

≥ : greater or equal sonority than

Δ : Designated Terminal Element (DTE)

-Δ: Non-Designated Terminal Element (non-DTE)

→ : becomes

{ } a subset of CON

☺: An optimal output

CHAPTER 1: AN OVERVIEW OF THE STUDY

1.1 Introduction

This study investigates the nature of vowel epenthesis in syllable structures containing potential syllabic consonants in Swati English (SwE), a variety of English spoken in Eswatini. According to earlier research, the English spoken in Eswatini is known as Swazi English, after the former name of the country, Swaziland. To be consistent with the new name, Eswatini, announced by the country's Head of State, King Mswati III, at the celebration of the nation's 50 years of independence in 2018, I have used the term Swati English throughout this dissertation. The majority of the local population speaks SwE as a second language (L2), with Siswati being their native tongue. However, there is a growing population that speaks this local variety as their mother tongue. One such group is that born out of intermarriages between local people and immigrants using English as their only lingua franca. These children then learn the local variety of English as their mother tongue. Another group is that of children born to immigrants, who have to communicate in English because they mingle with the local people on a day-to-day basis and they attend local schools where English is the medium of communication; hence, these children learn the local variety and use it as their first language (L1).

SwE has unique and stable grammatical (phonological, morphological, syntactic, lexical, and semantic) properties that manifest consistently in the speech and writing of the Swati people, including the educated ones (Kamwangamalu and Chisanga, 1996; Arua, 1998, 1999; Kamwangamalu and Moyo, 2003; de Koning, 2009). Since the characteristics appear consistently in both formal and informal writing and speech, they are demonstrated to be norms rather than merely mistakes, making SwE a dialect of English rather than a compilation of British English (BrE) mistakes (de Koning, 2009). One of the unique phonological characteristics of SwE is the insertion of vowels to repair potential syllabic consonants.

This chapter summarises the key components of the study. The chapter introduces SwE and the vowel epenthesis patterns examined in the dissertation. It then presents the purpose of the study, the research goals, and the hypotheses the research is trying to

prove/disprove. After that, it outlines the contributions the study could make to the existing body of knowledge about vowel epenthesis and SwE in general, and the significance of the study. In the last section, the chapter presents an outline of the chapters in this thesis.

1.2 Vowel epenthesis in Swati English

Vowel epenthesis has been reported to be used only in syllable structures containing potential syllabic consonants (Arua, 1999). Consider the examples in 1-9.

1. *hand*	BrE: /hæ**nd**/	SwE: [he**nd**]
2. *spring*	BrE: /**spr**ɪŋ/	SwE: [**spr**iŋ]
3. *blue*	BrE: /**bl**uː/	SwE: [**bl**uː]
4. *slow*	BrE: /**sl**əʊ/	SwE: [**sl**ow]
5. *helped*	BrE: /he**lpt**/	SwE: [he**lpt**]/ [he**lpd**]
6. *next*	BrE: /ne**kst**/	SwE: [ne**kst**]
7. *trouble*	BrE: /trʌb.l̩/	SwE: [trab**ul**]
8. *whistle*	BrE: /*h*wɪs.l̩/	SwE: [hwis**li**]
9. *gentlemen*	BrE: /ʤen.tl̩.mən/	SwE: [ʤeŋk**li**men]

The examples in (1) and (2) illustrate that the words *hand* and *spring* are pronounced as [hend] and [spriŋ] in SwE, just like the BrE, without any modification of the sequences of consonants forming the coda [nd], and the onset [spr]. In (3) and (4), the clusters [bl] and [sl], respectively, are accurately pronounced in SwE in the words blue [**bl**uː] and slow [**sl**ow]. SwE speakers can also produce even more significant clusters, as illustrated by *helped* [he**lpt/** he**lpd**] (most speakers pronounce the variant of the past tense suffix as [d] irrespective of its environment) and *next* [ne**kst**], as illustrated in examples (5) and (6). Consonant clusters and syllable codas are consistently pronounced unmodified, as the examples above show, hence SwE handles consonant clusters more like British English (BrE). The reasons for this phonological process in the case of SwE turn out to be different from those in interlanguages, creole languages, and other African varieties of English, such as East African Englishes (EAE) and West African Englishes (WAE), where vowel epenthesis frequently results from the influence of the speakers' first language (L1) or preference for the universal canonical consonant-vowel (CV) structure of English (Akinjobi, 2009; Alber & Plag, 1999; Hansen, 2001; Schmeid, 2006). Examples (7)- (9)

illustrate SwE's insertion of a vowel where there is syllabic [l̩] in Standard BrE. So, it is evident that vowel epenthesis in SwE targets only syllable structures containing potential syllabic consonants rather than consonant clusters or codas. This is one of the unique characteristics of the SwE vowel epenthesis process that justifies treating SwE as a distinct dialect from BrE or other African English dialects.

In addition, the differences in the vowels of BrE and SwE in the examples above are worth noting. On the one hand, BrE demonstrates a larger set of vowels, including central vowels and diphthongs. On the other hand, the SwE examples contain only peripheral vowels, which further suggests that SwE and BrE are two different dialects.

Furthermore, the variations in epenthetic qualities (vowel features based on the position of the tongue and the shape of the lips) and epenthesis sites (the positions of the epenthetic vowels) are noteworthy in the aforementioned examples. As illustrated in examples (8) and (9), there are instances when the epenthetic vowel is added at the end, making the potential syllabic consonant form an onset cluster with the preceding consonant. In other instances, as seen in (7), the vowel is inserted between the potential syllabic consonant and the preceding consonant. In addition, the illustrations demonstrate a variety of qualities of the epenthetic vowel, including [u] in (7) and [i] in (8) and (9).

In summary, the illustrations in 1-9 demonstrate that the issue of vowel epenthesis in SwE does not just stem from phonotactic restrictions on consonant clusters per se or the characteristics of the sounds that make up the cluster. SwE permits consonant clusters and syllable codas. Instead, the pattern in which one of the consonants in the cluster is syllabic is the issue. Moreover, the variation of epenthesis sites and epenthetic qualities demonstrates that a syllabic consonant is only a portion of the explanation of vowel epenthesis in SwE. Very little is known about what determines the epenthetic quality and site variance. Despite the unique nature of vowel epenthesis in SwE, this phenomenon has not been a prominent subject for research. Describing the nature of vowel epenthesis in SwE not only helps to comprehend this phenomenon in SwE as a variety of English but also offers fresh perspectives on the phonology of the African English varieties in general. In the literature on African English varieties, generalisations about the causes of vowel epenthesis have been well established; however, there is still comparatively little

empirical research on the precise vowel that is inserted, both within a variety of English, in a given context, and across varieties.

1.3 Purpose of the study and research goals

This research examines the nature of vowel epenthesis in syllable structures containing syllabic consonants in SwE. Of importance to this investigation are the linguistic factors that cause vowel epenthesis because it is evident that this phenomenon does not result from phonotactic restrictions on consonant clusters or syllable codas. In addition, there is little empirical research on the precise vowel qualities inserted within given contexts in SwE, so this study aims to fill that gap in the existing body of knowledge. The investigation aims to answer the following questions:

- What are the linguistic factors of vowel epenthesis in clusters involving a potential syllabic consonant in SwE?
- What does the syllable structure of the clusters involving potential syllabic consonants look like after vowel epenthesis in SwE?
- What determines the epenthesis site?
- What are the variants of the epenthetic vowel in SwE?
- What determines the quality of the SwE epenthetic vowel?
- Can the variation in vowel quality be modelled within OT, and how?

1.4 Hypotheses

Based on my observations of other SwE speakers, my intuitions as a native speaker of Siswati who speaks SwE as a second language, and from the reviewed literature, the following preliminary hypotheses were developed regarding this analysis of the nature of vowel epenthesis in syllables containing syllabic consonants.

Hypothesis 1: Vowel epenthesis in SwE results from a highly ranked syllable well-formedness constraint that exists in the literature, which prohibits consonant sounds from occurring in the nucleus position.

Hypothesis 2: The epenthesis site is determined by the type of syllabic consonant, as well as the phonotactic restrictions on individual and combinations of consonants in SwE.

Hypothesis 3: The epenthetic vowels appear both as unmarked default vowels and in different forms of context-dependent qualities.

Hypothesis 4: The variation in vowel quality results from the ranking of universal markedness and faithfulness constraints already existing in the literature, which allow or prohibit certain epenthetic vowel qualities in specific contexts.

1.5 The analysis

This study aims to provide substantial empirical data on vowel epenthesis on syllable structures containing a variety of syllabic consonants. The phenomenon of vowel epenthesis in SwE has only been reported on once by Arua (1999) who focused on syllabic [l̩]. Arua (1999) claimed that vowel epenthesis on [l̩] is restricted to [i] which is inserted into the position after [l̩] and no other environment. However, according to my intuitions as a speaker of SwE and my observations of other speakers of SwE, different types of syllabic consonants attract vowel epenthesis. Consider the following examples.

10. *cotton*	BrE: /kɒt.n̩/	SwE: [kotin]
11. *prism*	BrE: /prɪz.m̩/	SwE: [prizim]
12. *bacon*	BrE: / beɪkn̩/; / beɪkŋ̩/	SwE: [beɪkon]
13. *couple*	BrE: /kʌpl̩/	SwE: [kapul]

The examples in 10 – 13 illustrate vowel epenthesis applied to repair the potential syllabic consonants [n̩], [m̩], [ŋ̩], and [l̩], respectively. These examples are evidence that vowel epenthesis in SwE is not restricted to [l̩] as claimed in previous literature. The process of vowel epenthesis in syllables containing different types of syllabic consonants still requires investigation. Moreover, examples (12) and (13) illustrate other epenthetic qualities such as [o] and [u] contrary to [i] which was previously claimed to be the only epenthetic vowel quality in SwE. Literature about the different SwE epenthetic qualities is quite scarce. Therefore, this thesis aims to investigate more about epenthetic qualities and what determines the variation, making this study novel.

To account for the restrictions in the occurrence of vowel epenthesis, Arua (1999) uses the transfer theory which holds that the insertion of a vowel is a transfer of an element

of the Siswati first language (L1) syllable structure into English as a second language (L2). However, the transfer theory does not explain why SwE permits codas and consonant clusters, yet they are prohibited in Siswati. Siswati, like other Bantu languages, requires that syllables end in vowels rather than consonants (Malambe, 2006; Mkoko, 2021). In addition, the theory does not explain why vowel epenthesis is restricted to syllable structures containing syllabic consonants when all other individual sounds and combinations of sounds are permitted as syllable onsets and codas. Moreover, a variety of epenthetic qualities are inserted in different epenthesis sites. The transfer theory, however, fails to adequately account for the precise vowel qualities inserted in specific contexts. All these gaps point to the fact that the transfer theory is insufficient in explaining the nature of vowel epenthesis in SwE. Mesthrie (2006) noted that sometimes the existence of some of the unique characteristics of varieties of English, particularly those that resulted from language contact, cannot be accounted for by the transfer theory. Mesthrie (2006) noted that sometimes unique characteristics in contact varieties arise due to the use of universal strategies of simplification and complexification. In light of Mesthrie's (2006) arguments, I use OT to examine how universal principles influence the nature of vowel epenthesis in SwE. To support the claims made about SwE vowel epenthesis, Arua (1999) uses a limited set of data to illustrate the occurrence of vowel epenthesis. In this dissertation, I bring original data collected from speakers of SwE and provide a range of contexts for vowel epenthesis.

I start the analysis by employing Contrastive Analysis (CA), noting similarities and differences between the participants' pronunciation of the syllables under investigation and the Standard BrE forms. Based on the observed differences in pronunciation between the participants' pronunciations and the Standard BrE forms, it was easier for me to identify instances of vowel epenthesis in places where syllabic consonants were expected and to determine whether or not there is a variation of epenthetic qualities and epenthesis sites. From the results of the CA, I establish the SwE vowel epenthesis patterns. To analyse the epenthesis patterns, I examine the restrictions that SwE places on the shape of a syllable. Further analysis, couched within Optimality Theory (OT), is then performed to explore how universal markedness and faithfulness constraints drive the different patterns of vowel epenthesis in SwE.

1.6 Significance of the study

This study significantly contributes to new knowledge in terms of data and analysis. My review of the extant literature suggests that there is not much research on Swati English in general, let alone on SwE as a local accent on its own terms, rather than approaching it as a derivative of some other English variety. Previous research, such as Dlamini (2014), Dludlu (2016), Mthethwa (2016), and Dlamini-Akintola & Dlamini (2022), analysed the distinct properties of the English written by their participants as errors emanating from transferring Siswati grammatical structures into English rather than stable norms of English established in the local sociocultural contexts. Even the limited research describing the phonological properties of SwE as a distinct variety, including Arua (1999) and Kamwangamalu & Chisanga (2003), has scant information about the vowel epenthesis process. So, this study contributes novel information about this phenomenon. It reveals the patterns of SwE vowel epenthesis that were not described in previous studies, thus contributing new knowledge.

This study could benefit society because people unfamiliar with Eswatini English can look up information about the distinct properties of the local pronunciation in this thesis. Despite earlier research demonstrating that SwE is a 'new English', de Koning (2009) revealed that the local variety was still perceived as an error-ridden derivative of British Standard English. In a study about the perceptions of SwE as a variety of English, de Koning (2009) reported that the participants of the study, including local and non-locals, still perceived the unique features of SwE as errors and thus dubbed "inaccurate", and "inappropriate", and "poor" use of Standard English (page 156). Such conclusions could be partly attributed to the lack of research and documentation of SwE as a variety in its own right; therefore, society has nowhere to look for the norms of this local variety of English. As a result, SwE is assessed by native speakers against British Standard English and by non-SwE groups against their own 'Englishes' as a standard. Therefore, the documentation of the SwE pronunciations made in this dissertation could help alleviate the linguistic prejudice against this local variety of English and help facilitate communication between Swati speakers of English as a second language and speakers of other varieties of English.

Furthermore, the existing research on vowel epenthesis in SwE has only used a small amount of data. The SwE pronunciation data documented in this study will add to the corpus databank of SwE pronunciations, and it will be available to linguists in the future, who may wish to explore the sounds and sound patterns of SwE further.

Moreover, this study has analysed and described the nature of the vowel epenthesis process by employing unique theories, thus revealing new information about the nature of vowel epenthesis in SwE. Previous research described SwE vowel epenthesis as a transfer of Siswati L1 features (Arua, 1999). However, as noted earlier, the transfer theory cannot explain all the complexities of this phenomenon. This research examines the vowel epenthesis process from new perspectives, using OT as a framework. Within OT, the study employs several other theories, including Markedness, Splitting, the Unified Place Theory to describe the epenthetic qualities, and BST, SSP and OSW to account for epenthesis sites. The use of novel theories proves that vowel epenthesis in SwE is not a mere transfer of the Siswati syllable structure, but some phonotactic restrictions are at play.

1.7 Theoretical context

This dissertation draws on a range of interconnected phonological concepts and theories, including phonotactic restrictions, the syllable, vowel epenthesis, cophonology, OT, Basic CV Syllable Typology theory (BST), Markedness theory, Splitting theory, and the Unified Place Theory. The theories are expounded upon in Chapter 3 under Theoretical Frameworks.

1.8 Structure of the dissertation

This study is organised as follows. In Chapter 2, I review the literature on SwE, vowel epenthesis, syllabic consonants, and literature on the vowels of African English varieties.

Chapter 3 reviews the theoretical frameworks that underpin this study.

Chapter 4 of this study discusses the methodology. I explain the research design, data collection methods, and analysis used. I also describe the participants of the study, the study's analytical framework, and how ethical issues were taken into consideration. Finally, I examine the study's limitations, validity, and reliability.

In Chapter 5, I present the results of the study, the data analysis procedures I followed, and the main findings of the study. I go over the steps I took to transcribe the audio-recorded data, how I addressed validity and reliability concerns, and how I cleaned up the data. I then summarise the results from a contrastive analysis of Standard BrE and the Acrolect and Mesolect forms of SwE as evidence that speakers of SwE avoid syllabic consonants. From the pronunciation data of SwE, I also identify any other repair strategies employed on syllabic consonants. The chapter further examines the syllable structure of SwE after vowel epenthesis. I then examine the positions of the epenthetic vowels in the data to generalise what determines the epenthesis site. Finally, I look at the different qualities of the epenthetic vowel that emerged in the data, their contexts, and form generalisations on the epenthesis strategies and epenthetic qualities in SwE.

Chapter 6 provides an Optimality Theoretic analysis of the rankings of the universal constraints of the BST in the phonological sub-grammar of SwE resulting in surface realisations without a syllabic consonant. I show how the well-formedness constraints of the BST conspire to eliminate consonantal nuclei and yield varied epenthesis patterns. The chapter further models the different epenthetic vowel qualities and epenthesis sites in OT. I demonstrate how the constraints of the markedness theory and Splitting theory, respectively, interact to yield different epenthetic qualities.

I conclude this dissertation with Chapter 7, which summarises the main points of the research. I then readdress my research questions and hypotheses and explain how the results from the analyses answer these questions and prove or disprove the hypotheses. In closing, I describe the implications of my findings and make recommendations for further research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Chapter 1 presented an overview of the study and a statement of this investigation's aim, objectives, and significance. Chapter 2 reviews the literature pertinent to the topic of this study. I start by placing SwE within the New Englishes paradigm and channel the focus of my discussion to Phonology. For the purposes of the analysis covered in Chapter 5, I also review the literature on the phonological descriptions of SwE and various African English varieties. I end the chapter by reviewing the literature on some key concepts to the investigation, including syllabic consonants and vowel epenthesis.

2.2 The New Englishes paradigm

This dissertation takes the New Englishes paradigm. The term 'new English' refers to all forms of English that have emerged from language contact situations in which the indigenous people of non-English speaking communities – particularly those that were formerly British colonies – have interacted with native speakers of English and have adopted and appropriated the English language for themselves (Mufwene, 2001; Schneider, 2007). The result of the interactions between the native speakers of English and speakers of Indigenous languages that are not English is the development of unique structural and discursive characteristics that suit the range of uses and contexts (Kachru, 1991; Mufwene, 1994; Kortmann et al, 2004; Schneider, 2007). Kachru (1991) argues that many of the characteristics of such varieties, be they phonetic, phonological, grammatical, or lexical reflect the reality of the use of English in multilingual and multicultural societies rather than being the product of inadequate acquisition. In other words, the learners of these varieties are accurately and faithfully picking up the language as it is spoken around them, rather than making mistakes.

Research indicates that each sub-variety of English is not homogenous; speech varies concerning affluence/ allegiance to white L1 norms (Hickey 2019; Mesthrie, 2004; Mlambo, 2009; Mukenge, 2021). Mesthrie (2004) notes that authors often classify L2 varieties of English onto a continuum based on the linguistic proficiency of their speakers, using the creole-based labels *basilect*, *mesolect*, and *acrolect* to identify the varieties that can be found at the various points of the continuum. Mesthrie divides the spectrum into

two extremes: the basilect form, which is composed of L2 speakers who have already fossilised and do not see the need or want to progress with their interlanguage form development and the acrolect form on the other end, which is quite similar to native English varieties because its speakers have better education drives and lifestyles, and interact with educated L2 English speakers and native English speakers. The mesolect form, which is spoken by a majority of English as a Second Language (ESL) users, lies in the middle of the two extremes (Mesthrie, 2004). Mesolectal speakers are proficient in their speech, but their norms differ from native English speakers' and acrolectal speakers' norms. The mesolect form, which displays the average value of ESL, is more indicative of regional norms. This information is important to mention here because it explains why there are inter-speaker variations in speech samples of speakers of the same variety or sub-variety of English.

The study of new Englishes is a complex and multidimensional area within linguistics that can be approached in various ways. Schneider (2007) categorises the approaches to new Englishes into four categories, A through D, as explained in Table 2-1.

Table 2-1 Categories of New Englishes studies and their descriptions

Category	**Characteristics**
Category A	Studies in this category are more theoretical and concentrate on the basic structural characteristics of language, paying less attention to the non-structural aspects. The focus is on grammatical details of the language, and not on the speakers.
Category B	Category B studies focus on people's feelings about their languages, rather than the languages themselves.
Category C	Category C studies focus on people and how their social identities affect language structure.

Category D	These studies are pedagogical in orientation. They are mainly focused on language teaching.

I classified my dissertation under Category A following Schneider's (2007) classification. The dissertation answers questions about the phonological structure of SwE with little consideration of the non-structural aspects of this variety. The study is a phonological investigation of why and how speakers of SwE repair syllable structures containing syllabic consonants. The distinction between the Acrolect and Mesolect forms of SwE served merely to isolate the forms that are more Swati than British so that attention could be given to the forms more representative of the SwE accent.

2.3 Phonology

One of the concerns of studies on phonology is to examine the restrictions that languages impose on individual speech sounds or groups of speech sounds. The restrictions are called phonotactic restrictions (O'Grady, Dobrovolsky, and Katamba, 1996). Languages place restrictions on permitted sound combinations, as some sounds are not always allowed to appear as combinations in a language, even if they are allowed to occur independently. Individual or sequences of sounds in a language are also disallowed to occur in certain positions. When confronted with inadmissible individual/ sequences of sounds, speakers of a language typically make various alterations to the individual or a combination of sounds as repair strategies. The two most widely utilised repair techniques are insertion and deletion (Hall, 2011). In this thesis, I identify the sounds and combinations of sounds restricted in SwE and examine how vowel epenthesis is employed to repair such inadmissible forms.

2.4 A brief history of the arrival of English and the sociolinguistic situation in Eswatini

The history of the arrival of English to Eswatini can be linked to religion, mainly Christianity and colonisation. English was introduced to Eswatini around the 1840s by missionaries who arrived and settled there. The missionaries arrived before colonisation in 1903 (Dlamini, 2018). The first missionaries to arrive in Eswatini were the Wesleyan

missionaries, who arrived in 1844, and other groups of missionaries then followed, including the Anglican Church in 1871, the Lutheran church in 1887 (Froise, 1996), the Evangelical Church in 1894 (Nyawo, 2004), to mention a few. The main purpose of the missionaries was to introduce Christianity and education, and to offer health services (Dlamini, 2006). To carry out their mandate, the missionaries established schools, hospitals, and churches in Eswatini and employed converted men and women, many of whom were of African origin, to work as nurses, teachers, evangelists, and other positions (Dlamini, 2018).

Eswatini was a protectorate of the South African Republic under the Boer government from 1894 until she came under British administration (Mashasha, 1974). This means that Afrikaans was another foreign language that coexisted alongside Siswati in addition to English. Contact between Afrikaans, English, and Siswati is evidenced by the names of the geographical regions of Eswatini, namely *Highveld, Lowveld,* and *Middleveld*. *Veld* is an Afrikaans word meaning "field" or "an open land". These names of the geographical regions are a part of the SwE vocabulary items. Siswati has borrowed from Afrikaans, as has English. Examples of Siswati loanwords of Afrikaans origin include *lihembe* "shirt" from Afrikaans *hemp*, and *lidolobha* "town" from Afrikaans *dorp* (Sibanda & Mthembu, 1996). When the British won the second Anglo-Boer War of 1899-1902, they took over Eswatini, and the full establishment of the British administration happened in 1906 (Mashasha, 1974; Dlamini, 2018).

The evolution of SwE can be attributed, among other factors, to the complex interactions between the colonial authorities, various missionary groups, Afrikaner settlers from South Africa, and the indigenous population. Mesthrie (2006) notes that the majority of the English varieties used in ESL contexts were initially taught and provided input by missionaries, soldiers, tradespeople, farmers, and other professionals, many of whom were ESL speakers. This observation holds for SwE. The input received by ESL learners in Eswatini was not Standard BrE per se but a combination of accents from the different groups that were in contact with the local people. For example, the British colonialists spoke dialects of Southern British English, which was the variety that was elevated and modelled in schools as the standard form (Lass, 2002). The missionaries were from diverse linguistic backgrounds, including German (Lutherans), Norwegian (Evangelical church), and Italian (Roman Catholics) (Froise, 1996), and so forth.

Therefore, Standard BrE simply served as a kind of metalanguage that the ESL learners rarely experienced in real-life day-to-day interactions because multiple non-standard forms were a part of the original input (Mesthrie, 2006). So, it cannot be claimed that the unique characteristics of SwE are distortions of Standard BrE. It is outside the purview of this study to analyse how the native languages of those who introduced English to the locals influenced the SwE accent. In addition, comparing SwE norms to Standard BrE in this dissertation was done for convenience rather than to imply that Standard BrE was the only input dialect for Swati ESL learners.

Before the independence in 1968, English was the only official language of Eswatini. Siswati was pronounced to be the second official language post-independence (Zwane, 2003). Post-independence, the constitution of Eswatini recognises English and siSwati as the two official languages (The Constitution of the Kingdom of Eswatini, 2005). A majority of the population is bilingual, speaking Siswati as their first language (L1) and English as their second language (L2). These two languages are also recognised in the National Education and Training Sector Policy (NTSP) as the languages of learning and teaching in Swati schools (NTSP, 2018). Post-independence, more Swati citizens have gained access to most professional spaces such as the media and education sector, and because of that, English has developed stable local norms which are then passed on to newer generations.

2.5 Swati English

Previous studies on SwE concur that SwE has unique and stable grammatical (phonological, morphological, syntactic, lexical, and semantic) properties that manifest consistently in Swati people's speech and writing, including the educated people (Kamwangamalu and Chisanga, 1996; Arua, 1998, 1999; Kamwangamalu and Moyo, 2003; de Koning, 2009). The features are reported to be manifesting in both formal and informal speech and writing, so they prove to be norms and not just errors (de Koning, 2009).

Kamwangamalu and Chisanga's (1996) study lays the foundation for research on SwE. According to Kamwangamalu and Chisanga (1996), SwE, which they called 'Swazi Colloquial English', is an institutionalised variety that emerged due to contact between English and Siswati. The researchers examined the syntactic and lexical aspects of SwE. Since then, a few more studies followed, including Arua (1998), who examined the

syntactic features of SwE that were not investigated in Kamwangamalu and Chisanga (1996). Next was Arua (1999), who investigated the phonological properties of SwE; Kamwangamalu and Moyo (2003), who outlined the characteristic features of the Englishes in Lesotho, Malawi, and Swaziland (Eswatini) combined (LMS), at the level of phonology, morphology, syntax, and lexis. Kamwangamalu & Moyo (2003) do not distinguish the features unique to each dialect but have used all the available data to describe the grammatical features of the Englishes spoken in the three countries under one umbrella, LMS. De Koning (2009) conducted another study on how people viewed SwE as a new English. Since then, studies on SwE, especially phonological investigations, have been very scarce. Of particular interest to this dissertation were the studies on SwE's treatment of BrE vowels and consonants because they gave insights into what to anticipate from the pronunciations made by this study's participants. *Section 2.5.1* reviews the literature on the phonological properties of SwE.

2.5.1 Phonological properties of Swati English

The phonological properties of SwE have been reported on in the literature by Arua (1999) and Kamwangamalu and Moyo (2003). The two studies present SwE as a unique accent with noticeable segmental and suprasegmental properties that differ from Standard BrE norms. One of the distinct suprasegmental properties of SwE, as reported in the studies, is stress shift in verbs and nouns. Kamwangamalu and Moyo (2003) observed that in LMS polysyllabic verbs, stress shifts from its original BrE position to the final syllable, and in some nouns, stress shifts from the first syllable to the second syllable, while in others it shifts to the final syllable. Arua (1999) observed a double placement of stress whereby words that originally have one primary stress in Standard BrE have two primary stresses in SwE. Consider the following examples of stress placement from the literature:

Stress shift in verbs (Kamwangamalu & Moyo, 2003)

Verb	**BrE**	**SwE**
14. *determin**e***	[dɪˈtɜːmɪn]	[diteˈmaɪn]/ [diteˈmin]
15. *communicate*	[kəˈmjuːnɪkeɪt]	[komjuniˈkeɪt]
16. *administrate*	[ədˈmɪnɪstreɪt]	[adminiˈstreɪt]

Stress shift in nouns (Kamwangamalu & Moyo, 2003)

Noun	BrE	SwE
17. *maintenance*	[ˈmeɪntənəns]	[menˈtaɪnens]
18. *organism*	[ˈ ɔːgənɪz(ə)m]	[ogaˈnizim]
19. *circumstance*	[ˈsɜːkəmstəns]	[sekamˈstens]

Double stress placement (Arua, 1999)

Word	BrE	SwE
20. *pursue*	[pəˈsjuː]	[ˈpesˈjuː]

The illustrations in (14) to (20) above demonstrate that LMS and SwE have unique stress patterns that render them unique accents. Stress placement plays a significant role in syllabic consonant formation (Akamatsu, 2013). According to SPE (Sound Patterns of English) accounts of syllabic consonant formation, such as Wells (1995), syllabic sonorants are derived by rules based on the stress attraction or coda maximising syllabification principles. The stress attraction or coda maximising principle (Wells, 1990b) states that consonants syllabify with the neighbouring vowels that are more strongly stressed and move leftward between weak vowels. Based on this principle of syllabification, Wells (1995) argues that syllabic consonants are derived by a rule that converts post-tonic /ə/+ sonorant consonant sequences into a single sonorant with an additional feature [+syllabic]. Consider the following example of the case of *Italy*.

21. *Italy* (a) /ˈɪtəli/ → [ˈɪt.əl.i]

(b) /ˈɪt.əl.i/ → [ˈɪt.l̩.i]

The above example illustrates the syllabification of the word *Italy* following the stress attraction/ coda maximising principle. In (a), the first consonant /t/ is syllabified as the coda of the stressed vowel, making /əl/the second syllable. Because the syllable comprising /əl/ follows a stressed syllable, the schwa of this syllable gets elided, making the lateral /l/ syllabic, as demonstrated in (b). So, the adjustments that speakers of SwE make to BrE stress placement could be why speakers of SwE have difficulty producing syllabic consonants.

The two extant studies present conflicting information regarding how SwE treats individual consonants and consonant clusters. On the one hand, Arua (1999) reports that SwE treats consonant clusters in the same manner as BrE and modifies clusters that contain syllabic [l] exclusively by inserting vowel [i]. Arua explicitly states that inserting vowel [i] in SwE is not intended to break up consonant clusters, suggesting that consonant clusters are not a problem to speakers of this variety, but syllabic [l] is the problem. On the other hand, Kamwangamalu and Moyo (2003) claim that speakers of the varieties of English spoken in LMS simplify consonant clusters through deletion and metathesis. In addition, Kamwangamalu and Moyo (2003) reported instances of consonant substitution not reported in Arua (1999). For example, Kamwangamalu and Moyo (2003) noted that the dental fricatives /θ/ and /ð/ are substituted for the alveolar plosives [t] and [d]. Other African varieties of English, like Black South African English (BSAE), are also said to exhibit this trend (de Klerk and Gough, 2002; Hundleby, 1964; van Rooy, 2000, 2007, 2008) and WAE (Bobda, 200; Gut, 2004; Huber, 2004).

While I acknowledge that some English singleton consonants and some consonant clusters are foreign to Swati L1 speakers, some of the claims made by Kamwangamalu and Moyo (2003) need further scrutiny. Firstly, in their discussion, Kamwangamalu and Moyo (2003) did not discriminate the characteristics specific to each of the varieties spoken in the three countries, yet it is plausible that characteristics shared by one variety may not apply to another. For example, Kamwangamalu and Moyo (2003) reported the substitution of /r/ for [l] such that the word *from* [frɒm] is pronounced as [flom]. Speakers of English in Eswatini rarely make such a pronunciation if they make it at all. Furthermore, recent comprehensive research on the phonological features of Lesotho English by Hala-Hala (2021) does not present the substitution of /r/ for [l] as a phonological property of Lesotho English. Some examples from the pronunciation data of Lesotho English in Hala-Hala (2021) have the /r/sound. It would be strange if speakers of Lesotho English were to make such a phonological adjustment because /r/ occurs in Sesotho, the L1 of the speakers of Lesotho English (Demuth, 2007; Rose & Demuth, 2006). Furthermore, some of the words in the pronunciation data provided by Kamwangamalu and Moyo (2003) have consonant clusters; however, the reasons for the presence of the consonant clusters are not provided, whereas in other words, consonant clusters are avoided and repaired through deletion and metathesis. Kamwangamalu & Moyo (2003)

do not clarify which consonant clusters are resolved in which ways. Further research utilising systematically collected data is still needed to corroborate the two extant studies' findings and to clarify the inventory and phonotactic restrictions on consonants that are unique to SwE. This thesis follows Arua's (1999) theory that SwE treats consonants in the same way as Standard BrE but only has problems when one of the consonants is syllabic, unless more thorough research indicates otherwise. Although the SwE consonant system is not the primary focus of this thesis, the pronunciation data presented here may give readers a better grasp of how SwE handles consonants.

Another feature that distinguishes SwE from Standard BrE is related to vowels. According to the reviewed literature, SwE does not distinguish between BrE tense and lax vowels and short and long vowels. In addition, some BrE vowels absent in Siswati L1 are substituted for vowels that occur in Swati (Arua, 1999; Kamwangamalu & Moyo, 2003). SwE is said to be impacted by the Siswati five-vowel system, much like other African English dialects influenced by indigenous African languages (Kamwangamalu & Moyo, 2003). Evidence of the modifications on vowels is seen in words that are minimal pairs in BrE, being homophones in SwE. Consider the following examples from Kamwangamalu & Moyo (2003).

Table 2-2: SwE modifications of BrE vowels

Minimal pair	**Standard BrE pronunciation**	**SwE pronunciation**
(a) Sheep	[ʃi:p]	[ʃ**i:**p]
Ship	[ʃɪp]	[ʃ**i:**p]
(b) dance	[dɑ:ns]	[d**e**ns]
dense	[dens]	[d**e**ns]
(c) hat	[hæt]	[h**e**t]
hurt	[hɜ:t]	[h**e**t]

The examples in *Table 2-2* demonstrate the modifications made by SwE to English vowels. In example (a), the short vowel [ɪ] of [ʃɪp] is pronounced as the long vowel [i:], making the minimal pair *sheep*/*ship* homophones. In examples (b) and (c), the BrE vowels [ɑ:], [æ], and [ɜ:] are substituted for [e], making the minimal pairs *dance*/*dense*, and

hat/hurt to be homophones in SwE. These illustrations imply that in SwE, just like in Siswati, tense/lax vowels and vowel length do not contrast the meanings of words.

These studies primarily rely on observational data and employ impressionistic methods of analysis. The transfer theory was used as a theoretical framework. The transfer theory, however, does not explain why vowel epenthesis targets exclusively clusters containing syllabic consonants in SwE and why there is a variance in epenthesis qualities and sites. Nevertheless, the information provided by the studies served as a useful foundation for understanding the unique phonological properties of SwE. However, the examined material only scratches the surface; in-depth investigations guided by acoustic analysis are still needed to shed light on SwE's vowel inventory and the specific vowels that undergo modification.

Previous research shows that generally, Siswati does not place many restrictions on its vowel distribution. Any of the vowels can occur with almost any of the consonants available in the language's inventory. The examples below demonstrate that the Siswati vowel phonemes [a], [e], [i], [o], and [u] can occur with any of the consonants available in the inventory of Siswati. I group the consonants into [CORONAL], [LABIAL], [DORSAL], and [PHARYNGEAL] following Clements & Hume's (1995) Unified Place Theory.

22. **Vowel [a]**

(a) after the coronal consonant [t]: [t'**a**mul**a**] *t**a**mul**a*** 'yawn'

(b) after the labial consonant [b^{h}]: [sib^{h}**a**mu] s*ibh**a**mu* 'gun',

(c) after the dorsal consonant [ɠ]: [ɓuɠ**a**] *buk**a*** 'look'

(d) after the pharyngeal consonant [h]: [h**a**mb**a**] *h**a**mba* 'go'/ 'walk'

23. **Vowel [e]**

(a) after the coronal consonant [ɬ]: [ɬ**e**la] *hl**e**la* 'organise'

(b) after the labial consonant [p^{h}]: [p^{h}**e**ɠa] *ph**e**ka* 'cook'

(c) after the dorsal consonant [k]: [iŋk**e**mba] *ink**e**mba* 'sword'

(d) after the pharyngeal consonant [ɦ]: [ɦ**e**ma] *hh**e**ma* 'hallucinate'

24. **Vowel [i]**

(a) after the coronal consonant [s]: [lis**i**ɠo] *lis**i**ko* ‘culture’

(b) after the labial consonant [m]: [m**i**la] *m**i**la* ‘germinate’

(c) after the dorsal consonant [g]: [g**i**dza] *g**i**dza* ‘dance’

(d) after the pharyngeal consonant [h]: [h**i**za] *h**i**za* ‘adorn’

25. **Vowel [o]**

(a) after the coronal consonant [d]: [lid**o**lofija] *lid**o**lofiya* ‘cactus’

(b) after the labial consonant [f]: [f**o**ma] *foma* ‘sweat’

(c) after the dorsal consonant [k’]: [sik’**o**t’ela] *sik**o**tela* ‘tin’

(d) after the pharyngeal consonant [h]: [uṃh**o**li] *umh**o**li* ‘leader’

26. **Vowel [u]**

(a) after the coronal consonant [n]: [n**u**ɠa] n**u**ka ‘smell’

(b) after the labial consonant [w]: [lilaw**u**] *lilaw**u*** ‘boy’s hut’

(c) after the dorsal consonant [k^{h}]: [lik^{h}**u**ɓa] *likh**u**ba* ‘hoe’

(d) after the pharyngeal consonant [h]: [h**u**lumende] *h**u**lumende* ‘government’

The examples in (22) – (26) indicate that Siswati does not place strict restrictions on the distribution of vowels, as any of the five vowels can occur with any consonant produced in the different places of articulation. However, Malambe (2006), Mkoko (2021), and Sibanda and Mthembu (1996) note that Siswati places restrictions on the vowels that occur with the sounds [ts], [dz], [tf], and [dv]. These scholars concur that vowels [a], [e], and [i] occur only after [ts] and [dz]but not after [tf] and [dv]. They further explain that vowels [o] and [u] occur only when the preceding consonant is [tf] or [dv]. Consider the following examples.

27. [in**dv**o**dz**a] *indvodza* ‘man’ *[in**dz**odza]/*[indvo**dv**a]

28. [**tf**uma] *tfuma* ‘send’ *[**ts**uma]

29. [**ts**in**ts**a] *tsintsa* 'touch' *[**tf**in**tf**a]

30. [**tf**osa*] tfosa* 'fry' *[**ts**osa]

The examples in (27) to (30) illustrate the distribution of the Siswati vowels, whereby vowel [a] in (27) and [i] in (29) are restricted to the position after [dz] and [ts], respectively. These examples also illustrate that putting [dv] before [a] and [tf] before [i] yield unacceptable structures. In (27), (28), and (30), the examples illustrate that vowel [o] and [u] are permitted to occur only after [dv] and [tf] but not after [dz] and [ts]. This kind of allophonic variation does not occur in English because the consonants triggering the variation do not exist in the inventory of English. In light of this information, I note that the quality of epenthetic vowels in SwE cannot be said to be influenced by Swati's vowel distribution since it is clear that the phonology of SwE does not follow from Siswati.

Owing to the dearth of comprehensive research on SwE's inventory of the sounds and the adjustments made to individual sounds and sequences of sounds, I reviewed literature on other well-researched African English varieties about vowels, consonants, and suprasegmental properties. I also consulted my intuition and knowledge as a SwE speaker. The information provided therein was useful for this study to approximate the vowel qualities that occur as epenthetic, and to give possible reasons why syllabic consonants are avoided in SwE, and why there is a variation of epenthetic qualities and epenthesis sites.

2.6 Some phonological features of other African English varieties

Literature divides African English L2 varieties into three distinct regional varieties, namely, EAE, WAE, and Black Southern African English (Mutonya, 2008; Bobda, 2000; Wolf, 2021). These dialects are further divided into national sub-varieties, including Gambian English, Sierra Leonean English, Nigerian English, and Cameroon English as sub-varieties of WAE; Tanzanian English, Kenyan English, and Ugandan English as sub-varieties of EAE (Wolf, 2021); and Black South African English, Zimbabwean English, and Swati (Swazi) English as sub-varieties of Black Southern African English (Kamwangamalu, 2020). Scholars generally agree that African English dialects are distinguished by segmental (vowel and consonant systems), and suprasegmental features distinct from the native varieties of English. Most importantly, the reviewed

literature reports some commonalities among the African English varieties in the treatment of vowels, consonants, stress system, and syllables, though minor distinctions may also be noted. The similarities between these dialects stem from the fact that the indigenous African languages that influence them have many traits in common that set them apart phonologically from BrE, and these dialects are acquired almost the same way (Mutonya, 2008; Kamwangamalu, 2020). Most of the studies reviewed in this thesis involve systematically collected data and reliable analysis methods (instrumental analyses). The following sections review the literature on how vowels, consonants, stress systems, and syllables are treated in the African English varieties. I combine the sub-varieties, concentrating on one phonological characteristic at a time.

2.6.1 The vowel systems of African English varieties

Monophthongs

Some of the vowel features common in the African English varieties include the absence of tense/lax and vowel length contrasts; instead, tense and lax vowel pairs occur as allophones (Kamwangamalu, 2020; Mesthrie, 2020; Mutonya, 2008). These features have been reported in Southern African Englishes, including Black South African English (Bekker and van Rooy, 2015; Coetzee-van Rooy, 2021; de Klerk and Gough, 2002; Hundleby, 1964; van Rooy and van Huyssteen, 2000; van Rooy, 2004, 2008), and Zimbabwean English (Kadenge, 2010; Mutonya, 2008); EAE, including Kenyan English (Mutonya 2008; Schmied, 2006); and WAE, including some varieties of Nigerian English (Gut, 2004; Mutonya, 2008; Mesthrie, 2020). A similar pattern has been noted in SwE by Arua (1999) and Kamwangamalu and Moyo (2003), as indicated earlier. Hausa English, according to Gut (2004), is an exception because, in this variety, vowel length is contrastive, and this variety has a much more complex syllable structure.

Literature attributes the lack of phonemic tense/lax and length contrast in the African English varieties to the influence of the indigenous African languages (Mesthrie, 2020; Kamwangamalu, 2020). Vowel length is not contrastive in the native African languages, nor is there a difference between tense and lax vowels, so speakers of African languages transfer the vowel properties from their L1s to English (Hundleby, 1964; Kadenge, 2009, 2010; Mesthrie, 2020; Schmied, 2006; van Rooy, 2008). Hundleby (1964) points out that vowel length occurs as a cue for stress placement in BSAE, instead of being contrastive,

and Mutonya (2008) and Mesthrie (2020) observe that tense and lax vowels appear as allophones. In an acoustic analysis of speech samples of Ghanaian, Kenyan, and Zimbabwean English sub-varieties, Mutonya (2008) observed that the respondents realised BrE vowels /i/, /a/, and /u/ as allophones. Similarly, Mesthrie (2020) reports that the mid-vowel phonemes /ɛ/, /e/, /o/, and /ɔ/ occur as allophones in the Southern African English varieties. Table 2-3 illustrates the African English vowel phonemes and their allophones.

Table 2-3: African English vowel phonemes and their allophones

Vowel phoneme	**Allophones**
/i/	[i], [ɪ]
/a/	[ʌ], [a], and [ɑ]
/u/	[u], [ʊ]
/e/	[e], [ɛ]
/o/	[o], [ɔ]

Researchers assign different basic values for the mid-vowel phonemes. For example, the results of an acoustic analysis of speech samples of Tswana English (a sub-variety of BSAE) respondents in van Rooy and van Huyssteen (2000) show the forms [ɛ] and [ɔ] as the basic values while an acoustic analysis by Mutonya (2008) shows [e] and [o] as the basic values. Kadenge (2009, 2010) also presents [e] and [o] as the basic values. One possible explanation for the discrepancies is the respondents' L1s. In Sotho languages, the vowels [ɛ] and [ɔ] are contrastive (Demuth, 2007; van Rooy & van Huyssteen, 2000) while in Nguni languages they are not (Kadenge, 2010; van Rooy, 2008).

Another prominent feature of the African English varieties' vowel systems reported in the literature is the scarcity of central vowels. Literature indicates that central vowels are avoided and often substituted with peripheral vowels in most African English varieties. Van Rooy and van Huyssteen (2000) note that /ʌ/ is substituted with [a], and /ɜ/ is substituted with [ɛ] in BSAE. Wolf (2021) notes that the central vowel /ʌ/ is substituted with [a] in EAE and [ɔ] in WAE except for Ghanaian English, and vowel /ɜ/ is replaced by [a] in EAE and [ɔ] in WAE. All the studies in the reviewed literature indicate that schwa is replaced by various peripheral vowels, including [a, ɐ, ɛ, e, i, o, ɔ, u]. Most

authors indicate that the quality of the vowel that replaces the schwa is influenced by its orthographic form (Huber, 2004; Kadenge, 2009; van Rooy & van Huyssteen, 2000). However, Mesthrie (2005) argues that while it is true that in some cases the vowel that replaces the schwa could match its orthographic form, there are many other occasions in which the vowel that replaces the schwa does not match its orthographic form. To account for such cases, Mesthrie (2005) cites phonotactic factors such as assimilation and vowel harmony, morphological factors, and regular non-spelling mappings to the five vowel systems of Bantu languages as some of the factors that influence the quality of the vowel that replaces the schwa. I concur with Mesthrie (2005) that the vowel that replaces the schwa often does not match its orthographic form, indicating that the spelling-form hypothesis is insufficient in explaining the variation of the vowels that replace the schwa. For example, [pip**u**l] for *people* in WAE (Wolf, 2021: 220), and [riz**e**n] for *reason* (Kadenge, 2009:168) are evidence that the orthographic forms of the vowels that replace the schwa do not always match their pronunciation.

Because of the tense/ lax and length neutralisation on BSAE vowels, and the scarcity of central vowels, researchers report that words that are otherwise minimal pairs in the native varieties of English are often pronounced as homophones. For instance, most speakers of the African English varieties cannot differentiate between *bird*/ *bad*/ *bed* and *pool*/ *pull* in their pronunciation (Mesthrie, 2020).

Studies on BSAE report that speakers of the acrolect form of BSAE are increasingly adopting the pronunciation norms of White South African English. Central vowels, tense/lax contrasts, and vowels that were previously reported to be absent in BSAE have been reported to be emerging in the acrolect speech (Da Silva, 2007; Mesthrie, 2005, 2010, 2017; Mesthrie, Chevalier, and Dunne, 2015; van Rooy, 2008). Da Silva (2007) notes a movement from [a] to [ʌ] in the STRUT lexical set, and a movement from [ɛ] to [ə] in the NURSE lexical set. In an investigation of differences among young Black South Africans in the pronunciation of the schwa, Mesthrie (2017) found that female Black South Africans who attended Model C schools pronounce the schwa as a mid-central vowel [ə] and that females who did not attend Model C schools and males who attended Model C schools were in the process of developing the schwa. Mesthrie (2005) found that the acrolect speaker pronounced more of [æ] in the TRAP lexical set than basilectal and mesolectal speakers. Furthermore, Mesthrie (2010) notes that in the GOOSE lexical set,

there is a shift from a back vowel [u] to a front vowel. Mesthrie, Chevalier, and Dunne (2015) report a transition from [ɔː] to [ɑː] in the BATH lexical set. Gut (2004) also reports the presence of central vowels and vowel length contrasts in the speech of Educated Hausa English. With this information, it is clear that while the African English varieties have been largely reported to have a five [a, e, i, o, u] or seven-vowel system [a, e, ɛ, i, o, ɔ, u] (Mutonya, 2008; Huber, 2004; Kadenge, 2009, 2010; Mesthrie, 2020; Kamwangamalu, 2020), the acrolect form has a larger number of monophthongs.

Diphthongs

The reviewed literature indicates that diphthongs are avoided in the African English varieties, including BSAE (de Klerk and Gough, 2002; Hundleby, 1964; van Rooy and van Huyssteen, 2000), Zimbabwean English (Kadenge, 2009, 2010), and EAE (Schmied, 2006). A common tendency reported in these studies is that diphthongs are realised either as monophthongs or the two elements of the diphthong being broken by inserting a glide. However, later literature on BSAE shows that diphthongs occur in BSAE (Da Silva, 2007; Mesthrie, 2005, 2017; van Rooy, 2008). The authors identified the following diphthongs occurring in both the acrolect and mesolect forms of BSAE: / aɪ/ ~ / əɪ/ ~ /ʌɪ/, / ɔʊ /, /ɔɪ/, /ɛɪ/ ~ /eɪ/, and /aʊ/.

The reviewed studies present a general picture of how BrE vowels are adapted to a generalised African-style vowel inventory. This type of image becomes helpful for approximating the potential epenthetic vowel qualities because there hasn't been much research focused specifically on SwE vowel qualities.

2.6.2 Some properties of consonants in African varieties

The consonant systems of African English varieties have not been extensively documented as the vowel systems. The extant studies on the subject suggest that, generally, consonants are not much of a problem for speakers of African English varieties (Bekker & van Rooy, 2015; van Rooy, 2000, 2007, 2008). Several peculiar consonantal features that occur in some African English accents have been identified in Bobda (2001), de Klerk and Gough (2002), Gut (2004), Huber (2004), Hundleby (1964), Schmied (2006), and van Rooy (2000, 2007, 2008). Features that stand out as common among the different African English varieties are the realisation of the dental fricatives /θ/ and /ð/ as alveolar plosives [t] and [d] and the realisation of the palatal affricates /ʧ/ and /ʤ/ as the

fricatives [ʃ] and [ʒ], especially in WAE (Bobda, 2001; Gut, 2004; Huber, 2004) and BSAE (de Klerk and Gough, 2002; Hundleby, 1964; and van Rooy, 2000, 2007, 2008). As indicated earlier, a similar tendency has been noted in SwE by Kamwangamalu and Moyo (2003). Schmied (2004, 2006) notes that in the Kenyan variety of EAE, there is no phonemic differentiation between /l/ and /r/; however, this tendency has not been reported in the WAE and the Southern African English varieties.

2.6.3 Suprasegmental properties

The suprasegmental properties relevant to this study are features of the syllable structure and stress placement.

The syllable structure of African English varieties

In a cross-linguistic investigation of syllable structures, Clements and Keyser (1983) propose that core syllable types comprise the following sequences: CV, V, CVC, and VC (C stands for Consonant and V stands for Vowel). Clements and Keyser (1983) further propose that the core syllable type that belongs to the grammar of all languages is the CV type and note that languages may expand their syllable structure inventories by either deleting the final C or inserting an initial C. As a result, they categorised languages using the following types of syllables:

(a) TYPE I: CV
(b) TYPE II: CV, V
(c) TYPE III: CV, CVC
(d) TYPE IV: CV, V, CVC, VC

Clements and Keyser explain that TYPE I and TYPE II languages prohibit the occurrence of closed syllables and also restrict sequences of onset clusters. TYPE III and TYPE IV languages allow closed syllable structures and sequences of consonants of syllable initial and final clusters. TYPE III and IV differ in the phonotactic restrictions placed on the vowel and consonant elements. African indigenous languages fall under TYPE II languages; they prohibit closed syllable structures and place severe restrictions on what ought to be initial consonant clusters (Khumalo, 1984; Mkoko, 2021; Kadenge, 2010). For instance, in the Southern Bantu languages, the only sequence of consonants allowed as a syllable onset comprises a nasal (homorganic) followed by an obstruent, and finally a labiovelar glide (Khumalo, 1984; Mkoko, 2021). For example, the onset of the

Siswati idiophone *nkwe!* [ŋkwe] “run at a very high speed” has the sequence of a velar nasal followed by a velar plosive followed by a labiovelar glide, /ŋkwV/. Conversely, English falls under TYPE IV as it permits closed syllable structures and allows a complex system of initial and final consonant clusters. According to Roach (2009), English allows for a maximum of three consonants in the onset and a maximum of four consonants in the coda. However, there are restrictions on what can constitute a three-consonant onset – they should comprise /s/ followed by a voiceless stop, followed by a liquid or glide (O’Grady et al, 1996), and this restriction is different from that placed by indigenous African languages on syllable onsets.

Due to the variations in syllable patterns between English and indigenous African languages, consonant clusters are a problem for speakers of African English varieties. Schmied (2006) notes that English consonant clusters can be fixed by inserting a vowel in between or at the end of the cluster, or by removing one of the consonants. The author reports that in EAE, two or three consonant-clustered codas are repaired by deleting the final consonant. For example, [neks] for *next.* Furthermore, fricative-plosive onset clusters and closed syllables are repaired by inserting a vowel, for example, [hosipitali] for *hospital*, and [bʊkʊ] for *book*.

In a study about the realisation of consonant clusters in BSAE and the adjustment made to the syllable positions of consonants, van Rooy (2000, 2007) found that although onset clusters are largely similar to L1 varieties of English, some reduction was observed for onset clusters including /r/. Van Rooy found that these clusters were frequently reduced by eliminating the /r/, mostly in the mesolect speech. In addition, van Rooy (2007) reports that the mesolect and acrolect groups delete singleton and complex codas mostly when the subsequent syllable begins with a similar consonant and infrequently in other contexts. Although restrictions are observed on singleton/ combinations of sounds on syllable onsets and codas of BSAE, van Rooy (2008) observes that the syllable structure of BSAE remains unbound by the CV syllable structure restrictions of indigenous Bantu languages. Consequently, van Rooy argues that deletion in BSAE is used to correct specific combinations prohibited by the phonotactic restrictions rather than to produce an open syllable structure identical to that of Indigenous Bantu languages. The examples of BSAE pronunciations in the literature demonstrate different forms of CV, V, and CVC structures, suggesting that BSAE falls in TYPE IV languages like BrE.

SwE and BSAE are classified as TYPE IV languages, just like BrE. As stated earlier, consonant clusters and closed syllable structures pose no challenge for speakers of SwE, except for when one of the consonants is syllabic (Arua, 1999). I agree with Arua (1999) that speakers of SwE accurately pronounce consonant clusters and closed syllable structures but struggle to pronounce syllabic consonants. The pronunciations in the SwE data from the reviewed literature show that speakers of SwE accurately pronounce consonant clusters, including onset clusters containing /r/, which was reported to be problematic for BSAE speakers. For example, in the pronunciations sample from Kamwangamalu and Moyo (2003), the word *administrate* is pronounced as [admini'**stre**ɪt], with the string /str/ unaltered. SwE slightly differs from BSAE in that in SwE, only syllabic consonants including syllabic nasals are prohibited even though Siswati can have syllabic nasals. The representation of a syllable structure with a vocalic nucleus where there is a syllabic consonant in Standard BrE dictates the application of a markedness constraint that eliminates marked input structures with consonantal nuclei. Thus, the requirement for SwE grammar to attain vocalic nuclei is the driving force behind the process of vowel epenthesis covered in this thesis. Literature on the treatment of syllabic consonants and the repair strategies employed in SwE and other African English varieties is reviewed in *Section 2.7*.

Rhoticity

Studies indicate that African English varieties are non-rhotic; speakers do not pronounce post-vocalic /r/ (Mesthrie, 2020; Bobda, 2000). However, Hartman and Zerbian (2009) indicate that rhoticity is a developing feature of BSAE. In an acoustic analysis of data from the speech samples from both more and less affluent male and female speakers of BSAE, Harman and Zerbian (2009) detected rhoticity in the pronunciations of the participants, but noted that it was more common in affluent female speakers. Some of the rhoticity could be linked to the influence of North American English through media. Because rhoticity is scarce in the African English varieties, syllabic /r/ was excluded in this dissertation because it would be difficult to tell whether an epenthetic vowel that occurs after post-vocalic /r/ would be repairing the /r/ for its rhoticity or its syllabicity.

Stress placement

Studies reveal variations in stress placement in the African English varieties (Kamwangamalu, 2020; Bobda, 2001). According to Kamwangamalu's (2020) analysis of the phonological properties of Southern African Englishes, there is no universal pattern of stress that can be used to characterise Southern African Englishes because stress can occur on different syllable positions – sometimes on the penultimate syllable, the second syllable, the first syllable, or the final syllable. On the contrary, native English is stress-timed, and stress has a fixed trochee pattern (van der Pas, Wissing, & Zonneveld, 2000). The pattern of a word's stress is a key factor in identifying when a syllabic consonant occurs. Toft (2002), Bonilla (2003), Roach (2009), and Akamatsu (2013) note that in the semi-formal register of Standard BrE, syllabic consonants are restricted to unstressed/ weak syllables of trochaic feet. According to Akamatsu (2013), a stressed syllable needs to come before a syllabic consonant. Stress plays less of a role in African Englishes than in BrE. African English varieties, including SwE, are syllable-timed rather than stress-timed (van der Pas et al., 2000), so their phonology does not reduce the vowels to the point that syllabic consonants appear. The failure to observe the stress pattern of BrE could be one of the reasons speakers of African Englishes, including SwE, have difficulty producing syllabic consonants and instead produce vocalic nuclei. Literature about the resolution of syllabic consonants in different African English varieties is reviewed in *Section 2.7.2*. In contrast, BrE is full of syllabic consonants in places where not everyone would expect them. So, stress links up with the formation of syllabic consonants. A detailed discussion of the constraints that permit and/or ban the occurrence of syllabic consonants is provided in *Section 2.7* and elaborated in Chapter 6.

2.7 Syllabic consonants

The literature on syllabic consonants is reviewed in this section. The section begins by reviewing prior literature on syllabic consonants cross-linguistically. Attention is then shifted to syllabic consonants in RP because it is the variety of English that most speakers in settings where English is spoken as a second language aspire to acquire. I'll wrap up this section by going over the research on how syllabic consonants are handled in some African English dialects.

As mentioned earlier, the structure of a syllable may comprise an initial consonant (C), a vowel (V), and a final consonant (C). Bell (1978) postulated that the archetypal syllable nucleus is the vowel, which functions as the syllable nucleus in all languages; in most languages, this is the only type of nucleus that exists. However, in some languages, in the absence of a vowel, a consonant (obstruent or sonorant) may serve as the syllable nucleus. In such instances, the consonant functioning as the nucleus is said to be syllabic (Bell, 1978; Dell & Emedlaoui, 1985; Doke, 1930; Roach, 2009; Taljaard, Khumalo & Bosch, 1991; Wiese, 1986). The reviewed literature revealed that languages differ in their preference for the types of syllabic consonants. Some languages prefer only sonorants to obstruents, while others do not discriminate - any consonant can be a syllable nucleus, yet there are those languages whose registers determine the form of a syllabic consonant. For example, in Slovak, only the sonorants [l] and [r] are allowed to be syllabic (Shigemori, 2017), and only the bilabial nasal [m] can be syllabic in Zulu and Siswati (Doke, 1930; Mkoko, 2021). Tswana has a greater variety of syllabic sonorants compared to the two Bantu languages, Zulu and Siswati, because in this language, the nasal consonants [m], [n], [ŋ], and [ɲ] and the liquids [l] and [r] may be syllabic (Cole, 1955). However, in Imdlawn Tashlhiyt Berber (ITB), any consonant, whether obstruent or sonorant can be syllabic, as long as it is the most sonorous segment in the cluster (Dell and Emedlaoui, 1985). Dell and Emedlaoui give an example of /txZ/ as an acceptable syllable in ITB, where /Z/ is syllabic because it is the most sonorous sound in the cluster (P.113), which may not be the case with Slovak, Siswati, Zulu, and Tswana. British English allows both obstruent and sonorant syllable nuclei; however, the register determines the occurrence of obstruent syllabic consonants. In the semi-formal register, only sonorants can be syllabic, while in casual registers, obstruents are allowed to be syllabic (Toft, 2002; Roach, 2009). SwE and other African English varieties like Nigerian English and Ghanaian English permit neither sonorant nor obstruent consonants to be syllabic but only vowels (Arua, 1999; Bobda, 2001; Gut, 2004; Huber, 2004). The African English varieties employ various repair strategies for syllabic consonants. In light of the reviewed literature, it is evident that languages operate on different phonological systems that either permit or prohibit the occurrence of syllabic consonants. The current study examines the phonological system of SwE from the theoretical lens of BST and OT to determine why

this variety prohibits syllabic consonants and resorts to vowel epenthesis as a repair strategy.

Bell (1978) proposes that a vowel is always the cause of syllabicity in syllabic consonants. The vowel may either directly change into a consonant in a process termed consonantalisation, or it may be elided/ syncopated, and its status as a syllable nucleus shifts to one of the consonants in its margin. Later researchers, including Mkoko (2021), Wells (1995), and Wiese (1986), have adopted Bell's (1978) point of view in their accounts on the formation of syllabic consonants in Siswati, English, and German, respectively. Wells (1995) and Wiese (1986) point out that syllabic consonants in English and German are a phonetic representation of an underlying schwa which is followed by a consonant /əC/ sequence, whereby the schwa becomes syncopated in the actual pronunciation.

A slightly different kind of syncope is reported in the case of Siswati and Zulu. In Siswati and Zulu, a syllabic nasal [m̩] occurs only in contexts where the Class 1 and 3 noun prefix /u.mu/ is contracted by deleting the vowel [u] of the second syllable to create [u.m̩] in a process called /mu/ reduction (Doke, 1930; Mkoko, 2021; Taljaard, Khumalo, & Bosch, 1991). Consider the following Siswati example.

31. umu-lotsa → [u.m̩.lo.tsa]
    CL3-ash
    "ash"

In the example in (31), the Class 3 noun prefix /umu-/ has been truncated by deleting the syllable-final vowel [u], resulting in the nasal /m/ becoming syllabic. Mkoko (2021) notes that /mu/ reduction is the only condition for the occurrence of a syllabic consonant in Siswati and that [m̩] is the only permitted syllabic sonorant.

Contrary to Bell's (1979) and successive work, Pineros (2005) argues that the processes of syllabic consonant formation do not result from syncope but from coalescence, whereby the vowel coalesces with the sonorant consonant in its margin. In any case, the important issue about the current study is that a vocalic nucleus is lost, and the syllable peak is realised as a syllabic consonant on the surface.

Bell (1978) points out that sometimes a syllabic consonant may lose its syllabicity, and when it does, either of two things happens to the syllable that contains the syllabic consonant. First, the syllable may be retained using an epenthetic vowel (reverse of syncope). Second, it is lost, and the syllabic consonant may be assigned to the margin of an adjacent syllable. In this study, I assume that the first process – vowel insertion – is what occurs in SwE when syllabicity in BrE words is lost. In the next section, I review the literature on BrE syllabic consonants.

2.7.1 Syllabic consonants in British English

Several studies have been conducted on BrE syllabic consonants. Some of the studies give descriptive accounts of the phonetic, phonological, and morphological distribution of the syllabic consonants (Akamatsu, 2013; Bonilla, 2003; Roach, 2009; Toft, 2002; Wells, 1995) and other research gives accounts of how syllabic consonants are formed in British English (Bonilla, 2003; Wells, 1995). More relevant to the current investigation is information about the phonetic and phonological distribution of syllabic consonants in BrE because such information provides insights into the factors that result in speakers of SwE avoiding the syllabic consonants. The reviewed literature was also useful in this research because it provided the data utilised in this study.

Research indicates that syllabic consonants behave differently in the casual and/or fast styles of speech to semi-formal registers concerning the phonological and morphological contexts in which they occur (Akamatsu, 2013; Bonilla, 2003; Roach, 2009). The scholars agree that syllabic consonants are restricted to unstressed/ weak syllables occurring word-medially and word-finally in the semi-formal register, while in casual and/or fast styles of speech, they occur word-initially in pre-stress positions. This dissertation focuses on syllabic consonants occurring in the semi-formal register. Akamatsu (2013) emphasises that in the semi-formal register of BrE, every syllabic consonant must come after an accented or stressed syllable. However, this condition is hardly met in the African English varieties, which could be the reason why a vowel is pronounced instead of a syllabic consonant.

In addition, the literature reveals that syllabic consonants in English are always preceded by a variety of consonants (Akamatsu, 2013; Bonilla, 2003) and that they behave asymmetrically as regards the phonetic contexts where they occur (Bonilla, 2003;

Wells, 1995; Roach, 2009). The authors note that some syllabic consonants are more likely to occur in certain phonetic contexts than in others, and that there are situations in which two or more syllabic consonants share several phonetic contexts. Consider the following examples.

32. Both syllabic [m̩] and [n̩] occur word-finally after [s], [z], and [ð] (Bonilla, 2003)

(a) *listen* [lɪs**n̩**], *southern* [sʌð**n̩**], *reason* [ri:z**n̩**] ([n] is syllabic)

(b) *blossom* [blɒs**m̩**], *criticism* [krɪtɪsɪz**m̩**], *rhythm* [rɪð**m̩**] ([m] is syllabic)

33. Only [n̩] frequently occurs after alveolar plosives and not [m̩] (Bonilla, 2003).

(a) *button* [bʌt**n̩**] (has a syllabic nasal)

(b) *bottom* *[bɒt**m̩**] but [bɒtə**m**] (the nasal is not syllabic)

34. Only [l̩] and not [n̩] occur after nasals and after clusters in which the initial sound is a nasal (Wells, 1995).

(a) *sandal* [sænd**l̩**] (there is [l̩] after the [nd] cluster)

(b) *abandon* [əbænd**ən**] and not *[əbænd**n̩**] ([n̩] rarely occurs after [nd])

According to researchers studying the topic, there are a range of contexts in which syllabic consonants occur. These contexts range from those where the probability is almost zero to those where it is very likely or highly probable, meaning that pronouncing a vowel before a presumed syllabic consonant may be regarded as a mispronunciation (Roach, 2009). Having drawn insights from various English Pronouncing Dictionaries, Akamatsu (2013) extends this line of thought and posits that there is a two-way co-variation between a syllabic consonant and a sequence of a schwa and a non-syllabic consonant (/əC/). Akamatsu notes that in some words, a syllabic consonant is the preferred variant while in others, / əC/ is preferred. The words used in the experiment were chosen with this information in mind. Only those words in which the syllabic consonant is the preferred variant were chosen.

2.7.2 The treatment of syllabic consonants in African English varieties

Previous accounts on the phonology of some African English varieties show that syllabic consonants are often avoided in the African English varieties, instead, various repair strategies including vowel epenthesis and L-reduction are employed. This section discusses previous accounts on the various repair strategies employed in selected African varieties of English including SwE, Ghanaian English (GhE), Nigerian English (NigE), and BSAE.

The treatment of syllabic consonants in SwE

Arua (1999) observes that speakers of SwE insert vowel [i] to repair [l̩]. The examples in (26) to (28) are taken from Arua (1999:178) to illustrate vowel epenthesis on [l̩].

35. cattle [kætli]

36. bottle [botli]

37. gentlemen [ʤentlimen]

The examples above illustrate the insertion of a vowel where there is [l̩]. After the vowel has been inserted, [l̩] loses its syllabicity and takes a position in the margin of the syllable. Also, worth noting from these examples is that the vowel is inserted word-finally. Arua's (1999) study focused only on [l̩] and said nothing about the other types of syllabic consonants. In the literature on SwE I could access, syllabic consonants have not been a subject of significant focus. this dissertation extends Arua's study and includes other types of syllabic consonants like [m̩], [n̩], and syllabic [ŋ̩], in addition to [l̩].

The treatment of syllabic consonants in EAE and WAE

GhE English and EAE avoid [l̩] deleting and replacing it with an epenthetic vowel (Bobda, 2001; Huber, 2004). Huber (2004) explains that in GhE, the deleted [l̩] is replaced by either a plain vowel [u] or [ɔ], or a 'velarized' vowel. Bobda (2001) reports that in EAE, [l̩] is deleted and replaced by [o] in the basilectal/mesolectal pronunciation; however, in the acrolectal pronunciation, there is no deletion but simply epenthesis of [o]. The two authors use different terminologies, L-reduction (Huber, 2004) and L-vocalisation (Bobda, 2001) to refer to these almost similar processes. Consider the following examples.

GhE L-reduction (Huber, 2004: 861)

38. example [ɛgzampu]

39. apple [apɔ]

40. available [availabu^{l}]

41. circle [sɛkɔ^{l}]

EAE L-vocalisation (Bobda, 2001:273)

42. battle [bat**o**], [bat**o**l]

43. single [siŋg**o**], [siŋg**o**l]

Examples (38) and (39) show an L-reduction process where [l̩] was replaced by a plain vowel. Examples (40) and (41) show an L-reduction process with velarized [l] in [u^{l}] and [ɔ^{l}]. The examples in (42) and (43) demonstrate the repair of [l̩] in EAE by deleting and replacing it with [o] or by simply inserting [o] between [l̩] and the preceding consonant. However, the literature does not mention how GhE and EAE treat other types of syllabic consonants.

The treatment of syllabic consonants in NigE

NigE avoids syllabic consonants and employs vowel epenthesis as a repair strategy (Gut 2004; Akinjobi,2009; Akindele, 2019). The vowel is inserted between a word-final syllabic consonant and a consonant preceding the syllabic consonant. Akinjobi (2009) also indicates that sometimes speakers of NigE delete the syllabic consonant and replace it with a vowel, a strategy similar to GhE L-reduction. The examples in (44) to (48) were taken from Gut (2004: 824) and Akinjobi (2009: 49).

44. *bottle* [bɔtʊl]

45. *button* [bɔtʊn]

46. *hospital* [hospital]/ [hospitul]

47. *pebble* [pebu]

48. *cattle* [katul]

The examples above illustrate NigE vowel epenthesis that repairs [l̩] and [n̩]. Example (47) illustrates the deletion of the syllabic [l̩], where it is replaced with vowel [u].

The treatment of syllabic consonants in BSAE

Although there is extensive research on the phonetics and phonology of BSAE, syllabic consonants have not received as much attention as the other phonological properties of this variety. The extant studies report that syllabic consonants tend to be repaired by inserting a vowel (Hundleby, 1964; Mesthrie, 2005). Hundleby (1964), in a study of Xhosa-English pronunciation, noted that participants did not pronounce syllabic [n̩]; instead, a vowel preceding the [n̩] was inserted. For example, *button* /bʌtn̩/ became [baton]; *merchant* /məːʧn̩t/ became [mɛʧent]. Similarly, Mesthrie (2005) found that participants inserted a variety of vowels where there was [l̩], such as in *apple, people, single, mingle,* etc*.* Although the focus of Mesthrie's study was on the vowel equivalents of schwa, he notes that most L1 varieties have a syllabic [l] rather than /əC/ in these words. As indicated earlier, Mesthrie cites phonotactic factors such as assimilation and vowel harmony, morphological factors, and regular non-spelling mappings to the five vowel systems of Bantu languages to account for the variation of the qualities of the vowel equivalents of schwa. Mesthrie observes that after labial consonants, the vowel that substitutes the schwa is [u], showing assimilative rounding. For example, the final syllable of *apple, people,* and *syllable* is [ul], respectively. Conversely, in non-labial environments, other vowel qualities occur such as [**ɐ**l] in *single* and *mingle*, and [**e**l], [**ə**l], or even [l̩], in words like *dangle, handle.* (pg. 144)

In summary, African varieties of English avoid syllabic consonants and repair them through various strategies including vowel epenthesis and L- reduction. In the selected varieties, it can be noted that the syllabic consonants lose their syllabicity to various vowel qualities. However, research that examines the variation of the vowel qualities across and within each variety is minimal. In addition, the reviewed literature shows a variation of epenthesis sites across the varieties. For example, in SwE, the epenthetic vowel is paragogic while in the other varieties like NigE and BSAE, the vowel is inserted before the syllabic consonant. Research about this type of variation is also very scarce. This study examines the variation of epenthetic qualities and sites in SwE. Table 2-4 below summarises the repair strategies for syllabic consonants in the different African varieties of English.

Table 2-4: A summary of the repair strategies for syllabic consonants in the different African varieties of English

Repair strategy	**African variety of English**	**Example**
Vowel epenthesis	SwE, NigE, BSAE	*bottle* [botl**i**] (SwE) (Arua, 1999:178); [bɔt**ʊ**l] (NigE) (Gut, 2004:824; *button* [bat**o**n] (BSAE) (Hundleby, 1964: 122)
L-reduction/ L-vocalisation (deletion of [l̩] plus vowel epenthesis)	GhE, NigE, EAE	*example* [ɛgzamp**u**] (GhE) (Huber, 2004:861); *pebble* [peb**u**] (NigE) (Akinjobi, 2009:49); *single* [siŋg**o**] (EAE) (Bobda, 2001: 273)
L-reduction (velarisation)	GhE	*circle* [sɛkɔ^{l}] (Huber, 2004:861)

2.8 Vowel epenthesis

The process of vowel epenthesis has been a subject of linguistic inquiry in numerous studies from different perspectives, including loanword studies, interlanguage studies, and New Englishes studies. Cross-linguistically, vowel epenthesis is reported to have several functions, and the inserted vowel appears in a variety of qualities and contexts. In the sections that come, I give an overview of the vowel epenthesis process. I begin by providing a summary of the purposes of vowel epenthesis across languages (Section 2.8.1); in Section 2.8.2, I give an overview of epenthesis sites and lastly, a review of the literature on epenthetic vowel qualities (Section 2.8.3).

2.8.1 Functions of vowel epenthesis

Generally, vowel epenthesis is employed to fix an input that does not adhere to a language's structural (morphological and phonological) requirements (Hall, 2011). Previous research outlines several morphological and phonological functions of vowel

epenthesis cross-linguistically, which include: bringing a word up to a particular minimal size, making a consonant close to the epenthetic vowel more perceptible, and repairing individual or combinations of consonants that break a language's phonotactic restrictions (Alber & Plag, 1999; Hall, 2011; Hansen 2001; Keshavarz, 2017; Rose & Demuth, 2006; Uffman, 2006).

According to Hall (2011), some languages have a specific minimum size for lexical words; hence any word of a smaller size than required is often repaired by inserting a vowel. Hall uses a Congolese language named Mano as an example of how word roots of a smaller size than the required two syllables are repaired by vowel epenthesis. For example, the root /bé / becomes / ébè / "liver", whereby the underlined vowel is inserted into the single-syllabled root to bring it up to the acceptable minimum number of syllables.

Secondly, vowel epenthesis has been reported to be one of the primary strategies that simplify consonant clusters that are prohibited in a language (Hall, 2011; Schmeid, 2006). For example, in Lebanese Arabic impermissible CC codas are often broken by vowel epenthesis (Hall, 2011). Similarly, in some African English such as East African English (EAE) as noted earlier, (Schmeid, 2006) consonant clusters are sometimes repaired by vowel epenthesis. For example, in EAE, *spring* [sprɪŋ] is pronounced as [sp**i**riŋi], with the vowel [i] inserted to reduce the cluster [spr]. Hancin-Bhatt and Bhatt (1997) found that Japanese speakers of ESL inserted a vowel to simplify English syllable-initial consonant (onset) clusters.

Furthermore, inserting a vowel may be used to avoid closed syllable structures in some Creole languages (Alber and Plag 1999), loanword adaptations (Rose and Demuth, 2006; Uffman, 2006), interlanguages (Cardoso, 2011; Hansen 2001; Keshavarz, 2017), and the different varieties of English, especially, EAE (Schmeid, 2006). Alber and Plag (1999) report that in Sranan, an English-based creole spoken on the Caribbean coast of South America, epenthesis of vowels and consonants, and deletion are used to simplify the syllable structure to make it CV. Similarly, in studies of loanword adaptations, vowel epenthesis has been presented as a primary strategy used to incorporate loanwords into the borrowing languages. This tendency is observed to be common in the indigenous African languages, including Siswati (Mkoko, 2021), Shona (Uffman, 2006), Sesotho (Rose

& Demuth, 2006), Tswana (Batibo, 1995), and Zulu (Khumalo, 1984) whereby English and Afrikaans loanwords are adapted by inserting a vowel to make them adjust to the basic syllable structures of these borrowing languages, which is mainly a Consonant-Vowel (CV) structure. In the case of the Sranan, vowel epenthesis is observed to be triggered by universal tendencies that favour the universal CV structure (Alber & Plag, 1999). However, in the case of loanword adaptations and African English varieties, vowel epenthesis is said to mainly result from the influence of the borrowing languages or L1s which are mainly CV.

Some Interlanguage speakers are also reported to employ vowel epenthesis for the same reason of creating a CV syllable structure, especially when the L1 has an open syllable structure. Hansen (2001) found that Mandarin Chinese ESL speakers used vowel epenthesis to avoid syllable-final (coda) clusters. Similarly, Keshavarz (2017) revealed that Iraqi Kurdish speakers of English employed vowel epenthesis to repair coda clusters. Cardoso (2011) revealed that Brazilian Portuguese speakers of English as a Foreign Language insert the vowel [i] on English codas that do not belong to the group of sounds [l, N, r, s]. In all these studies, the occurrence of vowel epenthesis is explained as an error resulting from the influence of the L1 of the speakers. The phonotactic restrictions of the L1 prohibit codas; hence the learners tend to transfer this structure during the process of learning the L2.

As pointed out earlier, the function of vowel epenthesis in SwE is different from that of other African English because this process is only used in syllable structures with syllabic consonants and not in any other phonological structure. Unlike in EAE as reported earlier, whereby vowel epenthesis is administered to both fix consonant clusters and closed syllable structures and to repair [l̩] as reported in Schmied (2006) and Bobda (2001) respectively, in SwE, consonant clusters, and closed syllable structures are allowed (Arua, 1999). So, the main question in this study is, why does vowel epenthesis in SwE target solely syllabic consonants?

2.8.2 Epenthesis sites

Languages systematically vary regarding their choice of the location where a vowel could be inserted, and the choice of the epenthesis site is often influenced by language-specific phonotactic restrictions (Hall, 2011). For example, in languages where codas are

prohibited, such as Siswati and Setswana, a vowel may be inserted after the syllable-final consonant (Batibo, 1995; Mkoko, 2021). For example, *card* becomes [likad**i**] in Siswati, and *box* becomes [bok**e**s**e**] in Setswana. Still, languages that disallow consonant clusters but allow codas can break a consonant cluster (say CC) by inserting a vowel either before the consonants yielding a V̲C.CV. syllable structure or between the consonants, yielding a CV̲.CV structure (Hall, 2011). It remains unclear how languages that allow both consonant clusters and codas make their choice of epenthesis sites. In this dissertation, I examined the patterns of SwE sounds to establish the phonotactic restrictions that influence the choice of epenthesis sites in this variety.

2.8.3 The typology of the epenthetic vowel qualities

Previous studies in African English varieties often associate the quality of a vowel occurring in contexts where the schwa is expected, including epenthetic vowels repairing potential syllabic consonants, with spelling pronunciation (Bobda, 2001; Gough, 1996; Hundleby, 1964; van Rooy & van Huyssteen, 2000). For example, In BSAE, *button* is pronounced as [bat**o**n] (Hundleby, 1964) and *Italy* as [it**a**li] in SwE, with epenthetic [o] and [a] taking after the orthographic forms of these words.

While orthographic effects exist for African English varieties, Mesthrie (2005) noted that morphological and phonotactic factors also play a role in some circumstances where spelling is irrelevant. Mesthrie highlights several cases in which what appear to be spelling pronunciations on the surface are surface realisations of some underlying phonological processes. The phonological processes highlighted include mapping the equivalents of the schwa to the Bantu languages' archetypal five-vowel system which do not correspond to the orthographic forms of the vowels in question, vowel alternations in which forms with a schwa and those with a full vowel are derived from the same root, assimilation, vowel harmony, and analogy. From the reviewed literature about the treatment of syllabic consonants in the different African English dialects, I noted that the occurrence of various epenthetic qualities frequently does not correspond to the orthographic forms of the vowels in question. For example, *bottle* is pronounced as [botli] in SwE, with epenthetic [i] (Arua, 1999) and as [bɔtʊl] in NigE (Akinjobi, 2009), with epenthetic [ʊ]. In these examples, the epenthetic vowels do not correspond to the letter *e* of the orthographic form of this word. For African English dialects, it would be incorrect to assume that every epenthetic vowel that fixes a potential syllabic consonant is

pronounced following the word's orthographic form or that every printed vowel letter is pronounced as a vowel sound. Therefore, the spelling form hypothesis cannot account for all the variations of epenthetic qualities in SwE and the other African English dialects.

Cross-linguistically, epenthetic vowels appear in various qualities, and research suggests that these qualities can be context-dependent or context-free (default) (Hall, 2011; Uffman, 2005, 2006; Staroverov, 2014). Researchers propose that a default epenthetic vowel is realised by unmarked features (de Lacy, 2006; Hume et al., 2013; Kitto & de Lacy, 1999; Lombardi, 2003). Many definitions for segmental markedness are provided, each associated with a particular theoretical perspective held by the researcher. Rice (2007) notes that there is not a single unmarked feature in a language or across languages; instead, what might be called an unmarked (or a default epenthetic vowel in the case of this study) is varied. Rice argues that phonological and non-phonological factors interact to produce a variation in substantive markedness. Some of the elements that define unmarked vowels are summarised by Hume et al. (2013) as follows: they are segments that have a high occurrence frequency in a given language, have a weak perceptual contrast, a weak lexical contrast/ low functional load, and a wide phonological distribution. Hume et al. in turn propose that these characteristics can be used as criteria for determining whether or not a vowel qualifies to be epenthetic.

In agreement with Rice (2007) that there isn't just one unmarked segment, de Lacy (2006) proposes that markedness occurs in competing hierarchies, meaning that in a single language, multiple segments may be regarded as unmarked for a given process depending on the dominant hierarchy. Regardless of the characteristic and/ or theoretical affiliation, there is considerable agreement among researchers that default epenthetic vowels are often non-low, non-round, and either front or central, and that back and rounded vowels are marked and thus cannot be default (de Lacy, 2006; Hume et al., 2013; Lombardi, 2003). Hume et al (2013) give examples of the default epenthetic vowels of different languages including [e] for Spanish, [ɨ] for Korean, [ə] for German, Dutch, and Finnish, and [ə] and [ɪ] for English. In Siswati (Mkoko, 2021; Sibanda & Mthembu, 1996) and Shona (Uffman, 2006), the default vowel is [i], and in Tswana it is [a] (Batibo, 1995). Although marked in terms of the feature [+back], [a] is an exception for Tswana because this vowel has no front counterpart in the inventory of this language. In SwE, the extant literature presents [i] as the default epenthetic vowel (Arua, 1999). The current study has

utilised a range of data containing a variety of syllabic consonants to determine the epenthetic quality(s) in SwE.

While default epenthesis is employed cross-linguistically, most languages have a range of epenthetic vowels that vary in different contexts within the same language (Uffman, 2006). Sometimes the quality of the epenthetic vowel is determined by the phonetic context (adjacent vowels and consonants). An epenthetic vowel may copy the features of the vowel in its neighbourhood in a strategy referred to as echo/ copy epenthesis or vowel harmony (Hall, 2003; Kawahara, 2007; Kitto and de Lacy, 1999; Rose & Demuth, 2006; Stanton and Zukoff, 2017). Some examples of languages that apply copy epenthesis given in the literature are Selayarese (Kitto & de Lacy, 1999) and Sesotho (Rose & Demuth, 2006), whereby the epenthetic vowel copies the input vowel on its left. For example, the word *box* becomes /bɔkɔsɛ/, and the word *pegs* becomes /pek**e**s**e**/ (Rose & Demuth, 2006); In Selayarese, the input /sahal/ becomes [sahal**a**], meaning "profit" (Kitto & de Lacy,1999). Moreover, an epenthetic vowel may take features of an adjacent consonant, in most cases the preceding consonant (Kito & de Lacy, 1999; Uffman 2005,2006). Uffman (2005,2006) reports instances in Shona where a back-rounded vowel [u] is inserted after labial consonants and the front-unrounded vowel [i] is inserted after coronal consonants. Uffman concludes that the back-rounded vowel assimilates to the place feature [+labial] from the preceding consonant, and the front-unrounded vowel assimilates to the feature [+coronal] from the preceding coronal consonant. Consonantal assimilation has been attested in several languages/ varieties, including Shona (Uffman, 2006), Setswana (Batibo, 1995), Siswati (Mkoko, 2021), BSAE (Mesthrie, 2005), and in my preliminary observations of SwE. For example, in Shona, the English word *item* becomes [aitem**u**] and *nylon* becomes [nairon**i]** (Uffman, 2006), and in Siswati, *jam* becomes [ʤam**u**] and *paint* becomes [pend**e**] (Mkoko, 2021). The examples illustrate epenthetic vowel qualities that are influenced by adjacent consonants, where in both languages, [u] is inserted after the labial [m] and [i] after the coronal [n] and [d].

In summary, epenthetic qualities vary across languages and in different contexts within the same language. In some languages, the epenthetic vowel is the default vowel. In contrast, in other languages, it is the default in some contexts and a copy of an adjacent segment in some other contexts. This study examines the variation in epenthetic qualities in SwE.

2.9 Summary of the chapter

Although there is a paucity of in-depth research on vowel epenthesis in SwE and on the phonological properties of this variety in general, there is a substantial amount of research on the phonological properties of other African English varieties and vowel epenthesis cross-linguistically, including the phonological theories of epenthesis, which support the significance of this study and provide a framework for my argument. In this chapter, I examined the body of research on SwE and other African English dialects and the pertinent phonological theories and how they contribute to answering the research questions.

I started the chapter by providing an overview of the literature about the New Englishes paradigm. Then I gave a brief history of the arrival of English in Eswatini to give context for my study and at the same time confirm the existence of unique stable phonological properties of SwE rather than errors that result from acquisition inadequacy. From there, I reviewed the literature on the phonological properties of SwE and other African English varieties, including vowels, consonants and consonant clusters, syllable structure, rhoticity, and stress patterns that would shed some light on the reasons behind and methods by which SwE speakers make adjustments on syllabic consonants as well as the potential epenthetic qualities of SwE. From there, I overviewed the concept of vowel epenthesis, paying attention to its functions, epenthesis sites, and the typology of epenthetic vowels. Based on the information revealed by the reviewed literature and also drawing from my intuitions as a speaker of SwE, I argued that vowel epenthesis in SwE is not a mere transfer of the Siswati CV syllable structure or distortion of BrE pronunciation and that not all epenthetic vowel qualities are spelling pronunciations.

CHAPTER 3: THEORETICAL FRAMEWORKS

3.1 Introduction

In Chapter 1, I mentioned that the existing research uses the transfer theory to account for the occurrence of vowel epenthesis in SwE. Arua (1999) argued that the insertion of a vowel results from the transfer of a feature of the Siswati syllable structure, which prohibits consonant clusters and syllable codas. I then highlighted some of the inadequacies of the transfer theory in describing the nature of vowel epenthesis in SwE. Among the shortcomings was the failure to explain why vowel epenthesis is restricted to structures containing potential syllabic consonants when all other consonant combinations are permitted as syllable onsets and codas, and the failure to adequately account for the precise vowel qualities inserted in specific contexts. Moreover, I explained that the process of vowel epenthesis in SwE is not simply an error made by the speakers of this variety to BrE forms but it is a stable property that appears systematically and consistently in the speech of both the educated and uneducated speakers. In Chapter 2, I reviewed the literature on phonological properties of SwE and other African English varieties, which depicted a picture of how African English dialects adapt BrE vowels, and that information was used to approximate the possible epenthetic qualities in SwE. In some of the studies, it was argued that African English varieties have a tendency to replace a schwa with the spelling form of the vowel in question, implying that the qualities of the epenthetic vowel repairing potential syllabic consonants are spelling pronunciations. However, this claim did not hold to be true for all cases of epenthetic vowel qualities as in some of the cases, the epenthetic vowel qualities did not correspond to their orthographic forms. So, vowel epenthesis in SwE is simply not an error made by the speakers on BrE forms containing syllabic consonants, or spelling pronunciation, or a transfer of the Siswati CV syllable structure.

In Chapter 1, I noted that the SwE vowel epenthesis process shows different patterns regarding vowel epenthetic qualities and the contexts in which the different epenthetic qualities are inserted. Sometimes the vowel is inserted syllable-finally, making the potential syllabic consonant form an onset cluster with the preceding consonant, and in other instances, the vowel is inserted between the potential syllabic consonant and the preceding consonant, making the potential syllabic consonant a coda. These observations

suggest that SwE places restrictions on the specific epenthetic qualities permitted in specific contexts, and research on these phonotactic restrictions is scarce. In this study, I drew insights from several interrelated theories to explain the different epenthesis patterns of SwE. Chapter 3 describes the theoretical frameworks underpinning this study, including phonotactic restrictions, the syllable, cophonologies, and OT and explains how these theories assist in answering the research questions. Within OT, the study applied analytical insights drawn from the Basic CV Syllable Theory (BST), Markedness Theory, Splitting, and Unified Place Theory to explain the occurrence of specific epenthetic qualities within specific contexts.

3.2 Phonotactic restrictions

One of the concerns of studies on phonology is to examine the restrictions that languages impose on individual speech sounds or groups of speech sounds. Languages restrict permitted sound combinations, as some sounds are not always allowed to appear as combinations in a language, even if they are allowed to occur independently. Individual or sequences of sounds in a language are also disallowed to occur in certain positions. When confronted with inadmissible individual sequences of sounds, speakers of a language typically make various alterations to that individual, or a combination of sounds as repair strategies, and vowel epenthesis is common (Hall, 2011). SwE prohibits syllable structures containing syllabic consonants, and vowel epenthesis is used as a repair strategy (Arua, 1999). The SwE grammar also places restrictions on the precise vowel quality to be inserted in specific contexts. For example, epenthetic [u] never occurs word-finally as pronunciations like *[trabl**u**] and *[kapl**u**] for *trouble* and *couple* are never attested in SwE. In addition, pronunciations in which epenthetic [i] follows a labial consonant such as *[trabil] or *[kapil] are never attested in SwE.

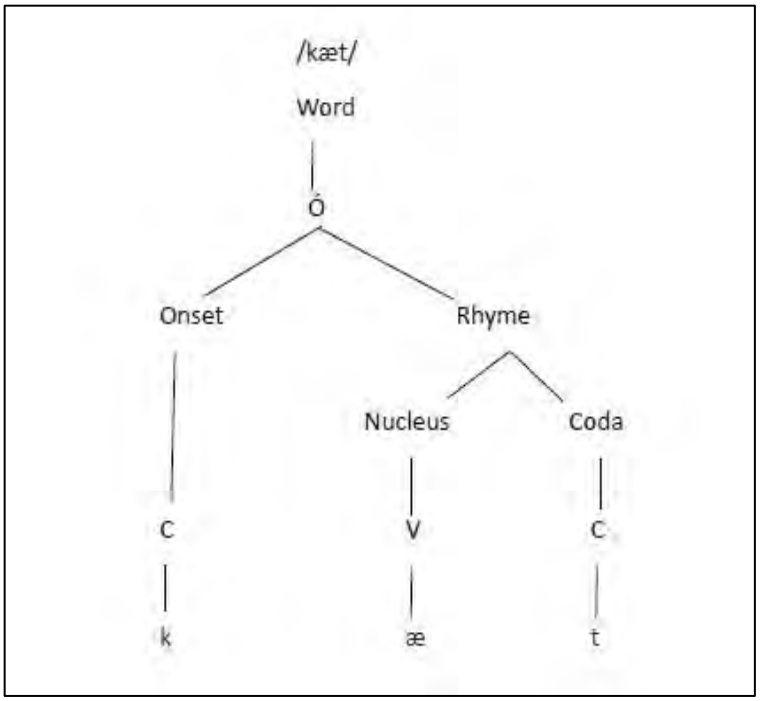
However, the phonotactic restrictions are unclear as to why only the cluster that contains a syllabic consonant attracts vowel epenthesis. The restrictions are also not clear about the precise vowel quality to be inserted and the contexts where it should be inserted. Moreover, it is unclear what influences the position of the epenthetic vowel - whether it is the features of consonants making up the combination, the number of consonants in the cluster, or the features of the syllabic consonant itself. This study examines the contexts in which each epenthetic vowel quality and their contexts and

makes generalisations about the phonotactic restrictions placed by the SwE grammar on permitted epenthetic vowel qualities and sites. Such generalisations shed light on what determines the SwE epenthetic qualities and sites. One common line of analysis for vowel epenthesis of this sort is restrictions on the shape of syllables. Section 3.3. looks at the syllable as a theory of representing sound patterns.

3.3 The syllable

A syllable is a phonological unit composed of one or more sounds/phonemes (Fromkin, Rodman, and Hyams, 2007). The authors describe the internal structure of a syllable as organised into four constituents: onset, rhyme, nucleus, and coda. The nucleus is the segment with maximum prominence/ resonance that forms a syllable's core. Usually, it is a vowel; however, some languages like English (Roach, 2009) and Tashlhyt Berber (Dell and Emedlaoui, 1985) allow consonants to be syllable nuclei. An onset is one or more consonants that come before the nucleus, and the coda is one or more consonants that follow the nucleus; a rhyme is the unit resulting from combining the nucleus and coda. (Fromkin et al., 2007). An example from Fromkin et al is that of *cat* /kæt/, whereby /k/ is the onset, /æ/ is the nucleus, and /t/ is the coda. In the word *cycle* [saɪkl], the onset is /s/, and the nucleus of the first syllable is /aɪ/. The second syllable of this word is /kl/, with /k/ being the onset and /l/ being the nucleus. All the elements must comply with the phonotactic restrictions of the language (O'Grady et al. 1996). *Figure* 3-1 illustrates the syllable structure of /kæt/.

Figure 3-1: Syllable structure diagram



Goldsmith (2011) explains that a syllable is a very useful unit for conducting phonological analyses. This is because phonotactic restrictions are expressed by referring to the syllable. Secondly, it is at the syllable level that generalisations about phonological theories and the constraints that explain the sound systems of a language are made. Researchers generally agree that grammars of all languages permit the CV syllable structure (Clements & Keyser, 1983; Carlisle, 2001; Ito, 1986, 1989; Prince & Smolensky, 1993/2004). Grammars then differ in the restrictions they place on the shape of a syllable. Some languages like Faroese prohibit syllables beginning with vowels (Staroverov, 2014). Others, like the indigenous African languages, including Siswati, Zulu, Sotho, and Tswana place restrictions on syllables ending with consonants (Batibo, 1996; Khumalo, 1984; Malambe, 2006; Mkoko, 2021; Rose and Demuth, 2006). Nevertheless, other languages, such as English, allow for both consonantal and vocalic nuclei, codas, and onsetless, and syllables with onsets. However, English places restrictions on the precise individual sounds or combinations that ought to occur in the different syllabic positions (Clements, 1990; Hall, 2004; O'Grady et al, 1996; Roach, 2009).

I employed the Sonority Sequencing Principle (SSP) as a theoretical mechanism for describing the sequencing of segments forming a syllable. According to the traditional

view of SSP (Sievers, 1881; Jespersen, 1904) cited in Clements (1990), segments can be ranked along a sonority scale in such a way that higher sonority segments are positioned closer to the center of the syllable and low sonority segments are positioned closer to the margin. Within SSP, I adopted Clements' (1990) Core Syllabification Principle (CSP), which is stated as follows:

> 49. "The preferred syllable type has a sonority profile that rises maximally toward the peak and falls minimally towards the end, proceeding from left to right." (P. 301)

In other words, segments within a well-formed syllable are organised in a way that segments within the onset rise in sonority towards the nucleus and then fall in sonority within the coda. Clements proposed the following sonority scale:

50.

Obstruent <	**Nasal <**	**Liquid <**	**Glide <**	**Vowel**
0	**1**	**2**	**3**	**4**

According to Clements, if the segments of a syllable are not separated by a specified minimum distance on the sonority scale, the syllable may be deemed ill-formed in some languages even when it conforms with CSP. For example, in English, segments within an onset cluster must have a minimum sonority distance of two steps (Henke, Kaisse & Wright, 2013); hence, clusters with a distance of one step are ill-formed and thus not considered possible onsets. for example, [kn] is not a possible onset in English because this sequence has an insufficient sonority distance. [k] is an obstruent and [n] is a nasal, so the sonority distance between these two segments is one step. SSP provides guidelines for what constitutes an ill-formed syllable and what constitutes a well-formed syllable. This principle was useful in revealing the motivations behind the choice of epenthesis sites in SwE vowel epenthesis.

3.4 Optimality Theory

OT (Prince and Smolensky, 1993) is a theory that describes the grammar of a language as a combination of Universal Grammar (UG) operations and typological markedness. This

theory proposes a system that consists of two components, a Generator (GEN), and a violable universal constraint set (CON). McCarthy (2007) explains that the role of GEN is to construct a candidate set of all possible output forms that any language can derive from a given input, and the role of CON is to evaluate (EVAL) the candidate set from GEN using constraints that are in a strict-domination hierarchy to come up with the actual output of the grammar of a particular language.

CONs are divided into two groups namely, markedness constraints and faithfulness constraints. Markedness constraints ban dispreferred structures in the output; such structures are considered marked (Prince and Smolensky, 2002:93-94). Faithfulness constraints govern the identity between two representations; for example, they require that an Output be identical to the Input (Prince & Smolensky, 1993; Archangelli, 1997). Because markedness constraints prefer specific linguistic characteristics over others and faithfulness constraints forbid changes to input structures, these two groups of constraints are frequently at odds, and OT resolves the conflict by ranking the constraints in a hierarchy, with some constraints dominating others (Prince and Smolensky, 1993; McCarthy, 2007). As a result, the grammar of a language results from ranking and re-ranking the universal constraints, with candidates being rated on how well they satisfy the entire set of constraints. The candidate that satisfies the highest-ranked constraints is considered the best in the whole candidate pool, hence the optimal output. This is the form that occurs in the speakers' spoken language. How universal constraints are ranked distinguishes one language or grammar from another. When referring to the markedness constraints in OT, I will use the term *well-formedness constraints* to prevent confusion about the term *markedness* when used in the markedness theory and when it is used in OT.

OT creates the framework within which any individual analysis/theory will operate. It tells us what we need to define to create a system. McCarthy (2007) explained that OT does not provide details of the constraints in CON; therefore, the analyst bears the obligation of introducing new constraints that reproduce the data of the language in question. Researchers use several theoretical approaches to OT to derive vowel epenthesis, each focusing on one dominant aspect of the phenomenon. The theoretical approaches include BST (Prince & Smolensky, 1993/2004) which focuses on the structure of a syllable and is used to account for the causes of epenthesis and epenthesis

sites; markedness theories (de Lacy, 2006; Lombardi, 2003), which focus on the epenthetic qualities that are used as default vowels; the correspondence theory (McCarthy, 1995; Kitto & de Lacy, 1999); autosegmental spreading theories (Kawahara, 2007; Stanton & Zukoff, 2017; Uffman, 2005, 2006), and the splitting theory (Staroverov, 2014), each focusing on epenthetic qualities that come about due to the influence of neighbouring segments. The theoretical mechanisms that the analysis has used within OT include BST (Prince & Smolensky, 1993), markedness theory (de Lacy, 2006), the splitting theory (Staroverov, 2014), and the Unified Place Theory (Clements & Hume, 1995).

3.5 Cophonologies

The study took a cophonology approach (Inkelas, Orgun & Zoll, 1996; Anttila, 1997; Inkelas and Zoll, 2007). According to the cophonology approach, within a single language, there can be coexisting separate phonological sub-grammars connected to the different components of the language, such as social register, lexical class, morphological class, and so forth (Inkelas and Zoll, 2007). I drew on cophonologies because I assume that within SwE, there are two phonological systems – one deviates from BrE, which is the main target for my analysis, and one that approximates BrE more closely, which is the Acrolect form. According to Inkelas, Orgun & Zoll (1996) and Inkelas & Zoll (2007), a language's cophonologies, when used within OT, are arranged in a grammar lattice or Master Ranking, which is a partial ranking of constraints that each unique cophonology must abide by. These authors go on to say that all constraints in a particular cophonology are completely universal and that the ranking of the constraints varies throughout cophonologies, which leads to the divergence of phonological patterns of the varieties of the same language.

In line with the above argument, I propose that each variant of English, in this particular case, BrE and SwE, has a distinct phonological sub-grammar that either accepts or rejects syllabic consonants. The fragment of the grammar lattice relevant to English is that every syllable obligatorily has a nucleus, and the key difference between the two phonological sub-grammars is whether syllabic consonants are permitted or not. Therefore, to specify the relevant ranking of the constraints that govern the constituency of the nucleus, it is left to the individual cophonologies of SwE and standard BrE. Thus, the occurrence of an epenthetic vowel in SwE and the occurrence of a syllabic consonant

in Standard BrE results from the reranking of universal constraints on syllable structure well-formedness that results in either the occurrence of a consonantal nucleus or a vocalic nucleus as the optimal output.

3.6 The Basic CV Syllable Theory

BST (Prince & Smolensky, 1993/2004) describes the typology of syllable structures attested across the world's languages. BST builds on the ideas of Jakobson (1962) and Clements & Keyser (1983) who characterised the structure of a syllable occurring across languages. BST states that the universal syllable structure is CV, but languages may allow codas and/or forbid onsets (Prince & Smolensky, 1993).

Prince & Smolensky (1993/2004) proposed two groups of constraints that produce the CV syllable structure typology. The first group consists of markedness constraints, which enforce universally unmarked characteristics of syllable structures. The second group comprises faithfulness constraints, which ensure a one-to-one correspondence between input and output structures. The BST markedness constraints listed in Prince & Smolensky (2004) are as follows:

51. ONS

    A syllable must have an onset (P.93).

52. -COD

    A syllable must not have a coda (P.93).

53. NUC

    A syllable must have a nucleus (P.96).

54. *COMPLEX

    No more than one consonant or vowel may associate to any syllable node (p.96).

55. *P/C

    A consonant may not associate to peak (nucleus) nodes (p. 96).

According to Prince & Smolensky (1993/2004), of these markedness constraints, ONS and -COD are freely re-rankable and are violable, whereas NUC, *COMPLEX, and *P/C are undominated, and their ranking is fixed. Therefore, grammars that permit onsetless syllables violate ONS and grammars that permit codas violate -COD. All syllables conform to NUC, so NUC is part of GEN. Counter to Prince & Smolensky's claim that *COMPLEX and *P/C are fixed in undominated positions, there are grammars such as that of English and Berber, which permit consonantal nuclei, thereby violating *P/C in favour of some higher-ranked well-formedness constraint that accommodates both vocalic and consonantal nuclei. So, the occurrence of a vocalic nucleus rather than a syllabic consonant depends on the ranking of *P/C as opposed to some other constraint that allows both vocalic and consonantal nuclei. The key difference between SwE and BrE is that *P/C is undominated in one grammar, but is violated by surface forms of the other grammar. Moreover, some languages such as Clements & Keyser's (1983) syllable TYPE III and TYPE IV languages permit consonant clusters as onsets and codas, thereby violating *COMPLEX. So, the differences in the language-particular ranking of markedness constraints result in a variation of the syllable shapes across the grammars.

The faithfulness constraints of BST are PARSE and FILL which are defined as follows:

56. PARSE

> Underlying segments must be parsed into syllable structure. This constraint bans deletion (Prince & Smolensky, 2004: 93).

57. FILL

> Syllable positions must be filled with underlying segments. This constraint prohibits insertion (Prince & Smolensky, 2004: 93).

According to BST, every input string has to contain segments that match the syllable pattern of the language, not more and not less. Prince & Smolensky (1993, 2004) mention that an input containing fewer segments than required by the language's syllable pattern results in underparsing, and an output containing more segments than is required by the language's syllable pattern results in overparsing. Overparsing is fixed by deleting a segment, and underparsing is fixed by inserting a segment (Prince & Smolensky, 1993, 2004; Zec, 2007). Inserting a segment triggers a violation of FILL, and deleting a segment

violates PARSE. In this study, I have adopted McCarthy and Prince's (1995) terminology DEP and MAX used in the Correspondence Theory to refer to the constraints restricting insertion and deletion to substitute PARSE and FILL.

The variation between BrE and SwE pronunciation and the cause of vowel epenthesis in SwE can be explained by ranking the markedness and faithfulness constraints of BST. Because SwE permits consonant clusters and closed syllable structures, I assume that SwE and BrE have identical syllable structures. Therefore, the problem is not a simple case of BrE input strings containing more or fewer segments than the syllable pattern of SwE permits, but the issue is with what constitutes the nucleus. On the one hand, BrE permits consonantal nuclei. On the other hand, SwE prohibits consonantal nuclei and allows only vocalic nuclei; therefore, vowel epenthesis is triggered when a consonant occurs in the nucleus position. Ranking the BST constraints in OT served to reveal how and why the typology of the SwE syllable requires an epenthetic vowel in contexts where there is a potential syllabic consonant.

3.7 Markedness theory

To identify and describe the quality of the default epenthetic vowel in SwE, I applied the markedness theory, which specifies the typology of default epenthetic vowels. According to the markedness theory, default epenthetic vowels are context-free (not influenced by the feature content of the adjacent segments) and are realised by unmarked features (de Lacy, 2006; Hume et al., 2013; Kitto & de Lacy, 1999; Lombardi, 2003). I followed de Lacy's (2006) markedness theory in defining markedness, and markedness constraints, and in explaining how markedness constraints shape the choice of the epenthetic vowel quality.

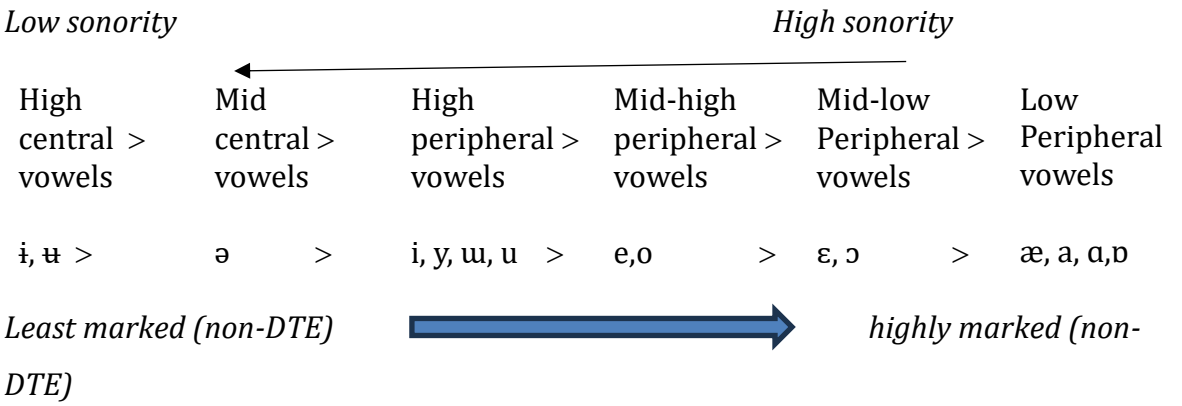
De Lacy (2006) describes markedness effects in terms of phonological features and their values and not in terms of segments as a whole, and the feature values are ordered in a hierarchy. In essence, every markedness hierarchy is formally expressed as a feature and every element on the hierarchy corresponds to a feature value. In addition, de Lacy (2006) proposes that markedness hierarchies are universal and consistent and that there are no language-specific hierarchies; languages may only vary on the hierarchies they consider dominant. The theory further proposes that markedness hierarchies can conflict; one hierarchy may favour one feature over another, while another hierarchy

favours a feature that is less favoured by the other. As a result, there is no one unmarked or least marked segment; rather, depending on which hierarchy predominates, several segments may be considered the least marked in a language for a given process. De Lacy opines that markedness is part of grammatical competence. This means that markedness is related to the speaker's internal language which may be distinct from performance (how the speaker uses the language).

According to this theory, markedness is two innate devices: markedness hierarchies and the schema that relates markedness hierarchies to constraints. There are two different sets of constraints at work. The first set places restrictions on output structures by assigning violation marks to specific elements in hierarchies along with the more marked elements in those hierarchies; this operation is similar to markedness constraints in conventional OT. The second set of constraints puts restrictions on input-output mappings, permitting marked elements to appear as output. If a relatively marked element is preserved, all the more marked elements in that hierarchy will be preserved as well. The latter operates in the same way as faithfulness constraints in conventional OT. The constraints are in a stringency hierarchy. Contrary to Prince & Smolensky's (1993) approach to stringency whereby certain constraints are fixed in superordinate positions while others may be relatively ranked in any dominion order, in de Lacy's theory, violation assignment is cumulative. This means that for every point along the sonority scale, there is a constraint that assigns a violation to that point, as well as for every other point up to and including the most marked element in the sonority scale (de Lacy, 2004). In de Lacy's approach to stringency, the constraints are freely ranked.

According to de Lacy, the markedness hierarchy relevant to vowels is the vowel sonority hierarchy. The vowel sonority hierarchy scale given by de Lacy (2006: 286) is as follows:

Figure 3-2 Vowel sonority hierarchy



The degree of sonority moves from right to left, with the vowels [æ, a, ɑ,ɒ] to the far right of the scale being of high sonority ones, and sonority gradually decreases with movement toward the left, resulting in the high central vowels [ɨ, ʉ] being of the least sonority.

De Lacy (2002/2006) states that the vowel sonority hierarchy depends on prosodic context. The author presented two prosodic structural elements, Designated Terminal Elements (DTEs) and non-Designated Terminal Elements (non-DTEs) – a concept that was taken from Liberman (1975) quoted in (de Lacy 2006). According to de Lacy (2006), a DTE is an element that functions as a prosodic head. Examples of such elements include the head syllable of a foot, the peak of a syllable (nucleus), the head root node of a mora, and so on. A simple definition of a non-DTE is the element operating as a prosodic non-head, such as elements functioning as syllable margins, or the non-head syllable (unstressed syllable) of a prosodic word or a foot, according to de Lacy (2006). A range of vowels can be epenthetic, and such variation results from a variety of direct conflicts involving the sonority hierarchy in different prosodic environments.

According to this theory, the least-marked vowel in a DTE is the high sonority low peripheral vowel [a], while the least-marked vowels in a non-DTE are the low sonority high central vowels [ɨ, ʉ] or the next low sonorous vowels in the sonority scale if [ɨ, ʉ] is not available in the inventory of the language. Having described vowel markedness in this manner, de Lacy further proposes two sets of markedness constraints whose ranking determines the quality of an unmarked epenthetic vowel, DTE, and non-DTE constraints. He suggests that the sonority DTE and non-DTE constraints conflict so that the dominance of syllable-level DTE constraints over higher-level non-DTE constraints results in a high

sonority epenthetic vowel [a], while the opposite ranking, whereby the non-DTE constraints dominate over DTE constraints results in the grammar that epenthesizes the lowest-sonority vowels. De Lacy (2006) argued that the occurrence of rounded and back epenthetic vowels such as [u] cannot be accounted for by context-free output constraints (DTE and non-DTE constraints) and he suggests that the occurrence of such vowels may be due to some assimilation processes rather than markedness effects. Back and rounded vowels are produced by context-sensitive constraints such as IO-IDENT [place], which are not part of the markedness constraints. So, the only reason [u] gets to sometimes be optimal as an epenthetic vowel is because it's preferred next to labial consonants thus fulfilling IO-IDENT [place] at the expense of the vowel sonority DTE and non-DTE constraints.

Several alternative theories are used in previous studies to account for default epenthesis. Some accounts employ underspecification and claim that a segment with a simple structure /fewer features is unmarked and hence preferred for epenthesis (Archangeli, 1988; Causely, 1999). However, underspecification often runs into the problem of failure to consistently explain the cross-linguistic variations in epenthetic vowels, and of assuming different representations of the same vowels in different languages (Lombardi, 2003). Another alternative theory is segmental markedness where an epenthetic vowel is suggested to be the least marked possible given the content of the language's system (Lombardi, 2003). According to this theory, high and low vowels are unmarked, thus epenthetic, while back and unrounded vowels are said to be marked and thus cannot be epenthetic. Lombardi also notes that mid vowels are epenthetic in some languages even though they are classified as marked in the proposed segmental markedness theory. Lombardi's markedness theory ignores markedness hierarchies as it shows no height asymmetries in vowel epenthesis (de Lacy, 2006). Epenthetic vowels may be high, mid, and low (Lombardi, 2003), and such a proposal blurs the line between marked and unmarked vowels, which the theory claims to be drawing. Other scholars alluded to the frequent use of a particular epenthetic vowel quality in the language (Eddington, 2001) and information-theoretic accounts (Hume & Bromberg, 2005) to motivate default epenthesis. However, these two theories, which are often applied in quantitative studies, are not quite appropriate for a purely qualitative study like this one.

De Lacy's (2002/ 2006) markedness theory was the most appropriate for this study because it addresses issues of cross-linguistic variations of epenthetic qualities in a uniform manner. Using de Lacy's theory in this study made it easier to account for the occurrence of a particular vowel quality as opposed to another within SwE. In addition, the lack of height asymmetries was taken care of by the concept of prosodic structure and sonority hierarchy in de Lacy's markedness theory. Default epenthesis alone could not account for all attested epenthetic patterns of SwE because some of the qualities are influenced by phonetic context. The splitting theory (Staroverov, 2014) was therefore incorporated into the analysis to explain the occurrence of the SwE epenthetic qualities that were influenced by phonetic context.

3.8 Splitting theory

According to Staroverov's (2014) Splitting theory, the insertion of a segment (a consonant in the conventional splitting theory) in the output results from a mapping where the input segment corresponds to two output segments. The theory proposes that splitting is used as a restriction on GEN, preventing the insertion of additional segments, instead, input segments split into two output segments, according to Staroverov. The author adds that DEP, the anti-insertion constraint plays no role in Splitting theory because it is never violated as there is no insertion. In the conventional Splitting theory as proposed by Staroverov, an input vowel corresponds to two output segments, one being a consonant and the other being a vowel. In line with Staroverov, I propose a similar kind of configuration for vowel epenthesis where an epenthetic vowel does not result from insertion but from splitting an input consonant into two output segments, one being a consonant and the other being a vowel. Consider the following examples of consonant epenthesis in Faroese (Staroverov, 2014: 3) and vowel epenthesis in BSAE (Mesthrie, 2005: 144).

58. /soː.**ɪ**n/ → [soː.**jɪ**n] "boiled"

    /ɪ/ → [j^{1}, ɪ^{1}]

59. /piː.**p**l/ → [pi.**pu**l]

    /p/ → [p^{1}, u^{1}]

The illustration in (58) demonstrates consonant epenthesis in Faroese where the input vowel /ɪ/ corresponds to two output segments: the glide [j^1] and the front vowel [ɪ^1]. Example (59) illustrates vowel epenthesis by splitting an input consonant /p/ into two output segments: the bilabial plosive [p^1] and the rounded vowel [u^1].

According to the Splitting theory, a segment splits due to pressure to satisfy a positional demand from some well-formedness constraint at the expense of INTEGRITY, a faithfulness constraint that bans an input that has two output correspondents in the output. For example, in the case of consonant epenthesis, an input vowel splits to provide an output consonant that will fulfill some well-formedness constraint such as ONSET (Bakovic, 1999; Kramer, 2008; Prince & Smolensky, 1993; Staroverov, 2014). In this dissertation, the Splitting theory is adapted and extended to account for the insertion of vowels whose qualities are influenced by the preceding consonants. I assume the idea that splitting is triggered by *P/C which penalises consonantal nuclei forcing the consonant preceding the syllabic consonant to split into a vowel and consonant to supply the nucleus.

The Splitting theory is based on McCarthy & Prince's (1995) Correspondence theory, and it requires that an epenthetic segment has a correspondent in the input. One of the fundamental principles of the Splitting theory is that the epenthetic segment has to be as identical as possible to the input correspondent. So, the epenthetic vowel quality is regulated by the family of faithfulness constraints, IO-IDENT, which require similarity between the input and output.

Within the Splitting theory, I assumed the Unified Place theory (Clements & Hume, 1995) to refer to the features of the segments. The Unified Place theory groups vowels and consonants are grouped into natural classes based on the active articulator involved in their makeup (Clements & Hume, 1995). According to this theory, labial consonants are featurally identical to rounded vowels in terms of the feature [labial]; coronal consonants are identical to front vowels in terms of the feature [coronal]; velar and uvular consonants are featurally identical to back vowels in terms of [dorsal] feature, and pharyngeal consonants share the feature [pharyngeal] with low vowels. I used the Unified Place theory within the Splitting theory to demonstrate the typological relationships between epenthetic vowel qualities and input consonants based on similarities in place features.

Within OT, IO-IDENT constraints apply to the input consonants to yield epenthetic vowel qualities with the same place features as the input consonants.

Some alternative views about contextually-coloured epenthetic vowels are motivated by autosegmental spreading theories (Kawahara, 2007; Uffman, 2006) and the Correspondence theory of epenthesis (Kitto & de Lacy, 1999). According to autosegmental spreading theories, the similarity between epenthetic vowels and adjacent consonants is the result of an assimilation process caused by the spreading of a feature or node (F) of a segment from one tier to a new position in a neighbouring tier (Clements, 1985, 2006; Clements & Hume, 1995; Halle, 1995; Uffman, 2005). Most of the spreading theories employ the DEP (Feature) constraints. In the Correspondence theory of epenthesis, the similarity of an epenthetic vowel with a neighbouring consonant results from the epenthetic vowel having a correspondence in the output rather than in the input (Kitto & de Lacy, 1999). The Splitting theory, however, applies the same set of IO-IDENT faithfulness constraints regulating alterations in the features of the epenthetic quality as on other segments within the language; thus, the DEP (Feature) constraints and the output-output correspondence mechanisms are rendered redundant (Staroverov, 2014).

3.9 Chapter summary

This chapter has described the different theoretical frameworks employed by this study to explain the linguistic factors causing vowel epenthesis in SwE and to describe the different SwE epenthesis patterns. The theories include phonotactic restrictions, the syllable, SSP, cophonologies, OT, BST, Markedness Theory, Splitting, and Unified Place Theory.

CHAPTER 4: METHODOLOGY

4.1 Introduction

This chapter discusses the research design, data collection, and analysis procedures used in this study. The chapter further describes the research site and the participants of the study. In this chapter, I further explain how ethical issues were taken into consideration. Finally, I examine the study's limitations, validity, and reliability.

4.2 Research design

The dissertation employs a qualitative design. Qualitative studies are defined as studies that focus on the type or quality of the phenomenon under investigation to acquire a more profound understanding rather than focusing on its amount (Cresswell, 2011; Merriam & Tisdell, 2016). Merriam & Tisdell (2015) add that in qualitative research, linguistic data are collected rather than numerical data and descriptive methods of analysing data are employed rather than statistical methods. The study is descriptive and theoretical; the aim is to describe the nature of vowel epenthesis in SwE through the lens of OT. The data that were collected and analysed were linguistic (pronunciations) rather than numerical data. The study's main purpose is to describe the phonological adjustments that speakers of SwE make on English words containing syllabic consonants through the insertion of a vowel rather than to measure some kind of phonological behaviour. The main objectives are to identify and describe the type of epenthetic qualities and epenthesis sites.

This study takes an empirical, cross-sectional design. New data on SwE pronunciations were collected directly from the participants because there was limited SwE corpus data on pronunciations of words containing syllabic consonants from previous research. Previous research carried out in Eswatini by Arua (1999) had only 12 words containing a single syllabic consonant. Therefore, I needed to go on fieldwork to collect more data with additional words of varying syllabic consonants and morphological structures.

Because of time constraints, data were collected at a single point between 1 February and 20 March 2023, thus making this study cross-sectional. Gass and Selinker (2008) pointed out that cross-sectional data are based on controlled output and that a researcher collects data based on a specific research premise. In this thesis, data were collected

based on the assumption that speakers of SwE insert a vowel to repair syllable structures containing potential syllabic consonants. Hence, a cross-sectional design was appropriate for this study. Cross-sectional studies also use experimental data-gathering techniques (Gass and Selinker, 2008), and this dissertation has used an experimental method to channel the participants towards producing words containing potential syllabic consonants on speakers of SwE. The advantage of conducting this cross-sectional study is that it saved me time.

4.3 Research site

Data were collected at the University of Eswatini (UNESWA), Kwaluseni Campus. Kwaluseni Campus is the biggest of the three campuses (Luyengo, Mbabane, and Kwaluseni) situated in Matsapha, the industrial hub of Eswatini. The campus has five faculties, Humanities, Education, Social Sciences, Commerce, the Faculty of Science and Engineering, and the Institute of Distance Education. According to the information obtained from the UNESWA web page, http://www.uneswa.ac.sz (accessed on 6th December 2022), there were 7645 students enrolled at UNESWA in the academic year 2022/ 2023 and a sizeable number of academic, non-academic, and administrative personnel. Over 5000 students were enrolled at Kwaluseni Campus. The minimum admission requirements to study at UNESWA stipulate that a candidate should have passed the Eswatini General Certificate in Secondary Education (EGCSE) or the International General Certificate of Secondary Education (IGCSE) or Matric – these are senior secondary school certificates – and obtained a credit (C Grade or better) in English Language. Most staff (non-academic) working at UNESWA have senior secondary school certificates as their minimum qualifications, and academic staff have post-graduate qualifications. UNESWA is an English-medium university. English is the language of learning and teaching, and all official communication within the institution is conducted in English. Thus, it can be said that SwE is widely used by the local people in conducting day-to-day business including teaching and learning. Undergraduate students who join the organisation are exposed to this variety of English throughout their years of study.

The study could have been conducted in the streets, shopping centres, and other public spaces, which could have alleviated the bias of the findings toward college-educated populations. However, the nature of the data required a quiet space to protect them from

noises that could spoil the quality of the sounds. So, the streets, shopping centres, and public places were not suitable for the research site. Kwaluseni Campus, as the biggest of the three campuses of the only national university in the country, attracts people from diverse socio-economic backgrounds in Eswatini and abroad. Kwaluseni campus was, therefore, a perfect site for the research since the place had information-rich potential participants, and it was the ideal space away from noises where the safety and privacy of the participants could be maintained.

4.4 Participants

The participants of this study were exclusively adult native Swati ESL speakers with a minimum of a senior secondary school certificate, and they comprised students and staff at UNESWA. The decision to recruit adult participants was informed by Lenneberg's (1967) Critical Age Hypothesis (CAH) and Johnson & Newport's (1989) Maturation State Hypothesis, both of which highlighted the role of age in the acquisition of language. According to CAH, human beings can acquire language at a maturational limited period that extends from childhood up to puberty, after which it becomes impossible to develop language to a native-like proficiency (Gass and Selinker, 2008). Lenneberg was concerned with the role of age in L1 acquisition. Still, the idea was extended to second language acquisition (SLA) as the maturational state hypothesis (Johnson & Newport, 1989). Researchers in SLA and cognitive psychologists argued that early in life, humans have a superior ability to acquire language – be it L1 or L2 – and the capacity declines with maturation (Johnson & Newport, 1989; Long, 1990; Moyer, 1999).

In light of these two hypotheses, the targeted participants were individuals above 18 and above puberty. It was assumed that L2 forms with an epenthetic vowel were a stable property of the linguistic repertoires of the participants because they (participants) were beyond the critical age period or maturation stage of changing their accents. Since this research examines the accent of the participants as the stable and consistent property of SwE variety and not an interlanguage, the subjects ought to have passed the maturation age of language learning. The researcher avoided people who were so old and those without front teeth that they had trouble speaking.

In addition, the participants were in the mesolectal or acrolectal level of the L2 continuum. The intention was to avoid recruiting people who would find the task unduly

tricky because they were not sufficiently fluent in English. The same approach was used in previous studies such as Schmeid (1991), Mesthrie (2005), and van Rooy (2007). To ensure that the subjects had sufficient experience with English to be considered as their ultimate attainment in the language, only participants who had completed a basic level of formal education and were admitted to a university or had gone through a tertiary level of education were recruited for the study. It was assumed that such individuals had gained basic English language abilities and could speak, read, and write fluently under normal circumstances. This assumption was based on the fact that the primary goal of the English Language syllabus for the EGCSE is to enable learners to attain proficiency in the four skills of language learning: reading, writing, speaking, and listening (EGCSE English Language syllabus (6873), 2013-2014). The syllabus also specifies that students are assessed on their ability to pronounce words correctly and to employ appropriate stress patterns. Some people who have not completed Form 5/ Matric may indeed be fluent in both spoken and written English; however, it would have been difficult for me to make the distinctions at face value, so Matric/ Form 5 guaranteed that the prospective participants could speak, read and write English fluently as suggested by the syllabus outcomes.

Targeting participants from UNESWA was used only for screening as they had the attributes of people targeted for the study. The study did not intend to investigate exclusively how the college-educated population speaks English.

4.4.1 Recruitment of participants

As initial contact with potential participants, the study was advertised through a flyer with details about the attributes of people eligible to participate, the activities to be undertaken, and my contact details (see APPENDIX A: FLYER for details). The flyer was pinned on noticeboards in the hallways and posted on WhatsApp groups for UNESWA staff to reach a wider audience. With the assistance of students, the flyer was also posted on students' Facebook pages to attract students from different faculties. Interested participants were expected to respond to the advertisement through phone calls, WhatsApp, or email at the researcher's office. I had planned that once prospective participants responded to the advertisement, I was going to schedule appointments for the recording exercise. In addition, the researcher was going to send invitation letters, participant information sheets, and consent forms to the interested participants as part

of the recruitment exercise. The information sheet and the consent form contained all the information about the study, the expected benefits of the study, issues of confidentiality, and participants' rights written in plain language (see (1) APPENDIX B: INVITATION TO PARTICIPATE LETTER, (2) APPENDIX C: PARTICIPANT INFORMATION SHEET (3) APPENDIX D: PARTICIPANT INFORMED CONSENT DECLARATION FORM for further details.

Despite the study advertisement's reaching a wider audience, it was difficult to find people who responded to the call immediately. After two weeks had lapsed and no participants were forthcoming, I decided to change the initial recruitment strategy. I resolved to employ the "hanging-around-on-campus" tactic, approaching potential participants in their offices, hallways, or other public spaces around campus and handing in hard copies of the flyer, the invitation to participate letter, the consent form, and the information sheet. The hanging-around-on-campus strategy worked successfully for previous researchers such as Neubert (2020) and Schilling-Estes (2007). Participants who gave verbal consent to participate were immediately recruited; I took their names and phone numbers and scheduled appointments. The participants were phoned to be reminded of their appointments one day before the scheduled date and again two hours before the scheduled recording time. Some potential participants, especially students, chose to complete the assignment right then and there rather than go to my office later. In those cases, the recordings were done in nearby vacant classrooms. Other recordings were done in the offices of the participating staff and in my office

4.4.2 Sampling technique

This research employed the purposive sampling technique whereby the participants were intentionally chosen because they represented typical SwE speakers. Creswell (2011) and Merriam and Tisdell (2016) indicated that researchers use purposive sampling to select individuals or cases with special experience and competence from which a great deal could be learned about the phenomenon they are examining. The participants were chosen based on the following attributes: firstly, they were Swati natives; they spoke Siswati as L1 and English as L2. Secondly, they had gone through the basic formal education system in Eswatini and passed the English Language. Thus, they could speak, read, and write English fluently. Lastly, this study's participants had passed the maturational stage of learning a language to reach native-like competence; therefore,

their pronunciation patterns were assumed to be stable and consistent. Thus, I used these characteristics to make an approximation of Eswatini's pronunciation of English. As a result, the sample assisted me in better understanding how SwE speakers pronounce syllable structures with syllabic consonants. The random sampling technique could not work because not everyone at UNESWA was a Swati native, and not all Swati natives can speak and read English fluently.

4.4.3 The sample

The sample size was initially set at 10 and was increased during the study until a saturation point was reached, whereby there were consistent patterns in the respondents' pronunciations. The ultimate sample comprised 22 speakers of SwE (10 male and 12 female). The small sample size was adequate because the study's goal was to establish an in-depth exploration of vowel epenthesis in syllable structures containing syllabic consonants rather than generalising the pronunciation patterns to the entire population of speakers of English in Eswatini. According to Merriam & Tisdell (2016) and Creswell & Guetterman (2019), studies whose aim is to maximise information about the phenomenon under investigation (mainly qualitative studies), study a few individuals or sites or cases. They specify that the size could be as small as one or two individuals or cases to 30 or 40 and that the sample size is adjusted upon reaching a point of saturation. So, I stopped engaging more participants upon realising that the respondents' speech samples were no longer exhibiting new patterns.

The sample was divided into two groups. One group comprised 17 mesolectal speakers (11 female and six male) and the second group was composed of five acrolectal speakers (4 male and 1 female). A semi-structured interview that sought background information about the participants was administered. The interview aimed to elicit participants' knowledge about their experience with English. In light of their responses, the participants were classified as either acrolectal or mesolectal. For all participants in both groups, Siswati was the prominent language used at home and in their neighbourhoods. The participants were divided into acrolectal and mesolectal groups according to several factors, such as how much they interacted with native English speakers, how much they were exposed to English at home, in their neighbourhood, and through media, how fluently they expressed themselves during the interview and the type of epenthetic vowel that they used.

Participants in the acrolect group were all from a background where Siswati was the prominent language at home. Four were exposed to English for the first time when they started school, and two were exposed to English before starting school. The two lived in environments where English was spoken in the neighbourhoods. Though Siswati remained dominant at home, the participants made friends with non-Swati children so they would communicate in English during playtime. All participants in the acrolectal group attended English-medium schools where they had exposure to English through formal and informal contact with their peers and teachers inside and outside the classroom. The schools had an enrolment of learners and teachers from diverse linguistic backgrounds. Some were from different African states such as Mozambique, Nigeria, Kenya, and Zimbabwe, whose L1s were not mutually intelligible with Siswati, and others were from English as a Mother Tongue environment (EMT), hence English was used as a lingua franca. As a result, the schools had a strict policy that made it compulsory for learners to communicate in English inside the school premises. The schools were well-resourced, with fully operational libraries and internet resources, giving them more English exposure. The participants were also from middle-class backgrounds and had televisions that exposed them to spoken English. As learners, they participated in public speaking activities like debates, which enhanced their English-speaking skills. Four participants had never been to EMT environments, and one attended a university in South Africa where he had to interact with white South African lecturers and peers.

All participants in the mesolect group were from environments where Siswati was the prominent language at home and in the community, and all of them were exposed to English for the first time when they started school. They all attended public (primary and high) schools composed of Swati learners only and a few foreign teachers who mainly taught Science subjects and mathematics, particularly at high school. The primary schools did not have a strict policy on speaking English, so Siswati was the prominent language. Some high schools had a strict policy that made it compulsory for learners to speak English at school, and they were punished for speaking Siswati. Despite being encouraged to speak in English in extra-curricular contexts, the participants said they often broke the rules, used Siswati among themselves, and used English only in the presence of teachers. In all the schools attended by the participants in the mesolect group, the library was either dysfunctional or non-existent. All participants said they never had access to the

internet until they entered university. The only form of input of spoken English was from teachers, who were primarily speakers of SwE themselves, and their peers, who were all speakers of SwE. All the subjects had never been to EMT environments and had never had close contact with native speakers of English, except for one participant who studied overseas for five years. One would expect this subject to be acrolectal, but the pronunciations for this subject were more mesolectal. The rest of the informants in this group gained exposure to EMT varieties like BrE and American English only through media, such as the radio and television, though very minimal. All informants in this group were exposed to other varieties of English through contact with speakers of these varieties who reside in the country. The prominent types were Indian English, Zimbabwean English, NigE, and South African English.

The participants were from different age groups, grouped as young adults (18-24 years) and (25-34); middle-aged group (35-45 years), and older group (46 and older). The young adult group consisted exclusively of students, and the middle-aged and older groups consisted of staff. One member in the middle-aged group was a staff member who was also studying part-time in the same institution. The 18-24 years group was easy to get because many students on campus are in this age group. On the contrary, it was quite a challenge to get participants who fit in the middle-aged and older age groups because most prospective subjects the researcher approached turned down the invitation to participate because of their busy work schedules. The convenience sampling technique was therefore used as any participant willing to participate was selected.

As a result, there are different numbers of participants in each age group: the group of young adults is the largest, followed by the group of middle-aged people, and the group of older people has the fewest members. Since this research was not a sociolinguistic correlative study, the inequalities in the sample's composition did not influence the findings. ***Table 4-1*** shows the sample composition by age group, gender, the highest level of education, and L2 proficiency (acrolectal/ mesolectal). Year 1, 2, etc. indicates year at university. ***Table 4-2*** provides a summary of the participant information. The participants were coded by running numbers starting with a P for the participant, followed by gender, then age group, and linguistic proficiency. The codes for gender were M (male) and F (female). Age group was coded Y (young), M (middle-aged), and O (older),

and linguistic proficiency was coded M (Mesolectal), and A (Acrolectal). For example, P20FYM stood for a young female mesolectal participant with a running number 20.

Table 4-1: Composition of participants by age group, gender, highest level of education, and linguistic proficiency

Participant	**Age group**	**Gender**	**Highest level of education**	**Acrolectal/ mesolectal**
P1MYM	18-24	M	Year 1	Mesolectal
P2MYM	18-24	M	Year 1	Mesolectal
P3MYM	18-24	M	Year 1	Mesolectal
P4FYM	18-24	F	Year 4	Mesolectal
P5MYM	18-24	M	Year 3	Mesolectal
P6FYM	18-24	F	Year 3	Mesolectal
P7YMA	18-24	M	Year 4	Acrolectal
P8FYM	18-24	F	Year 1	Mesolectal
P9FYA	18-24	F	Year 2	Acrolectal
P10MYM	18-24	M	Year 4	Mesolectal
P11MYA	18-24	M	Year 2	Acrolectal
P12FOM	46-55	F	Masters	Mesolectal
P13FYM	25-34	F	Bachelor's	Mesolectal
P14MMM	35-45	M	Year 3	Mesolectal
P15FYM	25-34	F	Year 3	Mesolectal
P16FYM	25-34	F	Year 3	Mesolectal
P17FYM	18-24	F	Year 3	Mesolectal
P18FYM	25-34	F	Year 3	Mesolectal
P19MYA	18-24	M	Year 3	Acrolectal
P20FYM	25-34	F	PhD	Mesolectal
P21MOA	46-55	M	Masters	Acrolectal
P22FMM	35-45	F	Masters	Mesolectal

Table 4-2: Summary of participant information

Age group	**No. of participants**	**Gender**	**Highest level of education**	**Mesolectal/ acrolectal**
18-24	13	8M; 5F	Yr1: *n* =4; Yr2: *n* =2; Yr3: *n* =4; Yr4: *n* =3	Acrolectal: n = 4; Mesolectal: n = 9
25-34	5	5F; 0M	Yr3: n =3; Bachelor's degree: n = 1; PhD: n =1	Mesolectal: n =5; Acrolectal: n =0
35-45	2	1M; 1F	Yr 3: n = 1; Masters: n = 1	Mesolectal: n =2; acrolectal: n = 0
46-55	2	1F; 1M	Masters: n = 2	Acrolectal: n = 1; mesolectal: n = 1
TOTAL	**22**	**M: n =10; F:n=12**	**Yr1: n = 4; Yr2: n = 2; Yr3: n = 8; Yr4: n = 3; Bachelor's: n = 1; Masters: n = 3; PhD: n =1**	**Acrolectal: n = 5** **Mesolectal: n =17**

4.4.4 Inclusion and exclusion criteria

People who were eligible to take part in this study were speakers of siSwati L1 who spoke English as their L2, studying and working at UNESWA. This requirement was listed on the participant information sheet (APPENDIX C), and I confirmed the eligibility of each participant before recruiting them. I included staff as participants to avoid bias toward students or one age group and to ensure the inclusion of various age groups in the sample. Staff is a part of the educated SwE-speaking population representing my sample's middle (35-45 years) and older (46 and above) age groups.

The exclusion criterion was non-native speakers of siSwati and Swati speakers of non-BrE. Such participants will be excluded because they might have too much influence from

non-BrE/ non-SwE to be comparable. I also avoided people so old that they had trouble speaking. I also excluded participants with missing front teeth on the same grounds. The whole point is to collect data from a group of Eswatini English-speaking adults to use as an approximation of how normal folks in Eswatini pronounce English.

Moreover, I excluded participants (students and staff) in the Humanities programme because they would have felt compelled to participate against their will. I targeted participants from other faculties like the Faculty of Science and Engineering, the Faculty of Commerce, and the Faculty of Social Sciences to mitigate power imbalance. Even with the students from the other faculties, I sampled only those who seemed enthusiastic to participate.

4.5 Data collection methods

4.5.1 Questionnaire and semi-structured interview

Participants filled in a questionnaire that asked for basic demographic information to provide details about the participants. See APPENDIX E: PARTICIPANT DEMOGRAPHIC INFORMATION QUESTIONNAIRE AND INTERVIEW QUESTIONS for more information. The Questionnaire required information about the gender, age group, and highest level of education of the participants. Such information was helpful in including participants of different age groups, genders, and levels of education to prevent bias and eliminate those who did not have the attributes of the targeted subjects.

A semi-structured interview was also administered to solicit information about the participants' experiences with English to determine whether they fit in the acrolectal or mesolectal groups. Ellis & Barkhuizen (2005) stated that the advantage of an interview is that it can double up as a way of obtaining content information about the participants and samples of their language when the interviews are conducted in the L2. In this dissertation, the purpose of the interview was solely to elicit content information about the participants' linguistic backgrounds and not to obtain samples of words containing syllabic consonants. The interview asked questions about the participants' linguistic environments, including the dominant language at home, in the community, and at school, whether or not they had spent time in EMT environments, and whether or not they were exposed to other varieties of English besides BrE.

4.5.2 The experimental method

An experiment was conducted in the form of a reading-aloud task whereby participants read aloud a list of 50 English words containing potential syllabic consonants. Previous researchers observed that utilising experimental techniques provides the information the researcher is seeking because they are suited to the particular L2 structures under examination, which otherwise could be avoided or underrepresented in naturalistic data (Chaudron, 2003). In addition, researchers can use empirical methods to gather an adequate number of the specific linguistic structures under investigation within a short period, which is impossible with naturalistic data collection methods (Ellis & Barkhuizen, 2005). The reading-aloud task was suitable for the phonological investigation conducted in this dissertation because it forced the participants to produce the targeted linguistic forms, the syllable structures with potential syllabic consonants. The reading-aloud method enabled me to get an adequate number of the SwE forms that reflected epenthetic vowels of various qualities.

Experimental methods are criticised for being 'artificial' because they do not reflect what the respondents can produce under more natural conditions of language use, which compromises their validity (Sharwood-Smith, 1994; Chaudron, 2003; Ellis & Barkhuizen, 2005). However, Chaudron (2003), drawing from Chomsky (1965), argued that spontaneous data is unreliable since it does not accurately reflect the speakers' competence because only well-controlled forms reflect a speaker's performance. Therefore, the experimental method remained more suitable for this study because it enabled me to control the data so that a sufficient quantity of the linguistic forms under investigation was obtained.

The word list

The data was collected using a list of 50 words that contained syllabic consonants of different forms. The word list has been attached as APPENDIX F: WORD LIST. The words that formed the list were taken from the Cambridge English Pronouncing Dictionary (Jones, 2006), which is available online, and from previous research on syllabic consonants such as Toft (2002), Bonilla (2003), Roach (2009), and Akamatsu (2013). The list consisted of words containing the syllabic consonants[l̩], [n̩], [m̩], and [ŋ̩] of Standard BrE. Syllabic [r] was left because it occurs in rhotic accents, and Standard BrE is non-rhotic. BrE is the variety of English modelled in Eswatini schools. Only words in which

the first recommended variant to foreign speakers is the default syllabic consonant and words in which the syllabic consonant and the /əC/ variant are equally acceptable (Akamatsu, 2013) were selected because this thesis aimed to find out how speakers of SwE repair such syllabic consonants through vowel epenthesis. Words in which the first recommended variant was the default /əC/ variant were excluded from the list because the dissertation focused on syllabic consonants and not weak syllables.

The words were of varying morphological structures to give a range of contexts in which the syllabic consonants occur. They included simple and complex (compound and derivatives) words. Thirty-eight of the words were simple words, and 12 were complex words. Of the 38 simple words, 33 contained the syllabic consonants occurring in the word-final position, and five had syllabic consonants occurring word-medially. The purpose of varying the position was to determine whether the position of the syllabic consonant within a word is a factor of vowel epenthesis in SwE. In all the 12 complex words, the syllabic consonants occur word-finally. Since complex words are derived from simple words, adding an affix to the simple word does not change the position of the syllabic consonant. Words with word-initial syllabic consonants were excluded because such forms only occur in casual or rapid speech (Akamatsu, 2013). The focus of this study was on slow, careful speech.

Words likely to manifest a three-way co-variation between the syllabic consonant, a schwa plus a non-syllabic consonant, and a non-syllabic consonant, especially derivatives with the suffix /-ɪng/ were excluded. This was done because when the participants articulate a non-syllabic form, it would not be clear whether its occurrence resulted from the suffix's vowel or they were pronouncing the non-syllabic variant of the consonant under investigation.

Various consonant sounds preceded syllabic consonants to allow a variety of phonetic contexts so that I could determine whether the preceding consonant influenced the quality of the epenthetic vowel and the epenthetic site.

4.6 Data collection procedures

Participants were recorded while reading words from the word list and during the interview. Each participant was given a separate slot for the recording when the other

participants were absent. First, the participants filled in a questionnaire for basic demographic information and the highest level of education. The questionnaire was filed in writing. The data collection process was followed by an interview in which participants answered questions about their experiences with English. The interview was semi-structured because the participants answered a set of pre-planned questions about the participants' linguistic environments, including the dominant language at home, in the community, and at school, whether or not they had spent time in EMT environments, and whether or not they were exposed to other varieties of English other than BrE. The questions were followed by further probing and clarification. Lastly, the participants read the word list. The interview and the reading-aloud task were captured in an Olympus VN-541PC digital voice recorder. The questionnaire, interview, and reading-aloud exercise combined lasted between 7 and 10 minutes for each participant.

The advantage of audio recordings was that they captured every detail of the data that could have been missed when using the pencil-and-paper method. Secondly, I replayed the recordings during transcription to ensure the data was transcribed accurately. Researchers mention that the challenge of using audio recording is that the presence of the researcher and the recording device may make the participants very conscious of their speech, and they would try to produce 'perfect forms' thus compromising the authenticity of the resulting samples (Sharwood-Smith, 1994; Ellis & Barkhuizen, 2005). The second disadvantage mentioned by these authors is that it is difficult to obtain precise data in a 'noisy environment'. During the data collection process, similar challenges were experienced. Some of the participants expressed their discomfort with being recorded, and that they were not comfortable conversing in English. They were allowed to converse in Siswati or code-switch. The medium of the conversation was not an issue because the interview was not meant to investigate the participants' speech samples. The participants were also assured that the purpose of the experiment was not to criticise their accents, so there was no right or wrong way of pronouncing the words in the list. Finding a tranquil place to do the recordings without the interference of background noises also posed a challenge because of the inaccessibility of soundproofed rooms within the institution. To ensure that clear data was collected, the recordings were conducted in an empty room with windows and doors shut, and the recorder was placed close to the participants' mouths. Although it was difficult to control the movement of

people in the hallways, the background noises could not obscure the recorded samples because the digital recording device was of very high quality. The digital recordings were then directly entered into the computer as a sound file, and that yielded a clear sound.

4.7 Consideration of ethical principles regarding human participants

The study complied with the requirements for conducting research on human subjects. It considered ethical concerns, as evidenced by the fact that every participant gave their agreement to take part in the study. I also sought permission from the institution's gatekeepers to collect data. Even though the study was conducted on adult participants who were not vulnerable, and it contained virtually zero harm to human subjects, other ethical issues such as voluntary participation, confidentiality of information and anonymity of participants, and the safe storage of data were observed.

The study was conducted in an L2 environment where L1 was dominant. Many participants who were approached were reluctant to participate, and the reluctance emanated from 2 issues: first, the activities of the study were to be conducted in English, and the English language was not their first language. They expressed that they felt they could not provide accurate pronunciations and thus be judged for being incompetent with the English language. Care was taken to ward off misunderstandings of that sort. Participants were assured that variation in pronunciation was normal and acceptable and that the differences in pronunciation were not an indication of their incompetence with the English language but a sign that English was modified to suit its context of use. I also made sure that the recordings were conducted in a safe and quiet place where there was no intrusion by another person not participating in the research. Each participant had a specific recording time without other participants in the room. Secondly, my presence as the researcher and the knowledge that they were being recorded instilled anxiety in the participants. Throughout the research, participants were assured of the confidentiality of their information.

The study was conducted in an institution where I was working as a lecturer, and some of the participants for the study were students. Therefore, there was an apparent power imbalance between the researcher as a lecturer and students in the same institution. To

mitigate power imbalance, I excluded students and staff from the Faculty of Humanities so that participants could have no other dealings with me outside this study.

4.7.1 Ethical clearance

I applied for ethical clearance from the Rhodes University Human Research Ethics Committee (RU-HREC) and the Human Subjects Research Ethics Committee (HSREC), University of Eswatini. The applications were approved. (See APPENDIX G: RU-HREC APPROVAL CERTIFICATES, and APPENDIX H: HSREC APPROVAL CERTIFICATE. Gatekeeper permission was also sought from the Registrar's Office of the University of Eswatini, and it was granted. The gatekeeper Permission letter is attached as APPENDIX I: GATEKEEPER PERMISSION LETTER, and the letter granting the permission is APPENDIX J: GRANT OF PERMISSION TO CONDUCT RESEARCH AT UNESWA.

4.7.2 Voluntary participation

Only participants who showed interest in participating were recruited for the study. Many prospective participants who were approached overtly turned down the invitation, and the researcher did not coerce them to participate. Voluntary participation in the study was ensured throughout the data collection phase. Verbal consent was sought during recruitment and before participants engaged in the exercise, and they were made to sign a consent form to indicate that they agreed to participate in the research. Participants were constantly reminded that they were free to withdraw from participation at any stage during the recording.

4.7.3 Confidentiality and anonymity of participants

To ensure the confidentiality of participants' information, one participant at a time performed the tasks of this study. The information that each informant gave was not shared with the other informants. To keep the identity of the participants unknown, I used codes to identify the participants in the thesis. The codes are described in *Section 4.4.3*.

4.7.4 Data storage and disposal

Recorded data were immediately transferred to a password-protected external hard drive and kept in a locked office. The data are also stored in a Google Cloud, which is

password-protected as well. The data will be kept for five years; when the five years lapse, the data will be deleted.

4.8 Data analysis procedures

4.8.1 Analysis of the raw data

To analyse data, I started by transcribing the participants' pronunciations using the symbols of the International Phonetic Alphabet (IPA). After that, I employed the Contrastive Analysis (CA) method of data analysis (Rusiecki, 1976) and compared the participants' pronunciation forms to Standard BrE pronunciations to determine the adjustments SwE speakers made to syllable structures containing syllabic consonants. From the adjustments, I identified occurrences of vowel epenthesis. I then examined the forms with an epenthetic vowel and identified the different epenthetic qualities and the sites to which the vowels were inserted. I applied the markedness theory, the Splitting theory, and the spelling form hypothesis to generalisations about the factors determining the epenthetic qualities and sites.

4.8.2 The OT analysis

The OT analysis was performed in the OTWorkplace version 123 of 2019. During the analysis, I entered the CON, Input for each C-set, and the C-sets of GEN into the OTWorkplace for submission to EVAL. After entering the CON, input, and the C-sets into OTWorkplace, I then performed a violation count for each constraint, candidate by candidate, and then ran a Factorial typology and finally, a constraint ranking.

4.9 Chapter Summary

This chapter has identified and described the design of this study and the techniques employed to gather and analyse data. The design and techniques, and their relevance to this study were explained and supported using relevant literature. The chapter has further highlighted the challenges the researcher experienced when conducting this study and how they were overcome. Chapter 5 outlines the steps the researcher took when analysing the empirical data and presents the results from the empirical data.

CHAPTER 5: DATA ANALYSIS, RESULTS, AND DISCUSSION

5.1 Introduction

This dissertation aims to describe the nature of vowel epenthesis as a repair strategy for syllabic consonants in SwE. Generally, the causes of vowel epenthesis established in the literature of most African varieties of English, including literature on SwE is that this strategy is used to break consonant clusters and to create an open syllable structure. The reviewed literature also indicates that syllabic consonants are often avoided in other African English varieties, including BSAE, NigE, GhE, and EAE, and they are repaired by inserting a vowel. However, there is still comparatively little empirical research on the precise quality of the vowel inserted both within a variety of English, in a particular context, and across varieties. In-depth empirical research on cases where a vowel is inserted for a purpose other than to reduce consonant clusters and create a CV syllable structure is also very scarce. Chapter 4 presented the methodology employed in this dissertation. In Chapter 5, I describe the data analysis procedures I followed, the results, and the main findings of the study. The specific research questions that are answered in this chapter are: what does the syllable structure of the clusters involving syllabic consonants look like after vowel epenthesis in SwE; what determines the epenthesis site; what are the variants of the epenthetic vowel in SwE, and what determines the quality of the epenthetic vowel?

I begin this chapter by outlining the steps I took to get the data ready for analysis. After that, I go over the steps I took to transcribe the audio-recorded data, how I addressed validity and reliability concerns, and how I cleaned up the data. I then present a summary of the results from a contrastive analysis of Standard BrE and the Acrolect and Mesolect forms of SwE as evidence that speakers of SwE avoid syllabic consonants. From there, I examine the syllable structure of SwE after vowel epenthesis. I then examine the positions of the epenthetic vowels in the data to generalise what determines the epenthesis site. Finally, I look at the different qualities of the epenthetic vowel that emerged in the data, their contexts, and form generalisations on the epenthesis strategies and epenthetic qualities in SwE. The results and summaries of the main findings are presented concurrently in this chapter. Contextually driven theoretical points will be expounded in Chapter 6.

5.2 Transcription of data

Data were transcribed based on my auditory perception. I listened to the audio recordings numerous times and made phonetic transcriptions of the SwE pronunciations using the IPA. Broad phonetic transcriptions were made rather than narrow ones because I was only interested in determining the SwE pronunciation as distinct from Standard BrE pronunciations. The use of Standard BrE for comparison does not imply that BrE was the sole input variety. As highlighted in Chapter 2, ESL learners in Eswatini received input from speakers of other varieties of English comprising ESL and EFL varieties. Thus, SwE has a distinct flavour due to the blending of various English accents with the locals' native Swati language. Standard BrE, however, continues to be the target variety for ESL learners in Eswatini schools, which is why the comparison is made. The BrE transcriptions used as a standard in this dissertation are the Southern British English (SBE) transcriptions. Considering the history of Eswatini as a former British protectorate and that the British settlers who made contact with many nations in the Southern African region were speakers of SBE (Lass, 2002), it is reasonable to assume that the variety modelled as a standard to Swati speakers of English was the SBE dialect. Even though other EMT varieties such as American English may have influenced SwE through media in recent years, the variety accepted in the educational sector is Standard British English. The study focused not on the allophonic variations of the participants' pronunciations but on determining whether or not the participants inserted vowels to repair syllables that contained potential syllabic consonants. The transcriptions were used for the comparison of the recorded data with the corresponding Standard BrE pronunciations and the quantification of the data for the establishment and description of patterns of the occurrences of vowel epenthesis

The transcriptions of the BrE pronunciations used as a basis for comparison were obtained from previous works on syllabic consonants, together with the words that formed the word list used for the experiment. Such works include Toft (2002), Bonilla (2003), Roach (2009), and Akamatsu (2013). The accuracy of the transcriptions from the various sources was verified using the *Cambridge English Pronouncing Dictionary (EPD) 17th Edition* (Jones, 2006). Jones (2006) and Akamatsu (2013) note that words in which a syllabic consonant co-varies with a /əC/ are notated differently in transcription. Jones (2006) notes that when a superscript schwa (ᵊ) is used in the transcription, it should be

interpreted as indicating optional syllabicity. Following a review of several EPDs, Akamatsu (2013) notes that a superscripted schwa indicates a default syllabic consonant (recommended exclusion of the schwa in the pronunciation of foreign learners of English) while the use of a non-superscripted schwa indicates a default /əC/ recommended inclusion of the schwa in the pronunciation. In some words, both variants are equally acceptable. In light of the observations made in the literature, I have enclosed a non-superscripted schwa in parentheses. to indicate pronunciations in which both a syllabic consonant and /əC/ are equally acceptable. Where a syllabic consonant was the recommended default variant, I used the diacritic mark underneath the sonorant consonant (Ç) to indicate syllabicity. For example, [n̩] indicates a syllabic nasal.

5.3 Issues of validity and reliability

Previous researchers have raised issues of validity and reliability concerning the use of auditory transcriptions alone in research. The subjectivity of the transcriptions to the expectations of the analyst, the imprecision of analytical categories, and the inaccurate recording of the speech tokens are just a few of the drawbacks of employing impressionistic auditory transcriptions, as described in Boberg (2005) and Berker (2008). To assure accuracy, the authors advise using instrumental analyses.

To overcome these limitations, the researcher consulted existing literature on the phonetics and phonology of other African English varieties because there is a dearth of research on vowels and consonants of SwE. Literature on BSAE, Zimbabwean English, NigE, and EAE was consulted. While research shows variations in the pronunciation of English consonants across these different African English varieties, there is a consensus amongst researchers that the vowel pronunciations are almost identical across the different African English accents. Very few differences in the vowel pronunciations of African Englishes are indicated in the literature. The transcriptions for this dissertation were closely aligned with the BSAE transcriptions because it is a variety closest to SwE. BASE is the variety of English commonly spoken by South Africans whose mother tongue is one of the indigenous African languages, including Siswati (de Klerk, 1999; Mesthrie, 2020; Kamwangamalu, 2020). Siswati is the L1 of the participants for this study. It would be expected that Siswati L1 speakers from the South African side of the border speak a variety of BSAE that is identical to SwE. Thus, I assume that SwE and BSAE accents share

a lot of similarities. BSAE is widely researched and has a rich database of vowels and consonants from research conducted using instrumental analyses.

The transcriptions and the audio files were submitted to two moderators for verification. One of the moderators was a Swati speaker of ESL who has a PhD in Linguistics, specialising in Phonology. The second moderator was a Sesotho speaker of ESL who also has a PhD in Linguistics. The second moderator had completed courses in phonology at both undergraduate and postgraduate levels. The moderators generally agreed with most of my transcriptions. However, there was a lengthy debate concerning the precise SwE pronunciation of [kl] occurring in words such as *gentle* [ʤeŋkli] and *uncle* [aŋkli]. At first, there was a disagreement between the first moderator and me (both speakers of SwE). One said participants were articulating the voiceless velar lateral affricate [kɬ'] occurring in Siswati and isiZulu words such as *klibha* [kɬ'iba] "tell someone off" and the other said it is a sequence of a voiceless velar plosive [k] followed by an alveolar lateral approximant [l]. We had to play the recordings numerous times carefully listening to the sound(s) in question while simultaneously using our intuitions as speakers of SwE. After much deliberation, we all agreed that [kl] is a consonant cluster comprising [k] and [l] rather than the affricate [kɬ']. We made the following observations: (1) there were two articulatory movements of the tongue in the production of this sequence starting from the velum and ending at the alveolar, suggesting that these are two separate sounds; (2) the [l] has an approximant release rather than a fricative release. Any fricative noises that could be heard end before the release of [l], meaning that such noises were merely co-articulatory gestures rather than the property of the sound [kɬ']. Thus, there was no substitution of this sequence for a Siswati sound. We also noted that during the production of [l], the tongue is a bit retracted and lowered, almost resembling the dark [ɬ] described in Sproat & Fujimura (1993). Since the characteristic of the [l] does not directly affect this study, we transcribed this alveolar lateral approximant as [l], thus *gentle* is [ʤeŋkli] and not [ʤeŋkɬ'i] or [ʤeŋkɬi] and *uncle* as [aŋkli] and not [aŋkɬ'i] or [aŋkɬi]. Nevertheless, before we can conclude that this is a dark [ɬ], more research into the specific physiological characteristics of this [l] may be required to confirm these observations. After the discussion with the two moderators, corrections were made in line with what was eventually agreed on and on the accounts of the vowels and consonants of BSAE provided in the literature.

5.4 Data cleansing

After the corrections were made to the transcriptions, I identified and noted all words that were misread. These were words I believe the participants made errors in pronouncing. The pronunciations of these words deviated from the normal Standard BrE pronunciation or the pronunciation observed from a majority of the participants so much so that it would be reasonable to believe they were completely different words than those in the list. There were eight such tokens, and they included [ʃov] for *shovel*, [perifil] for *peril*, [reibo] for *ribbon***,** [tʃams] and [tʃam] for *chasm*, [ketli] for *castle,* and [hwisli] and [resə] for *wrestle.* There were 1100 expected tokens for the analysis but the actual number of tokens that were eventually included in the analysis was 1084. Of the expected 1100 tokens, eight (0.73%) were misread words which were eliminated in the analysis, and the other eight (0.73%) were omissions by the participants (unread words).

5.5 The Contrastive Analysis

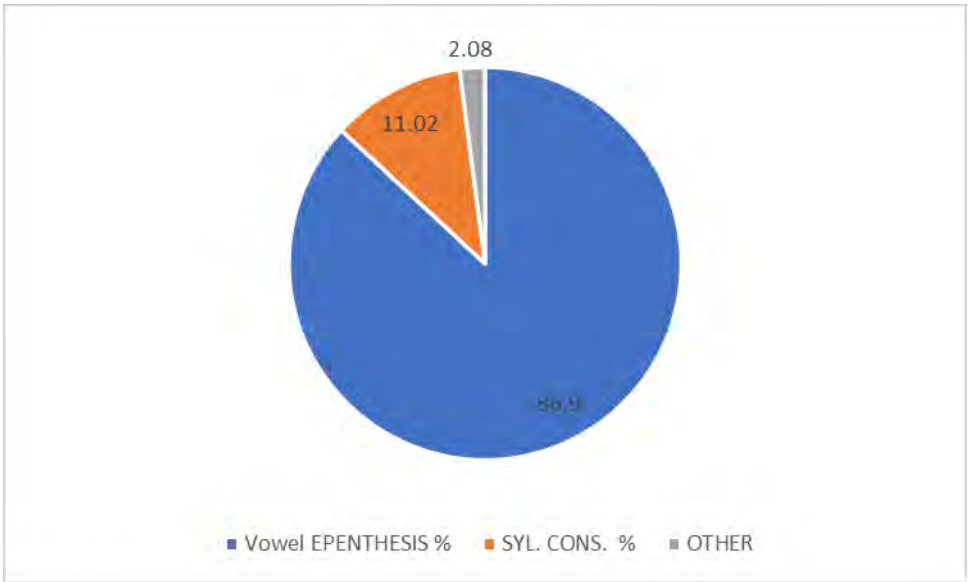
The CA framework was used to frame the initial stage of the data analysis. Gass and Selinker (2008) explain that when employing CA, a researcher compares sound systems, morphological, syntactic, and cultural systems of two or more languages structure by structure to identify commonalities and contrasts. CA serves two goals, pedagogical and theoretical (Rusiecki, 1976; Fiaski, 1981; Gass & Selinker, 2008). The pedagogical goal of CA is to predict difficulties that the learners will encounter when learning a second language (Rusiecki, 1976; Gass & Selinker, 2008; Li, 2021). Achievement of this goal is the aim of applied language studies. Educators use information obtained from contrastive studies to inform language teaching and syllabus design (Rusiecki, 1976; Khansir, 2019; Li, 2021). Theoretical CA, on the other hand, aims at understanding the nature of individual languages and their structures (Fiaski, 1981; Gass & Selinker, 2008). According to Fiaski (1981), the theoretical implications of CA have applications in the fields of language typology and language universals. In the current study, CA served a theoretical purpose, which was to describe the nature of vowel epenthesis as a repair strategy for syllables with syllabic consonants in SwE. The study's findings, however, may be used for pedagogical purposes by future researchers in the field of applied linguistics as well.

Each of the 1084 tokens was put side-by-side with their Standard BrE counterparts, and I made comparisons for each syllable with a potential syllabic consonant. The comparisons aimed to identify the similarities and differences in the participants' pronunciation of the syllables containing potential syllabic consonants to that of Standard BrE. Finding the similarities and differences was a good starting point for me to determine the patterns that formed typical SwE pronunciations. The different pronunciation forms that emerged in the data were grouped into different groups based on their characteristic forms. The groups included forms with a syllabic consonant, forms with an epenthetic vowel other than [ə] or [ɐ], forms in which the potential syllabic consonant was assigned to the coda position, forms with [ə] or [ɐ] plus a non-syllabic consonant, and forms in which the potential syllabic consonant was completely deleted and not replaced by a vowel. The frequency of the occurrence of each of these different forms of pronunciation was calculated using simple percentages. The native baseline of syllabic consonant occurrences was set at 90% and 10% for the occurrences of an epenthetic vowel [ə]. This was because five words *bacon* /beɪk.(ə)n̩/ or /beɪk.(ə)ŋ̩/, *riban*d /rib.(ə)n̩d/, *handsome* /hænd.s(ə)m̩/, *broken* /brəʊk.(ə)n̩/ or /brəʊk.(ə)ŋ̩/ , and *thicken* /θɪk.(ə)n̩/ or /θɪk.(ə)ŋ̩/allows both a syllabic consonant and the /əC/ equally in the Standard BrE pronunciation (Jones, 2006). Therefore, SwE pronunciations that contained either a syllabic consonant or a /əC/ in the case of *bacon*, *riband*, *handsome*, *broken*, and *thicken* were considered to be similar to Standard BrE pronunciation, and the rest of the forms were considered different and thus associated with SwE.

5.6 Swati English pronunciation of words containing potential syllabic consonants

The results of this study indicate that overall, 86.90% of the SwE pronunciations reflect occurrences of vowel epenthesis, and only 11.02% reflect occurrences of syllabic consonants. There are additional repair strategies that emerged in the data (2.08%) whereby the potential syllabic consonant is either deleted or retained as a coda without the insertion of a vowel. ***Figure 5-1*** illustrates the observed SwE pronunciations of syllables with potential syllabic consonants.

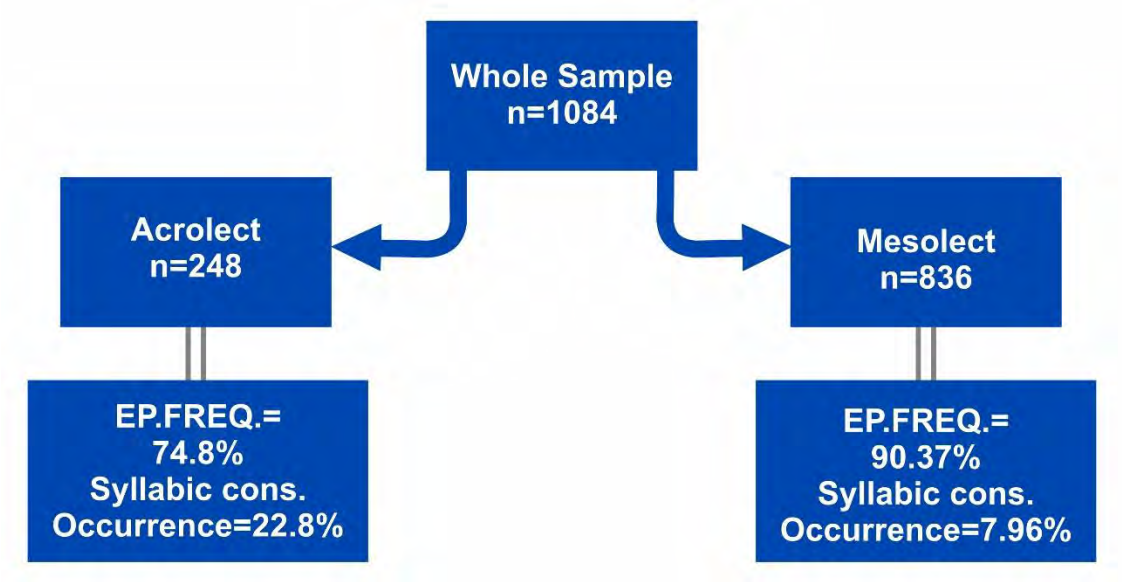
Figure 5-1: Observed SwE pronunciations of syllables with potential syllabic consonants



These results show that speakers of SwE have challenges in pronouncing syllables with the syllabic consonants [l̩], [m̩], [n̩], and [ŋ̩]; hence, vowel epenthesis is a commonly used strategy for repairing syllables with syllabic consonants. Deletion and the resyllabification of the sonorant into a coda are only minimally used. Contrary to Arua's (1999) argument that vowel epenthesis in SwE is restricted to syllables with [l̩], the results of this study show that speakers of SwE repair the other syllabic consonants including [m̩], [n̩], and [ŋ̩] by vowel epenthesis.

The data were further divided into two, based on the two groups of participants, Mesolect, and Acrolect. See APPENDIX K: ACROLECT RAW DATA and APPENDIX L: MESOLECT RAW DATA for details. The classification into Mesolect and Acrolect was not only determined by the means of the epenthesis occurrences versus syllabic consonant occurrences but also by the quality of the epenthetic vowel. ***Figure 5-2*** illustrates the classification of participants based on their pronunciations.

Figure 5-2: Classification of participants based on their pronunciations



The results reflect a high preponderance of vowel epenthesis in the Mesolect group (90.37%) and a low syllabic consonant occurrence (7.96%). Conversely, the Acrolect group has a higher syllabic consonant occurrence (22.8%) and lower vowel epenthesis occurrence (74.8%) compared to the mesolect group. Although there is a slight decrease in the vowel epenthesis occurrences in the acrolect data, the statistics is still high considering that the native baseline for the occurrence of an epenthetic vowel is 10% and 90% for the occurrence of syllabic consonants. It is evident that generally, syllabic consonants pose a challenge to speakers of SwE. A similar tendency to repair potential syllabic consonants by inserting a vowel has been previously detected in SwE by Arua (1999) and other African varieties of English such as NigE (Akindele, 2019; Akinjobi, 2009; Gut, 2004), GhE (Huber, 2004), BSAE (Hundleby, 1964; Mesthrie, 2005), and EAE (Bobda, 2001). Contrary to the NigE and GhE L-reduction/ L- vocalisation, the results of the current study reveal that SwE employs vowel epenthesis by simply inserting a vowel while retaining the potential syllabic consonant. This finding shows a similar tendency to the vowel epenthesis method previously reported in SwE (Arua, 1999), BSAE (Hundleby, 1964; Mesthrie, 2005), the acrolect form of EAE, and some cases of NigE. ***Table 5-1*** and ***Table 5-2*** provide summaries of the observed Mesolect and Acrolect pronunciations.

Table 5-1: Summary of the observed Mesolect pronunciation

Word	**BrE pronunciation**	**Observed Mesolect pronunciation**	**Word**	**BrE pronunciation**	**Observed Mesolect pronunciation**
Trouble	trʌb.l̩	trab**ul**	heathen	hiː.ðn̩	heθ**en**/hiθ**en**/hið**en**/heɪt**en**/het**en**
Couple	kʌp.l̩	Kap**ul**	lesson	les.n̩	Les**in**
Muffle	mʌf.l̩	maf.**li**/maf**ul**/mafe**l**/maf.l̩	prison	priz.n̩	priz**in**
Gentle	ʤen.tl̩	ʤeŋ.**kli**/ʤeŋ**kl** ʤɛn.tl̩/ʤen**t.l**i/ʤe.n**ti**	fusion	fjuː.ʒn̩	fjuʒ**in**/fiʒ**in**
Shovel	ʃʌv.l̩	ʃove**l**/ʃov**əl**	pardon	pɑː.dn̩	pado**n**/pad**in**/pad**en**/pad**ɐn**
Lethal	liː.θl̩	leθ**al**/la**tal**/liθe**l**/let**al**/lið**al**/lid**al**	rhythm	rɪ.ðm̩	rið**im**/rid**im**/rið**em**
channel	ʧæn.l̩	ʧane**l**	Prism	priz.m̩	priz**im**
Bushel	bʊʃ.l̩	buʃe**l**/baʃe**l**	chasm	kæz.m̩	ʧaz**im**/ʧeɪz**im**/ʧez**im**/kaz**im**/ʧas.m̩
Satchel	sætʃ.l̩	satʃ**el**/saʤ**el**/seɪtʃ**el**/setʃ**el**	fathom	fæð.m̩	faθ**om**/fan**tom**/feθo**m**/fad**om**/faðo**m**/fat**om**
Uncle	ʌŋ.kl̩	aŋ.k**li**/aŋk**l**/aŋ.kl̩	castle	kaːs.l̩	kase**l**/kes**li**/kas**li**//kas.l̩/kas**əl**
Jungle	ʤʌŋg.l̩	ʤaŋg**li**/ʤaŋ**gl**/ʤaŋg.l̩	muscle	mʌs.l̩	mase**l**/mas.l̩/mas**li**
Peril	per.l̩	per**il**/per**ɪel**/per**el**	whistle	*h*wɪs.l̩	hwis**li**/wis**li**/hwis.l̩/wis.l̩/hwis**əl**
Open	əʊ.pn̩/ əʊ.pm̩	ope**n**/ɔʊp**en**/op**ən**	meddle	med.l̩	med.**li**/mid.**li**/med.l̩/miŋg**li**
Ribbon	rib.n̩/ rib.m̩	rib**on**/rib**ɐn**	candle	kæn.dl̩	keŋ.g**li**/kand.l̩/kend.l̩/kandl
Cotton	kɒt.n̩	Kot**in**			

Bacon	beɪk.(ə)ṇ/ beɪk.(ə)ŋ̣	beɪk**on**/beɪk**ən**	Trouble some	trʌb.l̩.səm	trab**ul**sam
Medal	med.l̩	Med**al**	Suddenly	sʌd.ṇli	sad**en**li
Peddle	ped.l̩	ped.**l**i/ped.l̩/pedl	broken	brəʊk.(ə)ṇ/ brəʊk.(ə)ŋ̣	brok**en**
Wrestle	res.l̩	res**li**/rest**li**/res.l̩/res**əl**	thicken	θɪk.(ə)ṇ/ θɪk.(ə)ŋ̣	θik**en**/tik**en**/θik**in**
Italy	it.l̩i	It**al**i	circled	sɜ:k.l̩.ɪd	sek**li**d/sekld/set.l̩d/sek.l̩d
Catalogue	kæt.l̩.ɒg	Kat**alo**g	Candlelight	kæn.dl̩.laɪt	kend**ri**laɪt/keŋg**li**laɪt/kend**li**laɪt/ keŋgllaɪt/ken.dl̩.laɪt
Riband	rib.(ə)ṇd	ribe**n**d/rib**an**d/raibe**n**d	coupled	kʌp.l̩d	kap**ul**/kap**ul**d/kap**ul**t
Incident	in.si.dn̩t	insid**en**t	buttonhole	bʌt.ṇ.həʊl	bot**on**hol/bat**in**hol
Important	im.pɔ:.tn̩t	impote**n**t	handsome	hænd.s(ə)m̩	hens**am**
Gentlemen	ʤen.tl̩.mən	ʤeŋk**li**men/ʤen.tl̩.men/ʤent**i**men/ʤentmen	wooden headed	wʊd.ṇ.hedɪd	wud**en**heded/wud**en**hided
Bottleneck	bɒt.l̩.nek	bok**li**nek/bot.l̩.nek/boklnek/botnek	darken	dɑ:.kn̩	da.k**in**
			blacken	blæk.ṇ	ble.k**in**

Table 5-2 Summary of the observed acrolect pronunciations

Word	**BrE pronunciation**	**Observed acrolect pronunciation**	**Word**	**BrE pronunciation**	**Observed acrolect pronunciation**
Trouble	trʌb.l̩	trab**ul**/ trab**əl**	Heathen	hiː.ðn̩	he.ðn̩ / hið**ɐn**/hið**en**/hit**en**
Couple	kʌp.l̩	kap**ul**/kap**əl**	Lesson	les.n̩	les.n̩ / lɛs**ən** /lɛs**in**
Muffle	mʌf.l̩	maf**ul**/ maf**əl**	Prison	priz.n̩	priz**in**/ priz**ɐn**
Gentle	ʤen.tl̩	ʤeŋ**kl** /ʤen.tl̩	Fusion	fjuː.ʒn̩	fjuʒ**in**/ fjuʒ**ɐn**/ fjuʒ**ən**
Shovel	ʃʌv.l̩	ʃov**el**/ʃov**əl**	Pardon	pɑː.dn̩	pa.dn̩ /pad**ɐn**/ pad**ən**
Lethal	liː.θl̩	lɛθ**ɐl**/liθ**əl**/ leθ**al**	Rhythm	rɪ.ðm̩	riðɐ**m**/ riðə**m**/ riði**m**
channel	ʧæn.l̩	ʧan**əl**/ʧan**ɐl**/ ʧan**ɛl**	Prism	priz.m̩	priz**im**/ priz**ɐm**
Bushel	bʊʃ.l̩	buʃ**əl**/buʃ**el**/baʃ**ɐl**	Chasm	kæz.m̩	ʧaz**im**/ʧaz**əm**/ʧaz**ɐm**
Satchel	sætʃ.l̩	satʃl̩/satʃ**el**/sɛʃ**əl**/satʃ**ɐl**	fathom	fæð.m̩	faθ**om**/ faðɐ**m**/ faðə**m**
Uncle	ʌŋ.kl̩	aŋ.kl̩	Castle	kaːs.l̩	kas**el**/kas.l̩/kas**əl**/ kɛs**ɐl**
Jungle	ʤʌŋg.l̩	ʤaŋg.l̩	Muscle	mʌs.l̩	mas.l̩/ mas**ɐl**/ mas**əl**
Peril	per.l̩	pɛr.l̩/ per**ɐl**/ per**əl**/per**il**	Whistle	*h*wɪs.l̩	*h*wis.l̩ /hwis**əl**/ wis**ɐl**
Open	əʊ.pn̩/ əʊ.pm̩	ope**n**/oʊpo**n**/oʊpə**n**	Meddle	med.l̩	med.l̩/ med**ɐl**
Ribbon	rib.n̩/ rib. m̩	ribo**n**/rib**ɐn**/ribə**n**	Candle	kæn.dl̩	kend.l̩/ keŋgl
Cotton	kɒt.n̩	kot.n̩ / kot**ɐn** /kot**in**	troublesome	trʌb.l̩.səm	Trab**ul**sam

bacon	beɪk.(ə)ṇ/ beɪk.(ə)ŋ	beɪk**ən**/ beɪk**ɛn**/ beɪk**on**	suddenly	sʌd.ṇ.li	Sad**en**li
Medal	med.ḷ	med**ɛl**/ med**al**	broken	brəʊk.ṇ	Brok**en**
Peddle	ped.ḷ	ped.ḷ/ ped**ɛl**	thicken	θɪk.ṇ	θike**n**/θik**ən**
Wrestle	res.ḷ	res.ḷ/ res**ɛl**/ res**əl**	circled	sɜːk.ḷ.ɪd	sɛk.ḷd
Italy	it.ḷi	it**al**i	candlelight	kæn.dḷ.laɪt	keŋgllaɪt/ken.dḷ.laɪt
Catalogue	kæt.ḷ.ɒg	kat**al**ɔg	coupled	kʌp.ḷd	kap**ul**d/kap**ul**t
Riband	rɪb.(ə)ṇd	ribe**n**d	buttonhole	bʌt.ṇ.həʊl	bat.ṇ.hol/bat**ɛn**hol/bat**in**hol/boto**n**hol
Incident	in.si.dṇt	inside**n**t/insid**ɛn**t	handsome	hæn.s(ə)ṃ	Hens**am**
important	impɔː.tṇt	impot**en**t	woodenheaded	wʊd.ṇ.hedɪd	wud**en**heded/wud**en**hided
gentlemen	ʤen.tḷ.mən	ʤen.tḷ.men/ ʤeŋklmen			
bottleneck	bɒt.ḷ.nek	bot**li**nek/ bot.ḷ.nek/ boklnek			

Table 5-1 and ***Table 5-2*** show the different pronunciations of words containing syllabic consonants in the acrolect and mesolect groups. The epenthetic vowels together with the supposed syllabic consonants are highlighted in bold print.

5.7 Inter-speaker variations

There are observable inconsistencies in the participants' pronunciations within the same speaker and across speakers of SwE concerning the epenthetic vowel qualities, the epenthesis sites, and the preferred repair strategy. It is noted that one word could have multiple epenthetic qualities and sites by different speakers. This inconsistency in epenthetic vowel quality appears to be a recurring feature observed in most English varieties whereby there is a variation of vowels that replace central vowels (Huber, 2004; Kadenge, 2009; van Rooy & van Huyssteen, 2000; Wolf, 2021). In addition, it is noted that one speaker may employ more than one strategy to repair the potential syllabic consonants. Moreover, one speaker may repair some potential syllabic consonants in some words while retaining them in others. ***Table 5-3*** illustrates some of the inter-speaker variations of epenthetic vowel qualities and epenthesis sites in the pronunciation of *muffle*.

Table 5-3: Inter-speaker variations of epenthetic qualities and sites

Participant	**SwE pronunciation**	**Epenthetic quality**	**Epenthesis site**
P1MYM	mafli	i	after /l/
P10MYM	mafli	i	after /l/
P3MYM	maful	u	before /l/
P5MYM	mafel	e	before /l/
P6FYM	maful	u	before /l/
P7MYA	mafəl	ə	before /l/
P9FYA	maful	u	before /l/
P11MYA	maful	u	before /l/
P12FOM	maful	u	before /l/
P21MOA	mafəl	ə	before /l/

Table 5-3 illustrates the different pronunciations of *muffle* by the different participants. This word is pronounced as [maful], [mafel], [mafli], and [mafəl]. It has four different epenthetic qualities [u], [e], [i], and [ə], and two epenthesis sites, that is, before /l/ and after /l/. Worth noting is that the variations occur across ages, genders, and forms of SwE. For example, P3MYM, P6FYM, P9FYA, P11MYA, and P12FOM all pronounced the word as [maful]. P3MYM, P6FYM, and P12FOM belong to the Mesolect group, while P9FYA and P11MYA belong to the Acrolect group. However, within these two groupings, the ages and genders of the participants varied. For example, P3MYM was male while P6FYM was female yet both belonged to the Mesolect, Young Adults group (18-24 years). Based on these observations, I concluded that the variation of epenthetic qualities and sites was not associated with these sociolinguistic variables. In ***Table 5-4*** and ***Table 5-5*** I demonstrate the variation of repair strategies in the pronunciations of one selected Acrolect speaker (P21MOA) and one Mesolect speaker (P22FMM).

Table 5-4: A variation of repair strategies by one Acrolect speaker

Word	**Participant pronunciation**	**Repair strategy**
Trouble	tra.bul	vowel epenthesis
Shovel	ʃo.vəl	vowel epenthesis
Lethal	le.θal	vowel epenthesis
Gentle	ʤeŋkl	potential syllabic /l/ assigned to syllable margin
Uncle	aŋ.kl̩	not repaired
Bottleneck	bokl.nek	potential syllabic /l/ assigned to syllable margin
Gentlemen	ʤen.tl̩.men	not repaired

P21MOA was a male Acrolect speaker who belonged to the older age group (46 years and older). This participant employed two repair strategies. One of the repair strategies is vowel epenthesis, as it is noticed in the case of [tra.b**u**l], [ʃo.v**ə**l], and [le.θ**a**l]. In other

instances, the participant assigns the potential syllabic consonant to the margin of a syllable without an additional vowel. For instance, in [ʤeŋk**l**] and [bok**l**.nek], the potential syllabic /l/ is assigned to the coda position. This method was not observed in any of the other African English varieties reviewed in the literature. Still, in other instances, the potential syllabic consonant /l/ is pronounced as syllabic, as in [aŋ.k**l̩**] and [ʤen.t**l̩**.men].

Table 5-5: A variation of repair strategies by one Mesolect speaker

Word	**Participant pronunciation**	**Repair strategy**
Trouble	tra.bul	vowel epenthesis
Shovel	ʃo.vel	vowel epenthesis
Lethal	le.θal	vowel epenthesis
Gentle	ʤen.ti	vowel epenthesis plus deleting the potential syllabic consonant
Uncle	aŋ.kli	vowel epenthesis
Bottleneck	bo.kli.nek	vowel epenthesis
Gentlemen	ʤen.ti.men	vowel epenthesis plus deleting the potential syllabic consonant

P22FMM was a female Mesolect speaker who belonged to the middle-aged group (35-45 years). This participant employed vowel epenthesis in all the words in the table. However, the epenthesis occurred in two distinct ways. Firstly, the speaker inserted a variety of vowel qualities but retained the potential syllabic consonant /l/. This could be seen in words such as [tra.bul], [ʃo.vel], [le.θal], [aŋ.kli], and [bo.kli.nek]. In the second way, a vowel was inserted, and at the same time, the potential syllabic consonant was deleted. This can be seen in [ʤen.ti] and [ʤen.ti.men]. This second way is almost similar to EAE and WAE L-reduction/L-vocalisation process, but the difference lies with the qualities of the epenthetic vowel. While the SwE Acrolect speaker inserted [i], EAE and WAE insert [u] and [o] (Bobda, 2001; Huber, 2004). It remains unclear whether or not the

other African English varieties influenced the pronunciation patterns of this Mesolect speaker, as she inserted a different epenthetic quality than EAE and WAE.

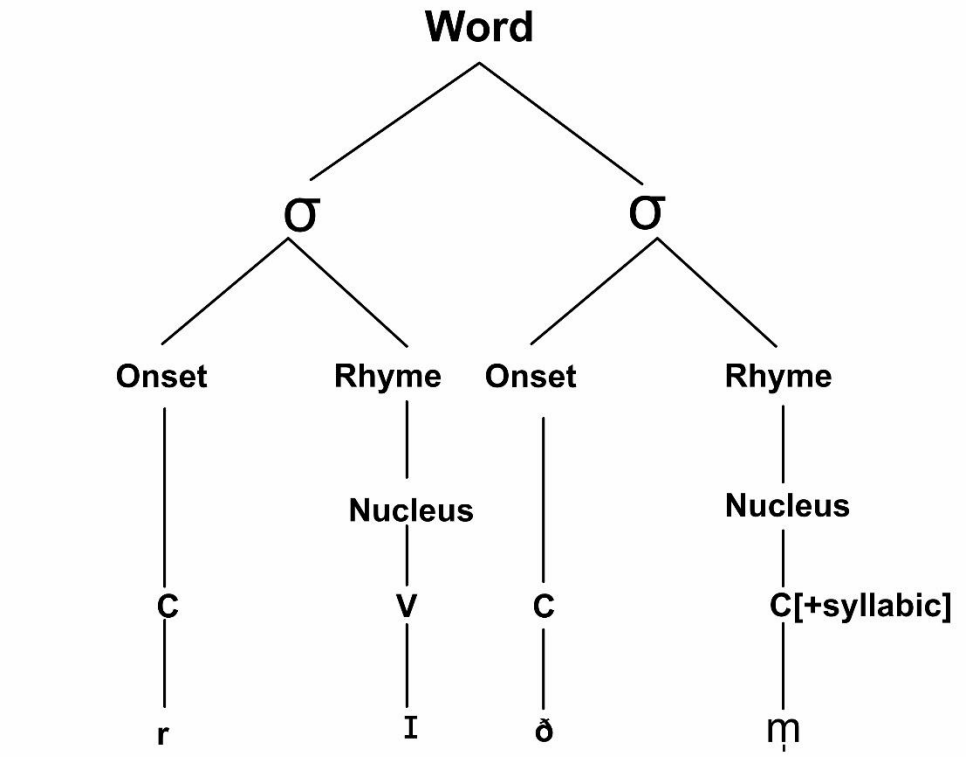
5.8 Swati English syllable structure after vowel epenthesis

One of this study's goals is to find out what the syllable structure of SwE looks like after vowel epenthesis. What can be observed in the data is that once a vowel is inserted, the potential syllabic consonant takes a position on the syllable margin, becoming either an onset or a coda. Depending on the epenthesis site, the potential syllabic consonant can either combine with the coda of the preceding syllable to form an onset cluster or it may become a coda, and the coda of the preceding syllable becomes an onset. Consider the examples in (60)-(65) from the data.

BrE	**(vowel-less syllables)**	**SwE (vowel epenthesis)**
	60. *trouble* /trʌb.l̩ /	[tra.b**ul]**
	61. *cotton* /kɒt.n̩/	[ko.t**in**]
	62. *rhythm* /rɪ.ðm̩/	[ri.ð**im]**
	63. uncle /ʌŋ.kl̩/	[aŋ.k**li]**
	64. *bottleneck* / bɒt.l̩.nek/	[bo.k**li.**nek]
	65. *insident* /in.si.dn̩t/	[in.si.d**e**nt]

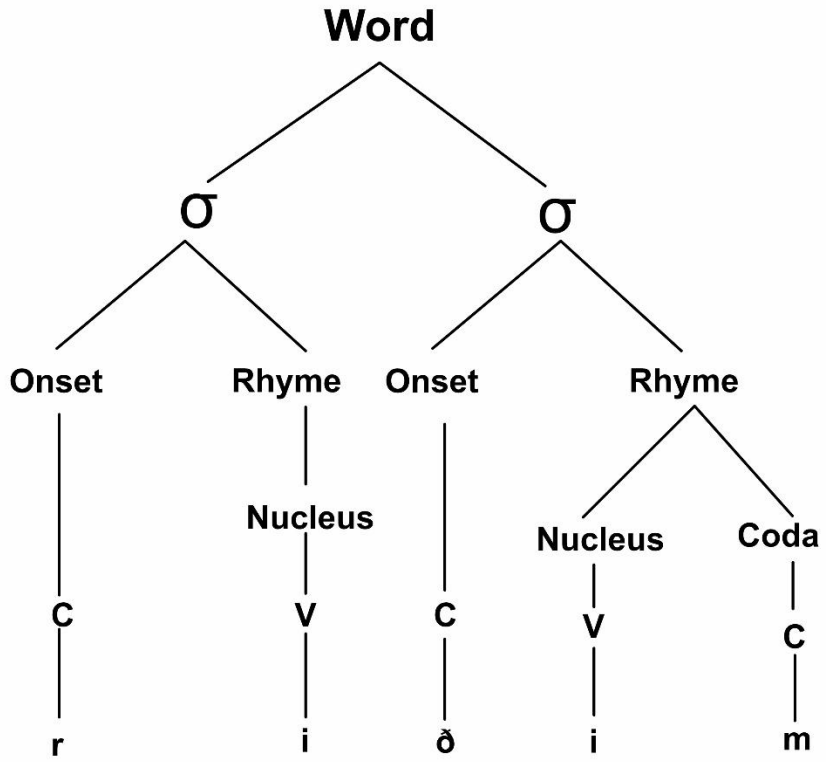
In (60), the epenthetic vowel [u] has become the nucleus of the syllable [bul] in the SwE form, and the potential syllabic /l/ has become the coda. In (61) and (63), the epenthetic vowel [i] in the SwE form has become the nucleus, and the potential [n̩] and [m̩] have become the codas of the syllables [tin] and [im] respectively. In (63) and (64), the epenthetic vowel [i] has become the nucleus, and the potential [l̩] has become part of the onset cluster [kl]. In (65), the epenthetic vowel [e] has become the nucleus, and [n̩] has become part of the coda cluster [nt]. ***Figure 5-3*** illustrates the SwE syllable structure of the word *rhythm* before and after vowel epenthesis.

Figure 5-3 ***Syllable structure diagram of the word 'rhythm' before vowel epenthesis***



The syllable structure diagram above illustrates the syllable structure of *rhythm* in which [m̩] occurs as the nucleus.

Figure 5-4 ***Syllable structure diagram of the word 'rhythm' after vowel epenthesis***



In the illustration in *Error! Reference source not found*. above, the second syllable gains to carry the inserted vowel [i] as the nucleus and the potential syllabic [m̩] becomes positioned at the syllable margin as the coda.

In examples (60) to (65), I demonstrated how the SwE syllable structure shows onsets and codas. Some of the onsets and codas are complex, for instance, [kl] is the onset of the second syllable in [aŋ.kli], and [nt] is the coda of the third syllable in [in.si.dent]. Therefore, the insertion of a vowel eliminates a consonantal nucleus rather than consonant clusters or codas. English words that don't have syllabic consonants but have codas and onset clusters are pronounced unaltered. Consider the following examples.

66. *spring:* BrE [**spr**ɪŋ] SwE: [**spr**iŋ]

67. *next*: BrE [ne**kst**] SwE: [ne**kst**]

The examples in (66) and (67) illustrate that speakers of SwE can pronounce codas and clusters in onsets. In example (66), the three-consonant-clustered onset [spr] is pronounced unaltered, and the three-consonant-clustered coda [kst] in (67) is also

pronounced unaltered. ***Figure 5-5*** and ***Figure 5-6*** show the syllable structure tree diagrams of these two words as pronounced by SwE speakers.

Figure 5-5 A syllable structure diagram for SwE 'spring'

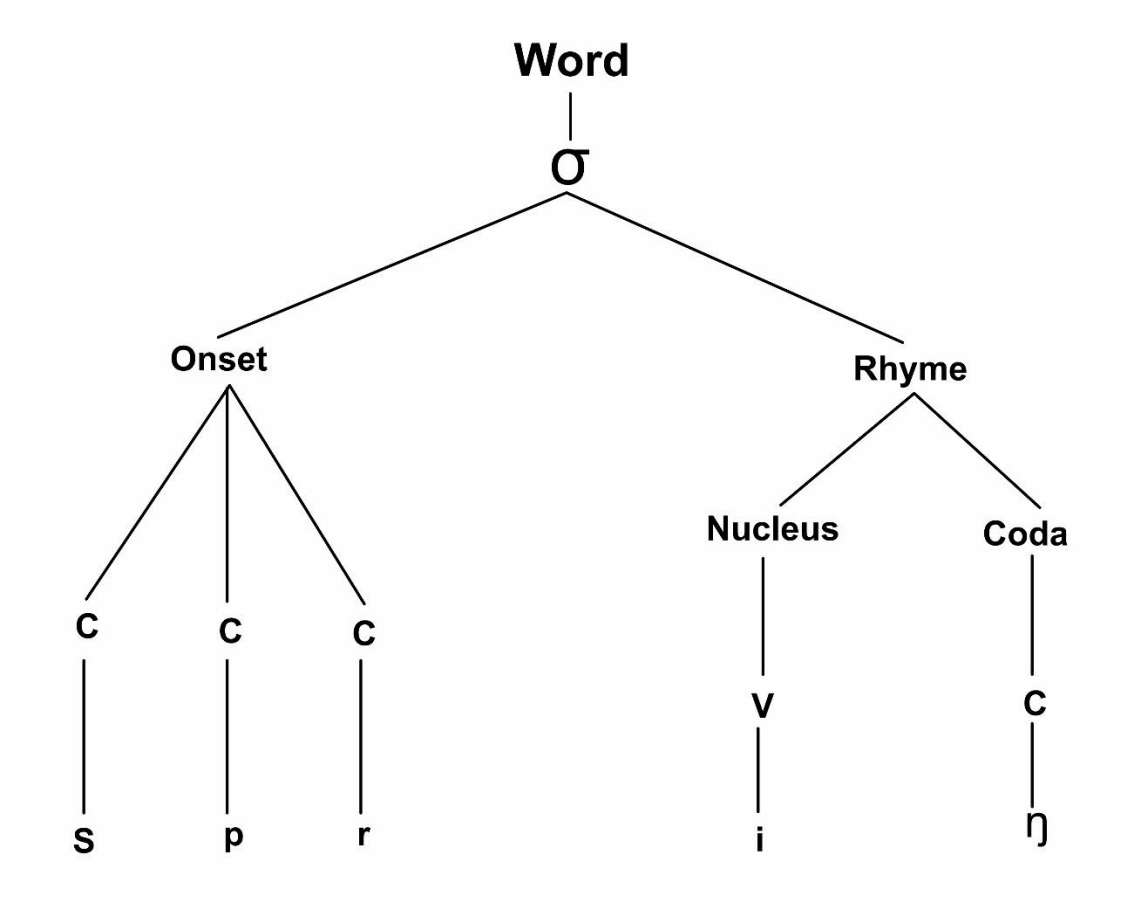
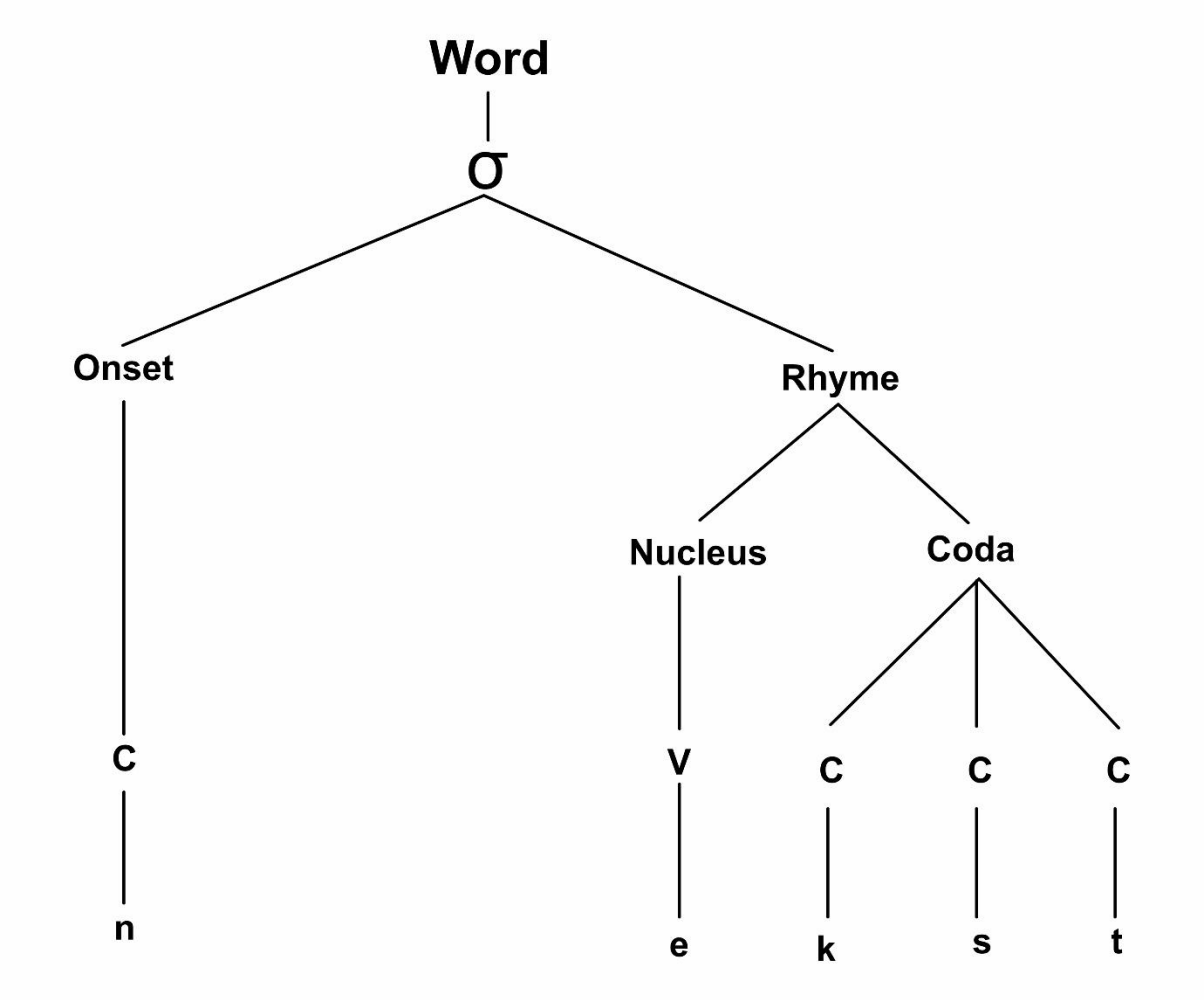


Figure 5-6 A syllable structure diagram for SwE 'next'



This finding shows that the syllable structure of SwE is more like the BrE syllable structure, which allows for both onsets and codas. Based on this evidence, I concluded that like Standard BrE, SwE belongs to syllable TYPE IV languages, with the syllable structures CV, V, CVC, VC as per Clement &Keyser's (1983) classification. SwE, like BrE, permits complex onsets and codas, thus placing the syllable structure of this variety in the same niche of the typology as that of BrE. This finding confirms Arua's (1999) finding that SwE treats consonant clusters similarly to BrE compared to other African English varieties that do not tolerate consonant clusters. For example, BSAE deletes/r/ in obstruent-/r/ sequences (van Rooy, 2000, 2007), while SwE retains it, as can be observed in the word *trouble,* whereby the attested forms of SwE retain the /r/.

In addition, contrary to EAE, which inserts vowels syllable-finally to avoid codas, the attested forms of SwE show that codas are permitted in this variety. This finding is

contrary to Arua's (1999) observation that vowel epenthesis is due to the influence of Siswati L1, which has a CV structure. When Siswati borrows words from English, the syllable structure of the loanwords is adjusted so that it adapts to the CV syllable structure of Siswati by inserting a vowel (Mkoko, 2021). Yet, their original syllable structures are retained when the Siswati L1 speakers pronounce the same words in SwE. Consider the examples in (68) to (70).

Word	**BrE**	**SwE**	**Swati loanword**
68. *box*	[bɒ**ks**]	[bo**ks**]	*libhokisi* [li.bo.**ǧi.s**i]
69. *vote*	[vəʊ**t**]	[vɔʊ**t**]	*vota* [vo.**t'a**]
70. *spoon*	[**sp**uːn]	[**sp**uːn]	*sipunu* [**si.p**'u.nu]

The examples in (68) demonstrate that SwE retains the cluster [ks]; however, when the word *box* is borrowed into Siswati, this cluster is reduced by inserting epenthetic [i], and another [i] is inserted to eliminate the coda [s]. The example in (69) demonstrates that Siswati prohibits the coda [t] by inserting epenthetic [a]. In (70), the onset cluster [sp] has been broken by inserting epenthetic [i] to adapt the Siswati loanword into the Siswati CV syllable structure. Thus, these examples demonstrate that applying vowel epenthesis as a repair strategy in SwE is not a result of transfer from siSwati intended to simplify onset clusters or eliminate codas to create CV syllables, as previously indicated by Arua (1999). I also demonstrate that the resulting syllable structures after vowel epenthesis may contain complex onsets and syllable codas, which are structures not permitted by the phonotactic restrictions of siSwati.

Moreover, syllabic consonants do not occur in the Siswati loanword phonology, and a vowel is inserted on the syllables that originally contained them. However, the epenthesis patterns of the Siswati loanwords differ from the SwE forms of similar words. In the Siswati loanwords, two vowels are inserted – one before the potential syllabic consonant and one after – forming CV syllables. On the contrary, in SwE, only one vowel is inserted, and as indicated earlier, onset clusters and codas remain unresolved. It thus becomes unclear whether the inserted vowels in the Siswati loanwords are really intended to repair the syllabic consonants or to produce CV syllables that adhere to the Siswati

syllable structure. **Table 5-6** shows the pronunciation of SwE forms of words containing syllabic consonants with similar forms in Siswati loanwords.

Table 5-6 SwE and Siswati loanword pronunciation of words containing potential syllabic consonants

Word containing a syllabic consonant	**SwE pronunciation**	**Siswati loanword pronunciation**
(a) Bottle	bo.kl**i**	li.bo.ɮ**e**.l**a**
(b) candle	keŋ.gl**i** /kandl	li.k^{h}a.nɮ**e**.l**a**
(c) kettle	ke.kl**i**	li.ge.ɮ**e**.l**a**
(d) bacon	beɪ.k**ə**n/ beɪ.k**ɐ**n/ beɪ.k**o**n	be.ɠ**e**.n**i**
(e) cotton	ko.t**i**n	k'o.t'**i**.n**i**
(f) muscle	ma.s**e**l/ma.sl**i**	li.ma.s**e**.l**a**

The examples above demonstrate a sharp contrast between SwE and Siswati loanwords epenthesis patterns on similar words. In SwE, one vowel is inserted, and it is clear that the inserted vowel targets a potential syllabic consonant. In contrast, in the Siswati loanwords, two vowels are inserted, each combining with a consonant to form CV syllables. Furthermore, the qualities of the epenthetic vowels in SwE and Siswati are not exactly identical. Examples (a) – (c) show that where SwE inserts [i], Siswati inserts [e] and [a]. In (d), where SwE inserts [ə] or [ɐ] or [o], Siswati inserts [e] and [i]. In (e) and (f), the SwE epenthetic vowels [i] and [e] occurring before the potential syllabic consonants in [kotin] and [masel] are identical to those of Siswati, but SwE does not have an epenthetic vowel after [n] in [kotin]. In [masli], the epenthetic vowel occurs after the potential syllabic consonant without any other epenthetic vowel before this potential syllabic consonant, and this epenthetic vowel [i] is not identical to the Siswati epenthetic vowel [a] occurring in a similar epenthesis site. Thus, these examples demonstrate that even though syllabic consonants appear to be resolved through vowel epenthesis in SwE and Siswati loanword phonology, the epenthesis patterns differ, and the resulting syllable

structures differ too. So, I conclude that the phonology of SwE does not follow from the phonology of Siswati.

In addition to vowel epenthesis, other repair strategies, including deleting the potential syllabic consonant or assigning it to a coda of the preceding syllable, also emerged in the SwE data. Examples (71) and (72) illustrate a repair of potential syllabic [l̩] by assigning it to the coda of the preceding syllable.

71. *uncle*	**BrE:** [ʌŋ.kl̩]	**SwE:** [aŋkl]
72. *jungle*	**BrE:** [ʤʌŋg.l̩]	**SwE:** [ʤaŋgl]

In example (71), SwE avoids the occurrence of syllabic [l̩] by assigning the cluster [kl] to the coda of the position, combining it with the velar nasal to form a coda cluster [ŋkl]. Thus, [aŋkl] is monosyllabic. In the BrE form, the sequence [kl] forms the second syllable of the word [ʌŋ.kl̩], making this word disyllabic with [l̩] being the nucleus. The same applies to the word jungle, whereby potential syllabic [l] is assigned the coda position, combining it with [ŋg] to form a coda cluster [ŋgl]. The emergence of the other repair strategies further proves that the problem is not with consonant clusters or the occurrence of codas per se, but the issue is with the occurrence of syllabic consonants. These findings reveal that vowel epenthesis serves a different purpose in SwE than in other African English varieties.

Another important observation that was made was that when the vowel is inserted in sequences where the potential syllabic lateral is preceded by a coronal stop, with the adjustment of the potential syllabic lateral becoming a second element of the onset, onset clusters /tl/ and /dl/ result. These onset clusters violate the phonotactic restrictions of English (O'Grady et al, 1996; Roach, 2009). These prohibited onset clusters are replaced by /kl/ and /gl/ in SwE. Where the alveolar plosive was preceded by a nasal, the nasal assimilated to the velar and became a velar nasal [ŋ]. This is a new finding that has not been made in the previous research on vowel epenthesis in SwE. Examples (73) to (75) illustrate the neutralisation of the coronal plosive + lateral sequences /tl/ and /dl/ into /kl/ and /gl/.

BrE	vowel epenthesis	SwE
73. *gentle* /ʤe**n.tl̩**/	*[ʤen.**tli]**	[ʤeŋ.**kl**i]/[ʤeŋ**kl**]
74. *candle* /kæ**n.dl̩**/	*[ken.**dli**]	[keŋ.**gl**i]
75. *bottleneck* /bɒ**t.l̩**.nek/	*[bo.**tli**.nek]	bo.**kl**i.nek]/ [bo**kl.**nek]

In examples (73) and (75), the BrE /tl̩/ sequence has become [kl] in SwE, and in (74), the BrE /dl̩/ sequence has become [gl] in SwE. The nasal preceding the coronal plosives have assimilated to the preceding velar plosives of the newly-formed cluster. Such adjustments cannot be accounted for by the transfer theory alone because /tl/ and /dl/ sequences are prohibited not only in English and Siswati but also in many other languages of the world (Clements, 1990; Bradley, 2006; Yip, 2011). Bradley (2006) proposes that /tl/ is often neutralised to /kl/, and Yip (2011) proposes that /gl/ is the cross-linguistically preferred cluster to /dl/. Previous studies have applied various theories to explain the phonotactic restrictions on syllable-initial coronal stop and coronal lateral sequences, including the Obligatory Contour Principle (Yip, 1988), Minimal Distance Principle (Clements, 1990), the Dispersion Theory (Flemming, 2002, Bradley, 2006). This, therefore, shows that by avoiding /tl/ and /dl/ onsets and replacing them with /kl/ and /gl/, the speakers of SwE are actually employing a universal strategy to fix impermissible onsets in English rather than simply transferring some aspects of the phonology of their L1. In the first place, the inventory of Siswati consonant combinations provided by the literature does not have the clusters /kl/ and /gl/ (Mkoko, 2021). I don't have an explanation for why the alveolar plosives become velar before /l/ in SwE, but any of the theories mentioned above can explain. However, a detailed OT analysis of SwE syllable structure is given in Chapter 6.

5.9 Epenthetic vowel qualities and epenthesis sites in Swati English

Some of the arguments put forth in this dissertation are that speakers of SwE insert vowels of different qualities and that there is a variation of epenthesis on the site. This section describes the epenthetic vowel realisations in the participants' pronunciations and the positions where the vowels are inserted. Table 5-7 shows the results of the

different epenthetic vowel qualities as well as their positions about the syllabic consonants in both the Mesolect and Acrolect data.

Table 5-7: Observed Swati English epenthetic qualities and epenthesis sites

Word	**Mesolect**		**Acrolect**	
	Ep. quality	**Ep. site**	**Ep. quality**	**Ep. site**
trouble / trʌb.l̩/	u	before /l/	u/ə	before /l/
couple /kʌp.l̩/	u	before /l/	u/ə	before /l/
maffle /mʌf.l̩/	u/i/e	u/e before /l/and i after /l/	u/ə	before /l/
gentle /ʤen.tl̩/	i	after /l/	Ø	N/A
shovel /ʃʌv.l̩/	e/ə	before /l/	ə/e	before /l/
lethal /li:.θl̩/	a/e	before /l/	ɐ/ə/a	before /l/
channel /tʃæn.l̩/	e	before /l/	ə/ɐ/e	before /l/
bushel /bʊʃ.l̩/	e	before /l/	ə/ɐ/e	before /l/
satchel /sætʃ.l̩/	e	before /l/	ə/ɐ/e	before /l/
uncle /ʌŋ.kl̩/	i	after /l/	Ø	N/A
jungle /ʤʌŋg.l̩/	i	after /l/	Ø	N/A
peril /per.l̩/	i/e/ɪɛ	before /l/	ɐ/ə/i	before /l/
Open /əʊ.pn̩ ~ əʊ.pm̩ /	e/ə	before /n/	ə/e	before /n/
ribbon /rib.n̩ ~ rib.m̩/	o/ɐ	before /n/	ɐ/o/ə	before /n/
cotton / kɒt.n̩/	i	before /n/	ɐ/i	before /n/
heathen /hi:.ðn̩/	e	before /n/	ɐ/e	before /n/
lesson / les.n̩/	i	before /n/	i/ə	before /n/
prison / priz.n̩/	i	before /n/	i/ɐ	before /n/
fusion / fju:.ʒn̩/	I	before /n/	ɐ/ə/i	before /n/
pardon / pɑ:.dn̩/	i/o/ɐ	before /n/	ɐ/ə	before /n/
rhythm / rɪðm̩/	i/ə	before /m/	ə/ɐ/ɪ	before /m/

prism /priz.m̩/	i	before /m/	i/ɐ	before /m/
chasm /kæz.m̩/	i	before /m/	ə/ɐ/i	before /m/
fathom / fæð.m̩/	o	before /m/	ɐ/ə/o	before /m/
castle / kaːs.l̩/	e/i/ə	e/ə before /l/; i after /l/	ə/ɐ/e	before /l/
muscle /mʌs.l̩/	e/i/ə	e/ə before /l/; i after /l/	ə/ɐ/e	before /l/
whistle /*h*wɪs.l̩/	i/ə	i after /l/; ə before /l/	ɐ/ə	before /l/
candle /kæn.dl̩/	i	after /l/	Ø	N/A
bacon /beɪk.(ə)n̩ ~ beɪk.(ə)ŋ̩/	o/ɐ	before /n/	ɐ/ə/o	before /n/
meddle /med.l̩/	i	after /l/	ɐ	before /l/
medal /med.l̩/	a	before /l/	a/ɐ	before /l/
peddle /ped.l̩/	i	after /l/	ɐ/ə	before /l/
wrestle /res.l̩/	i/ə	i after /l/; ə before /l/	ɐ/ə	before /l/
Italy /it.l̩i/	a	before /l/	a	before /l/
catalogue /kæt.l̩.ɒg/	a	before /l/	a	before /l/
riband /rib.(ə)n̩d/	e/a	before /n/	ɛ	before /n/
incident /in.si.dn̩t/	e	before /n/	ɛ/ɐ	before /n/
important /impɔː.tn̩t/	e	before /n/	ɛ	before /n/
gentlemen /ʤen.tl̩.mən/	i	after /l/	Ø	N/A
bottleneck /bɒt.l̩.nek/	i	after /l/	I	after /l/
troublesome /trʌb.l̩.səm/	u	before /l/	u	before /l/

suddenly/sʌd.n̩li/	e	before /n/	e	before /n/
broken /brəʊk.(ə)n̩~ brəʊk.(ə)ŋ̩/	e	before /n/	e	before /n/
thicken /θɪk.(ə)n̩~ θɪk.(ə)ŋ̩/	e/i	before /n/	e/ə	before /n/
circled /sɜːk.l̩.ɪd/	i	after /l/	Ø	N/A/
candlelight /kæn.dl̩.laɪt/	i	after /l/	Ø	N/A
coupled /kʌp.l̩d/	u	before /l/	u	before /l/
Buttonhole /bʌt.n̩.həʊl/	i/o	before /n/	i/o/ɐ	before /n/
handsome /hænd.s(ə)m̩/	a	before /m/	a	before /m/
woodenheaded /wʊd.n̩.hedɪd/	e	before /n/	ɛ	before /n/
darken /dɑː.kn̩/	i/e	before /n/	ə/ɛ	before /n/
blacken /blæk.n̩/	i/e	before /n/	ə/ɛ	before /n/

5.9.1 Epenthesis sites in the Acrolect form

In the acrolect form, the epenthetic vowel always occurs between the final consonant of the preceding syllable and the syllabic consonant. The type of syllabic consonant and the final consonant of the preceding syllable do not influence the epenthesis site. There is only one instance of vowel insertion after a syllabic consonant, and this is in the word *bottleneck* [botlinek]. Other words with a similar phonological structure such as *gentle* and *gentlemen* are pronounced without an epenthetic vowel across the speakers, so the epenthesis site in this word cannot be attributed to the phonological structure of the word. The pronunciation of *bottleneck* with [i] after syllabic [l̩] is similar to the mesolect pronunciation. The reason for the Acrolect speaker to pronounce the word this way could

be that the cophonology of this particular speaker has not fully transited to the near-native end of the continuum. Therefore, some traits of the Mesolect form still manifest in the pronunciation of this speaker. Notwithstanding this isolated case, the findings indicate that Acrolect speakers of SwE insert a vowel before the potential syllabic consonant and not after it. The Acrolect form of SwE appears to be more inclined towards the /əC/ covariant of BrE which may be judged as a deviation from the Standard BrE form where a syllabic consonant is required instead of the /əC/ (Akamatsu, 2013; Roach, 2009). This is an important finding because it shows that even the speakers who are assumed to be more native-like avoid syllabic consonants and repair them through vowel epenthesis. However, this study does not focus much on acrolectal SwE because it is less informative concerning the SwE epenthesis patterns than mesolectal SwE.

5.9.2 Epenthesis site in the Mesolect form

As opposed to the Acrolect form where the epenthesis site is restricted to the position before the supposed syllabic consonant, the results show that the Mesolect form has two epenthesis sites, before and after the syllabic consonant. The results further show that the type of syllabic consonant places restrictions on the epenthesis site. For example, the nasals [m̩] and [n̩] allow the epenthetic vowel to occur only before them, no matter their contexts. Conversely, [l̩] has two epenthesis sites, one before and one after [l̩]. There are no observed instances of the pronunciation of [ŋ̩] in both the Acrolect and Mesolect forms; hence the exact epenthetic site where there is syllabic [ŋ̩] remains unknown.

This study comes as an extension to Arua's (1999) study that examined vowel epenthesis on syllables with [l̩]. Arua found that the epenthetic vowel is restricted to the position after [l̩]. One of the limitations raised by Arua was the limited number of words (12 words) analysed which came up as a recommendation for an increase of the number of words in studies that would follow. Following that recommendation, this study has increased the number of words to 50 and included other types of syllabic consonants. The results of this study indicate that vowel epenthesis occurs both before the syllabic consonants [l̩], [m̩], and [n̩] as well as after [l̩], which is contrary to Arua's (1999) finding. Moreover, the results of the current study show that the epenthetic pattern of SwE partly differs from the epenthetic pattern of other African English varieties such as the acrolect form of EAE where the epenthetic site is always before the syllabic consonants (Bobda

2001). The difference could perhaps be because the causes of vowel epenthesis in the two varieties of English are different. While in SwE, vowel epenthesis only repairs syllabic consonants, in EAE, vowel epenthesis is applied to repair syllabic consonants as well as to reduce consonant clusters (Bobda, 2001; Schmied, 2006). Such differences are important to note because they imply that different varieties of English have different grammatical systems which should be treated separately.

These separate grammatical representations cannot be adequately treated in a unitary fashion using the transfer theory. In OT terms, the implication is that SwE and other African varieties of English such as EAE rank the universal set of constraints of the basic syllable structure differently, hence the variation of the epenthesis sites. I propose that SwE has a cophonology that is almost similar to Standard BrE but differs in that SwE does not permit syllabic consonants.

Since there are two epenthesis sites involving [l̩], the contexts of this syllabic consonant were further examined to determine whether they were relevant to the epenthesis site. The contexts include the position of [l̩] within a word (word-medial or word-final) position of both simplex and complex words, and the type of consonant preceding or following [l̩]. Stress was irrelevant in this analysis because all syllabic consonants in English are preceded by a stressed syllable.*Table 5-8* lists the environments of [l̩] and the epenthesis sites.

Table 5-8 Environment of [l]and observed epenthesis sites in the Mesolect form

Environment	**Attested pronunciation**	**Unattested forms**	**Epenthetic site**
Word-finally			
(a) Simplex words			
trouble /trʌb. l̩/	[trabu**l**]	*[trablu]/*[trabli]	before [l̩]
couple /kʌp. l̩/	[kapu**l**]	*[kaplu]/*[kapli]	before [l̩]
gentle /ʤen.tl̩]	[ʤeŋk**l**i]	*[ʤeŋki**l**]	after [l̩]
candle /kæn.dl̩/	[keŋg**l**i]	*[keŋgi**l**]	after [l̩]
uncle /ʌŋ.kl̩/	[aŋk**l**i]	*[aŋki**l**]	after [l̩]
castle	[kasel], [kasli]	*[kasil]	[e] before[l̩] and [i] after [l]
muscle	[masel], [masli]	*[masil]	
(b) Complex words			
troublesome /trʌb.l̩.səm/	[trabu**l**sam]	*[trab**l**usam]/*[trab**l**isam]	before [l̩]
coupled /kʌp.l̩d/	[kapu**l**d]	*[kap**l**ud]/*[kap**l**id]	before [l̩]
gentlemen /ʤen.tl̩.mən/	[ʤeŋk**l**imen]	*[ʤeŋki**l**men]	after [l̩]
candlelight /kæn.dl̩.laɪt/	[keŋg**l**ilaɪt]	*[keŋgi**l**laɪt]	after [l̩]
bottleneck /bɒt.l̩.nek/	[bok**l**inek]	*[boki**l**nek]	after [l̩]
Word-medially			
Italy /it. l̩i/	[itali]		before [l̩]
catalogue /kæt.l̩.ɒg/	[katalog]		before [l̩]
After [labial]			
trouble /trʌb. l̩/	[trabu**l**]	*[trab**l**u]	before [l̩]
couple /kʌp. l̩/	[kapu**l**]	*[kap**l**u]	before [l̩]
troublesome /trʌb.l̩.səm/	[trabu**l**sam]	*[trab**l**usam]	before [l̩]
coupled /kʌp.l̩d/	[kapu**l**d]	*[kap**l**ud]	before [l̩]

muffle /mʌf.**l̩**/	[mafu**l**]	*[maf**l**u]	before [l̩]
After [coronal]			
gentle /ʤen.t**l̩**/	[ʤeŋk**l**i]	*[ʤeŋki**l**]	after [l̩]
candle /kæn.d**l̩**/	[keŋg**l**i]	*[keŋgi**l**]	after [l̩]
gentlemen /ʤen.t**l̩**.mən/	[ʤeŋk**l**imen]	*[ʤenki**l**men]	after [l̩]
candlelight /kæn.d**l̩**.laɪt/	[keŋg**l**ilaɪt]	*[kengi**l**laɪt]	after [l̩]
bottleneck /bɒt.**l̩**.nek/	[bok**l**inek]	*[beki**l**nek]	after [l̩]
Italy /it. **l̩**i/	[ita**l**i]		before [l̩]
catalogue /kæt.**l̩**.ɒg/	[kata**lo**g]		before [l̩]
After [dorsal]	[aŋk**l**i]	*[anki**l**]	after [l̩]
uncle /ʌŋ.k**l̩**/	[ʤaŋg**l**i]	*[ʤangi**l**]	after [l̩]
jungle /ʤʌŋ.g**l̩**/			

The following were found to be the trend in both simplex and complex words:

76. Epenthesis before [l̩] occurs only when [l̩] is preceded by a [labial] consonant.

77. When [l̩**]** is preceded by [coronal] or [dorsal] consonant, epenthesis occurs after [l], except for cases where the epenthesis is induced by orthography.

78. The type of consonant following [l̩] appears to be irrelevant because epenthesis shows a similar pattern irrespective of whether [l̩] is followed by a [labial] or [coronal] consonant. For example, epenthesis in *bottleneck* /bɒt.**l̩**.nek/ is after [l̩], and this syllabic consonant is followed by a [coronal] consonant [n]. Similarly, in the word *gentlemen* /ʤen.t**l̩**.mən/, epenthesis occurs after [l̩] and this syllabic consonant is followed by a [labial] consonant.

This finding implies that in the Mesolect form, the epenthesis site is determined by the type of consonant preceding the syllabic consonant as well as the quality of the vowel being inserted but not the consonant that follows the potential syllabic consonant.

5.10 Epenthetic strategies and qualities in Swati English

One of the key goals of this study is to identify the epenthetic vowel qualities in SwE and to find out what determines them. The hypothesis being tested here says that the epenthetic vowel appears in a variety of qualities. In the literature, the quality of the epenthetic vowel is generally asserted to be determined either by default, unmarked features, or by its phonological context (Hall, 2011; Staroverov, 2014; Uffman, 2005,2006). I employ two theories, namely, the theory of markedness (de Lacy, 2006) and the splitting theory (Staroverov, 2014), to explain the epenthesis strategies as either default (true) insertion or splitting. The markedness theory is used to predict markedness characteristics of default epenthetic qualities, where the phonological context of the epenthetic vowel appears to have no influence. The splitting theory is used to predict the epenthetic vowel qualities, where the vowels appear to originate from the preceding consonants. However, describing the distribution of the epenthetic vowel qualities in the African English varieties, including SwE, is a bit more complicated than explained by these two theories since the varieties have fewer vowels than Standard BrE, and their contexts of acquisition are complex. As a result, there could be many other factors that contribute to the variation of epenthetic qualities, including spelling.

In this section, I examine the vowel qualities that emerged in the Acrolect and Mesolect forms of SwE and form generalisations about the factors that determine them. I start by identifying all the words whose epenthetic vowels correspond to their orthographic representations from both the Acrolect and Mesolect data. I then examine the phonological contexts of the words whose epenthetic vowels do not match their spellings to determine whether true insertion or splitting took place. A detailed Optimality Theoretic analysis of the epenthetic qualities and strategies will be presented in Chapter 6.

5.10.1 Orthography-induced epenthetic qualities

Several empirical studies including Bassetti (2023), Bassetti, Escudero & Hayes-Harb (2015), and Hayes-Harb & Barrios (2021) report that the orthographic forms of L2 words affect L2 speakers' phonology. Results from these studies reveal that orthographic forms can either facilitate or hinder target-like acquisition in all aspects of L2 phonology, including the production, and the acquisition of L2 sounds by both experienced and

inexperienced L2 learners. Bassetti (2023) identifies five realms of orthographic effect including speech perception, speech production, phonological awareness, phonological learning, & lexical learning. In speech production, one way in which spelling affects L2 phonology is when speakers insert sounds that are not present in the phonological form of the L2 (Bassetti 2023; Hayes-Harb & Barrios (2021). Orthography-induced epenthesis has been reported to be the common tendency of most African Englishes (Bobda, 2001). Research into the phonology of African Englishes also shows that the quality of the vowel that replaces the schwa is often influenced by its orthographic form (Huber, 2004; Kadenge, 2009; van Rooy, 2004) as discussed in *Section 2.6.1*.

Orthography-induced epenthesis was observed in the acrolectal and mesolectal forms of SwE. The epenthetic qualities that match the orthographic representations that emerged in both the Acrolect and Mesolect forms include [e], [o], and [a]. The vowels that appear in bold print in the following words are the epenthetic: *shov**e**l*, *leth**a**l, bush**e**l, satch**e**l, per**i**l, op**e**n, ribb**o**n, heath**e**n, pard**o**n, fath**o**m, bac**o**n, med**a**l, It**a**ly, cat**a**logue, rib**a**nd, incid**e**nt, sudd**e**nly, brok**e**n, thick**e**n, butt**o**nhole,* and *wood**e**nheaded.* Even though phonological contexts may not restrict these vowels, vowels [o] and [a] are inherently marked as per the theories of markedness (de Lacy, 2006; Lombardi, 2003). Thus, they cannot be epenthetic. Secondly, following the markedness hierarchy scale (de Lacy, 2006), epenthetic [e] cannot be a default epenthetic vowel because it is more marked than [ə] which is the least marked form available in the inventory of the Acrolect form and [i] which is the least marked form available in the inventory of the Mesolect form of SwE. The occurrence of the three epenthetic vowels cannot be explained by phonotactic factors either. Therefore, one of the plausible explanations for their occurrence would be that the speakers of SwE rely on the orthographic forms of these vowels for their pronunciation as most speakers of L2 varieties of English do.

In addition, even though some of the vowel qualities may match their spelling forms, researchers argue that there could be other factors at play, thus they find it necessary to look beyond the spelling form hypothesis. For instance, Mesthrie (2005) cites analogy as an explanation for the occurrence of the vowel [ɔ] in *bacon* in BSAE because it is influenced by the vowel [o] in *Baconian* since the two are derived from the same root. A similar process could have taken place in the case of the SwE pronunciation of *bacon*. Another SwE example is *buttonhole* which was pronounced by several participants as

[botonhol]. The participants could be assuming that *buttonhole* falls in the same lexical set as *bottomhole*, thus they inserted [o]. *Section 5.10.2*. examines the epenthetic qualities in the Mesolect form.

5.10.2 Epenthetic vowel qualities in the Mesolect form

After all cases of orthography-induced epenthetic vowel qualities were eliminated from the Mesolect data, the results showed vowels [i], [u], [e], and [a] as epenthetic qualities. Vowel [ɛ] occurred as an alternative to [e], especially in cases where it replaces [æ]. This finding is backed by Mesthrie (2020), Mutonya (2008), van Rooy & van Huyssteen (2000), and van Rooy (2004) who observed that [ɛ] occurs as a variant of /e/ in African English. Unlike the Acrolect group as will be discussed in the next section, the mesolect group was found to insert mostly peripheral vowels and there were very few occurrences of [ə]. The Mesolect speakers exhibit a similar kind of behaviour to most African varieties of English in which central vowels, including the schwa, are penalised (Hundleby, 1964; van Rooy and van Huyssteen, 2000; Schmied, 2006; Mutonya, 2008). Literature generalises that speakers of African varieties of English rely on the five or seven-vowel system of the indigenous African languages in which the schwa is absent from their inventories. Based on the generalisation made in the literature, I concluded that the Mesolect speakers draw on the five-vowel system of Siswati to pronounce English epenthetic vowels.

After identifying the epenthetic qualities that did not correspond to their spelling forms, I then looked at their contexts (adjacent consonants) to determine whether or not the context affected them. To classify the vowels and consonants into natural classes, I used the Unified Place Theory (Clements and Hume, 1995) which classifies vowels and consonants using the same set of features. Labial consonants and rounded vowels formed a natural class of [Labial], and coronal consonants and front vowels formed a natural class of [coronal]. Velar and uvular consonants are grouped with back vowels as [dorsal] (Clements, 2004). Classifying the epenthetic vowels and the adjacent consonants using the same set of features was useful in determining whether or not the adjacent consonants had an influence on the qualities of the epenthetic vowels or not. The classification was in turn useful in determining whether the epenthesis strategy was default (true) insertion or splitting. *Table 5-9* shows the different epenthetic qualities and the contexts in which they occur.

Table 5-9: Adjacent consonants and epenthetic qualities and sites

Environment (adjacent consonant)	**[u] labial**	**[i] coronal**	**[e]~[ɛ] Coronal**	**[a]dorsal**
after labials /p, b, f, / excluding /m/	trab**u**l, kap**u**l, maf**u**l, trab**u**lsam, kap**u**ld	-	maf**e**l, ribɛnd/ribend	-
after coronals /ð, t, d, s, z, ð, ʃ, ʒ/ excluding /n/ and /l/	-	les**i**n, riði**m**/rid**i**m, pad**i**n, priz**i**n priz**i**m, bat**i**nhol, per**i**l, kot**i**n, fjuʒ**i**n, tʃaz**i**m/kaz**i**m	kas**e**l, mas**e**l, impot**e**nt, per**e**l, pad**e**n.	hens**a**m
after (velar) dorsal /k/	-	θik**i**n, dak**i**n, blek**i**n	-	-
after /l/	-	mafl**i,** ʤeŋkl**i,** aŋkl**i,** ʤaŋgl**i,** kasl**i,** masl**i** hwisl**i**/wisl**i,** keŋgl**i,** medl**i,** pedl**i,** ʤeŋkl**i**men, bokl**i**nek, sekl**i**d, keŋgl**i**laɪt	-	-
after /n/	-	-	-	-
after /m/	-	-	-	-
before /l/	trab**u**l, kap**u**l, maf**u**l, trab**u**lsam, kap**u**ld	per**i**l	maf**e**l, kas**e**l, mas**e**l, per**e**l	
before /n/	-	les**i**n, kot**i**n, fjuʒ**i**n, pad**i**n, priz**i**n, bat**i**nhol	rib**e**nd/rib**ɛ**nd impot**e**nt	
before /m/		riði**m**/rid**i**m, priz**i**m, tʃaz**i**m/kaz**i**m	-	hens**a**m
before /ŋ/	-	-	-	-

Epenthetic [u] which is classified as [labial] occurred immediately after labial consonants and not in any other environment. For example, forms like *[trabl**u**] or

*[kot**u**n] or *[θik**u**n], where a coronal consonant mediated between the labial /b/ and epenthetic [u] or where [u] occurred immediately after coronal or dorsal consonant was not attested in the data. Hence, it can be said that the occurrence of this labial epenthetic vowel [u] is influenced by the preceding labial consonants /b/, /p/, and /f/. The epenthesis strategy that is assumed to have taken place, in this case, is splitting, whereby each of the labial consonants splits into two surface realisations, [b] and [u]; [p] and [u]; [f] and [u].

The next epenthetic vowel is the front mid vowel [e] ~ [ɛ]. Epenthetic [e] occurred after coronal consonants /s/, /r/, and /t/, and after a labial consonant in *muffle* [mafel]. The variant [ɛ] occurred after a labial in the word *riband* [ribend]/ [ribɛnd]. Because this vowel occurred in various contexts, it could be regarded as default. However, [e] cannot be default since this vowel is not the least marked in the markedness hierarchy and it is in competition with [i], a least marked vowel. Each context of the occurrence of epenthetic [e] was then treated as an isolated case. Where [e] occurred after coronal consonants, the interpretation was that it was influenced by the preceding coronal consonant, whereby the coronal consonants split into [s] and [e]; [r] and [e], and [t] and [e]. Morphological factors could be at play in this case and the insertion of [e] ~ [ɛ] in *riband*. I assumed that this vowel quality resulted from analogy. The participants could have possibly assumed that *-band* in this word was an affix that falls into the same lexical category as *band* and *bend*. In SwE, *band* and *bend* commonly appear as homophones. SwE speakers, like most speakers of other African varieties of English such as BSAE, replace the BrE vowel [æ] with [e] or [ɛ] as a result of the influence of L1 (Arua, 1999; Bobda, 2001; Mesthrie, 2020; van Rooy & van Huyssteen, 2000, van Rooy (2004). For example, *band* /bænd/ is pronounced as [bɛnd] or [bend] and *hat* /hæt/ as [hɛt] or [het] by a majority of SwE speakers (Arua, 1999). The case of [mafel] was an outlier case. Only one participant gave this pronunciation, so it may be an individual idiosyncrasy.

The front vowel [i] demonstrated varied behaviour regarding its phonetic context. In some cases, this vowel occurred after coronal consonants. For example, in the forms [les**i**n], [riðim]/[rid**i**m], and [kot**i**n], epenthetic [i] occurred after coronal consonants [s], [ð], [d], and [t], respectively. In this case, epenthetic [i] can be said to result from the splitting of the preceding coronal consonant. There are other cases in which [i] was inserted after the potential syllabic /l/. Even though /l/ is coronal, worth noting here is

the shift of the epenthesis site. In the case of words with potential syllabic /n/ and /m/, the epenthesis site is always before these potential syllabic consonants. However, in the case of potential syllabic /l/, epenthetic [i] is not admitted before this potential syllabic consonant even when it is preceded by a coronal consonant. For example, there were no attested pronunciations of forms like [ʤenti**i**l] for *gentle*, [boti**i**l] for *bottle*, and [kendi**i**l] for *candle*. Instead, the attested forms were [ʤeŋkl**i**], [bokl**i**], and keŋgl**i**]. Epenthetic [i] also occurred after the velar consonant [k] which is classified as [dorsal], for example in the forms [θik**i**n] and [dak**i**n]; in this case, this vowel quality cannot be claimed to be influenced by the preceding consonant because these two do not share the [place] feature. Where /k/ was followed by the potential syllabic /l/, the epenthesis site for [i] was shifted to the position after the potential syllabic /l/. For example, the pronunciations were [aŋkl**i**] for *uncle* and [ʤaŋgl**i**] for *jungle*.

The forms of epenthetic [i]

Based on the observations cited above, I, therefore, argue that there are two forms of epenthetic [i] in SwE – epenthetic [i] resulting from splitting a coronal consonant that precedes a potential syllabic consonant, and epenthetic [i] that is the default. The default [i] is the one that occurs after velar consonants and after the potential syllabic /l/. Some readers of this work may argue that the proposed default [i] is not default per se but it results from splitting the potential syllabic /l/ to [l] and [i]. As much as this might be a plausible explanation, such an account could raise some serious inconsistency issues regarding the splitting pattern (the segment that splits, and the direction of the splitting). There are two important questions to consider here:

79. which consonant splits?
80. what is the proximity/distance between the split input consonant and its vocalic output?

To answer these questions, I revisit my observations about the epenthesis sites. Looking at the clear cases of splitting discussed above, such as [tra**bu**l], [ka**pu**l], [ma**fu**l], [le**si**n], [ko**ti**n], [ri**ði**m]/[ri**di**m], [ka**se**l], [ma**se**l] and [ʧa**zi**m]/[ka**zi**m], the element that splits is the consonant that immediately precedes the potential syllabic consonant. In addition, in these cases, the epenthetic vowel that results from splitting immediately follows the consonantal correspondent of the output. We would expect the same pattern for all cases of splitting even where the potential syllabic consonant is /l/ preceded by a coronal

consonant. However, as noted in the data, forms in which a coronal consonant that precedes potential syllabic /l/ splits into coronal consonant plus [i] were not attested. Such forms were avoided at all costs, and instead, where splitting occurred, the vocalic output correspondent became [e] otherwise [i] occurred after the potential syllabic /l/. Consider the examples of SwE pronunciation of the words castle and muscle.

81. *castle* SwE: [kas**e**l] / [kasl**i**] not attested *[kasil]

82. *muscle* SwE: [mas**e**l]/ [masl**i**] not attested *[masil]

The examples in (81) and (82) demonstrate that splitting a coronal consonant that results in [il] sequences is avoided in SwE. In short, an input coronal consonant does not split into an output coronal consonant plus a coronal vowel [i] if the coronal consonant of the input is followed by potential syllabic /l/. However, the grammar allows other /il/ sequences where the [i] is not epenthetic and the [l] is not syllabic. For example, SwE speakers pronounce the /il/ sequence in words such as *milk*, *peel*, and *feeling*.

So, I would say SwE penalises only output structures with [il] sequences where [i] is epenthetic and [l] is a potential syllabic consonant. To prevent such [il] sequences, the SwE grammar either splits the coronal consonant into a coronal consonant plus [e] giving [el] sequences or shifts the epenthesis site to insert a default paragogic epenthetic [i] giving [li] sequences.

Moreover, an input [dorsal] consonant fails to split into an output [dorsal] consonant and a [dorsal] (back) vowel, so epenthetic [i] is inserted. This epenthetic vowel is not admitted immediately after the [dorsal] consonant if the consonant immediately precedes the potential syllabic /l/; instead, it is inserted after the potential syllabic /l/. Consider the following examples.

83. *uncle* BrE: /ʌŋ.kl̩/ **SwE: [aŋkli]** *[aŋkul], *[aŋkol], *[aŋkal], *[aŋkil]

84. *jungle* BrE: /ʤʌŋg.l̩/ **SwE: [ʤaŋgli**] *[ʤaŋgul], *[ʤaŋgol], *[ʤaŋgil]

In examples (83) and (84), the epenthetic vowel is expected to be any of the back vowels [u], [o], or [a] so that it shares the place feature [dorsal] with /k/ and /g/. However, inserting a [dorsal] vowel after [dorsal] consonants yields unacceptable forms such as *[aŋkul], *[aŋkol], and *[aŋkal] in the case of *uncle* in (83), and *[ʤaŋgul] and *[ʤaŋgol] in the case of *jungle* in (84). Therefore, I assume that [dorsal] consonants fail to split into output forms consisting of a dorsal consonant plus a back vowel. Thus, instead of a back vowel, the high front vowel [i] is inserted to repair potential syllabic /l/.

It is worth noting that the epenthetic vowel [i] is not admitted immediately after the dorsal consonant; hence, the outputs *[aŋkil] and *[ʤaŋgil] are unacceptable in SwE. There are two possible explanations for the unacceptance of these outputs. Firstly, [i] is not faithful to the input dorsal consonant concerning place features as this vowel is [coronal]. Secondly, although in Staroverov's (2014) Splitting theory, splitting can be unfaithful meaning that it is technically possible for [i] to split out of a dorsal consonant at the expense of some IO-IDENT faithfulness constraints, the epenthesis site of this [i] does not follow the expected splitting pattern concerning proximity. This epenthetic vowel does not come immediately after the consonantal input correspondent (the consonant preceding the potential syllabic consonant) as it would be expected but skips a segment. Therefore, I conclude that this kind of [i] is the default rather than a vocalic output correspondent of the input dorsal consonant. When [i] occurs immediately after the consonantal input correspondent, it creates an [il] output which is penalised by the grammar of SwE. Epenthetic [i] also qualifies to be the default epenthetic vowel because according to the theory of markedness (de Lacy, 2006), this vowel is the next lowest marked vowel in the markedness hierarchy after a schwa. A schwa is penalised in the Mesolect form, which leaves the role of a default epenthetic vowel to [i].

Vowel epenthesis is not a homogenous phenomenon because it involves a variety of processes that ultimately determine the quality of the epenthetic vowel (Hall, 2011; Staroverov, 2014; Uffman, 2006). The quality of the epenthetic vowel may be context-dependent, whereby it takes the phonetic characteristics of the neighbouring vowel in echo epenthesis (Kitto and de Lacy, 1999; Kawahara, 2007; Stanton and Zukoff, 2017) or a neighbouring consonant in the process of consonantal assimilation (Uffman, 2006). Furthermore, the epenthetic vowel could have default characteristics independent of its phonetic context (de Lacy, 2006; Lombardi, 2003). I am assuming two kinds of [i] epenthesis whereby I use splitting to explain the effects of place on quality. However, where [i] epenthesis does not make sense as splitting, I use default insertion to explain its occurrence.

Lastly, epenthetic [a] was observed in *handsome* [hensam]. This [dorsal] vowel occurred after a coronal consonant. Three options were expected in this case. First, a schwa is expected because it is the least marked vowel in Standard BrE. However, because a schwa is rare in the Mesolect form of SwE, a full vowel has been inserted instead. Second, the full vowel replacing the schwa was expected to be the default vowel

[i]. According to the Markedness theory, [a] is a highly marked vowel in syllable non-DTEs; therefore, it cannot occur as a default epenthetic vowel. Thirdly, the coronal vowel [e] was expected as a result of the influence of the preceding coronal consonant. However, none of these two occurs, instead, a dorsal vowel [a] is inserted. The spelling form hypothesis cannot explain the occurrence of epenthetic [a] either. The choice of epenthetic [a] could thus be explained to be another case of morphological factors. It could be that the participants assumed that the part /s(ə)m/ of /hænd.s(ə)m̩/ was a suffix that falls in the same lexical category as *some* /sʌm/, *something* /sʌmθɪŋ/, *someone* /sʌmwʌn/, etc. Like in other African English sub-varieties, the vowel /ʌ/ is often replaced by the vowel [a] (Mutonya, 2008; van Rooy and van Huyssteen, 2000). Therefore, the epenthetic vowel [a] in [hensam] occurred as an analogy for the replacement of the vowel /ʌ/ in -*some.*

To sum up, there was a variety of epenthetic qualities in the Mesolect form of SwE. The epenthetic vowels included [i], [u], [e]~[ɛ], [o], and [a]. A combination of factors was at play in determining the occurrence of each epenthetic quality. First, spelling factors were at play as some of the epenthetic qualities matched their orthographic forms. Secondly, markedness factors determined the occurrence of the default epenthetic vowel [i]. Thirdly, contextual factors were at play and they caused the occurrence of the front vowels [e] and [i] after coronal consonants and the rounded vowel [u] after labial consonants. Therefore, there were two types of epenthetic [i], the default [i] and epenthetic [i] that resulted from the splitting of the consonant that immediately preceded the potential syllabic consonant. Lastly, there were also morphological factors at play. In some cases, the words/ parts of words were assumed to be affixes. Thus, the speakers of the Mesolect form assumed that they fell into the same lexical categories as orthographically similar words/affixes, hence taking the vowel quality of those words/affixes.

5.10.3 Epenthetic vowel qualities in the Acrolect form

The epenthetic qualities that emerged in the Acrolect form of SwE include [i, u, o, e ~ɛ, a, ɐ ~ ə]. Epenthetic [i] and [u] occur strictly after coronal and labial consonants, respectively. Therefore, these two vowels can be said to be contextually coloured because

their occurrence is determined by the phonetic features of the preceding consonant. The examples in (85) and (86) illustrate the occurrence of epenthetic [i] and [u].

85. Epenthetic [u] after labials: [trab**u**l], [kap**u**l], *[trab**i**l], *[kap**i**l]

86. Epenthetic [i] after coronals: [lɛs**i**n], [rið**i**m], *[les**u**n], *[rið**u**m]

In the examples in (85), epenthetic [u] occurs after labial consonants /b/ and /p/. Instances where a different quality such as [i] appears after the labial consonants were not attested in the data. Similarly, in the examples in (86), epenthetic [i] occurs only after coronal consonants and not in any other environment. The epenthetic qualities after labial and coronal consonants are strictly [u] and [i], respectively. Because the occurrence of each of these two epenthetic qualities is determined by the preceding consonants, I can thus say these qualities result from splitting rather than true insertion. For example, the coronal consonant in *lesson* [lesin] splits into [s] and [i], and the labial consonant in *couple* [kapul] splits into [p] and [u].

Epenthetic [ə] and [ɐ] vary with full vowels in all their occurrences. However, unlike [i] and [u], epenthetic [ə] and [ɐ] are not restricted to any phonological context. They occurr after labial, coronal, and dorsal consonants. Consider the examples in (87)- (90) where epenthetic [ə] and [ɐ] co-occur with full vowels in a variety of phonological contexts.

87. after labial /b/ : [trab**ə**l], [rib**ɐ**n], [trab**u**l]

88. after coronal /n/: [tʃan**ə**l], [tʃan**ɐ**l], [tʃan**e**l]

89. after coronal /d/: [pad**ə**n], pad**ɐ**n], [pad**i**n]

90. after dorsal /k/: [beɪk**ɐ**n], [beɪk**ə**n] [beɪk**o**n]

The examples above illustrate the occurrence of the epenthetic vowels [ə] and [ɐ] in different phonological contexts. These two vowels co-occur with different vowels, including [u], [i], [ɛ], and [ɔ]. In the literature on African varieties of English, the vowel [ɐ] is argued to be a variant of the schwa. (Hundleby, 1963; van Rooy, 2004). In line with the literature, I consider [ɐ] and [ə] co-variants of /ə/. In that same vein, I will represent both using the schwa symbol [ə]. Because the schwa is context-independent, I conclude that it is the default epenthetic vowel in the Acrolect form of SwE. According to the theory of markedness (de Lacy, 2006; Lombardi, 2003), [ə] is the least marked form available in

the inventory of English, thus it qualifies to be the default. However, I noticed that sometimes there is a variation between the schwa and [i] after coronal consonants. A possible explanation could be that the schwa has not yet fully developed in the cophonology of these speakers thus [i] is still available as an alternative.

Another important finding is that the Acrolect and Mesolect groups have different default epenthetic vowels. Whereas in the Mesolect group, the default epenthetic vowel is [i], in the Acrolect group it is the schwa. The differences could be caused by the scarcity of the schwa in the phonology of the Mesolect form whilst it is available in the cophonology of the Acrolect form. Thus, the Mesolect speakers end up drawing on the five-vowel system of Siswati. It was based on this difference in the vowel systems that the participants were grouped into Acrolect and Mesolect.

Epenthetic [a], [e], and [o] occurred as spelling pronunciations. Their occurrence matched their orthographic representations and they could not be linked to adjacent consonants. The occurrence of [a] in [hensam] and [ɛ] in [ribend] has a similar explanation as that given in the Mesolect form.

In summary, seven epenthetic qualities emerged in the Acrolect form of SwE [i, u, ɔ, ɛ, a, ɐ, ə]. The default epenthetic vowel is [ə] and its variant [ɐ] because these two vowels are context-independent and they have unmarked features. Epenthetic [u], [e], and [i] qualities result from splitting because they are identical to the adjacent consonants in terms of place features. Epenthetic [u] occurred after labial consonants, and epenthetic [ɛ] and [i] occurred after coronal consonants.

5.10.4 The influence of adjacent vowels

One process of vowel epenthesis is echo epenthesis, whereby the epenthetic vowel adopts the features of the vowel in its neighbourhood (Hall, 2011; Kitto and de Lacy, 1999; Kawahara, 2007; Stanton and Zukoff, 2017). Staroverov describes echo epenthesis as a form of splitting. I examined the SwE data to determine whether or not there were instances in which the epenthetic vowel qualities shared similar features with vowels in their neighbourhood. From the attested SwE pronunciations, I found no cases of feature copying from adjacent vowels to the epenthetic vowel. Even where the epenthetic vowels share place features with vowels in the preceding syllables, the presence of other vowel

qualities in the same environment ruled out the possibility of feature copying. Consider the following examples:

91. *prism* SwE [priz**i**m]

92. *chasm* SwE [kaz**i**m]

93. *thicken* SwE [θik**i**n]

94. *darken* SwE [dak**i**n]

Epenthetic [i] in [priz**i**m] is similar to the vowel of the preceding syllable. However, it cannot be said that the epenthetic vowel is a copy of the preceding vowel because of the presence of [a] in the preceding syllable of [kazim]. Similarly, epenthetic [i] in [θik**i**n] cannot be said to be a copy of the vowel of the preceding syllable because of the presence of [a] in [dakin]. I can therefore conclude that copy epenthesis is not attested in SwE.

5.10.5 Influence of the type of syllabic consonant

All the syllabic consonants, including [m̩] allow epenthetic [i]. When [l̩] is preceded by a consonant that is not labial, it is re-syllabified to become the onset, and the epenthesised vowel becomes the nucleus. The epenthetic vowel is then coronal because it is influenced by the preceding [l̩], which is [coronal]. It was observed that only the preceding consonants and not the succeeding consonants influence the qualities of the epenthetic vowels. For this reason, [m̩] and [n̩] do not influence the epenthetic qualities, hence [m̩] does not cause the epenthetic vowel to be [labial]. The syllabic consonant [l̩] only has an influence when it preceded the epenthetic vowel.

Hypothesis 3 of this study, which states that the quality of the epenthetic vowel is influenced by the phonetic environment (adjacent vowels and consonants) is partly confirmed. Where spelling pronunciations and analogy are ruled out, the epenthetic vowels assimilate to the preceding consonant, except where the preceding consonant is [dorsal]. The occurrence of epenthetic [u] is determined by a preceding [labial] consonant, and the occurrence of epenthetic [i] and [e]is determined by the preceding [coronal] consonant. However, instances of copy epenthesis are not attested in the observed pronunciations of SwE.

5.11 Chapter Summary

To sum up, the results of this study showed that speakers of SwE have challenges pronouncing syllabic consonants, hence they apply vowel epenthesis as a repair strategy. Vowel epenthesis was more common in the Mesolect group than in the Acrolect group. A variety of epenthetic vowel qualities, including [u, i, o, e, a, ɐ, ə], were attested in the pronunciations of the participants. The central vowels [ɐ] and [ə] were found mostly in the Acrolect form, while the Mesolect form mostly had the peripheral vowels. The 5 peripheral vowels are also vowels of Siswati. However, as indicated earlier, Siswati's vowel distribution does not have any bearing on which epenthetic vowel is used. So, four layers of explanations were given for the occurrence of the different epenthetic qualities: spelling effects, markedness effects, phonotactic effects, and morphological effects (analogy). The two forms of SwE differ in terms of epenthesis sites. In the Mesolect form, there are two epenthesis sites: word-medially between the consonant that precedes the syllabic consonant and the syllabic consonant, and word-finally. In the Acrolect form, the vowel is always inserted word-medially between the consonant that precedes the syllabic consonant and the syllabic consonant. There was also notable variation in terms of the epenthetic quality in the two forms of SwE. While in the Mesolect form, the default epenthetic quality is [i], in the Acrolect form, the default epenthetic quality is [ə], which has the variant [ɐ]. In the Acrolect form, the vowel is always inserted word-medially between the consonant that precedes the syllabic consonant and the syllabic consonant.

Table 5-10 summarises the epenthesis qualities and strategies determined by phonotactic factors in the Mesolect and Acrolect forms of SwE.

Table 5-10: A summary of the epenthesis qualities and strategies determined by phonotactic factors in the Mesolect and Acrolect forms

Epenthetic quality	**Preceding consonant (Mesolect)**	**Epenthesis strategy**	**Preceding consonant (Acrolect)**	**Epenthesis strategy**
[i]	coronal, dorsal	(1) default insertion (2) splitting	coronal	splitting
[e]	coronal	Splitting	coronal	splitting
[u]	Labial	Splitting	labial	splitting

[ə]	-	-	labial, coronal, dorsal	default insertion

CHAPTER 6: AN OPTIMALITY-THEORETIC ANALYSIS OF VOWEL EPENTHESIS PATTERNS IN SWATI ENGLISH

6.1 Introduction

The empirical results of this study presented in Chapter 5 revealed that the study participants produced consonant clusters and syllable codas and that the speakers inserted a vowel only to fix syllable structures containing syllabic consonants. The results further revealed a variety of epenthetic vowel qualities, including [u, i, o, e, a, ɐ, ə]. The central vowels [ɐ] and [ə] were mostly found in the Acrolect form, while the Mesolect form mostly had peripheral vowels. Three layers of explanations were given for the occurrence of the different epenthetic qualities: spelling, phonotactic effects (markedness and assimilation effects), and morphological effects (analogy). There were two epenthesis sites: word-medially between the consonant immediately preceding the potential syllabic consonant and the potential syllabic consonant, and word-finally.

Chapter 6 provides an Optimality-theoretic analysis of the rankings of universal constraints in the phonological sub-grammar of SwE leading to surface realisations that have vocalic nuclei of various qualities rather than syllabic consonants. I adopt a set of constraints applied in several interrelated theories used within OT, which are crucial in explaining the various aspects of vowel epenthesis. The overarching theory, OT, creates a system that is fundamental to the analysis of the epenthesis patterns in SwE. According to traditional OT, there is a finite set of markedness constraints that prohibit the occurrence of specific dispreferred structures (segments/ sequences of segments) and a set of faithfulness constraints that impose the identity between the input and output representations. However, traditional OT alone is insufficient in producing the complex epenthesis patterns attested in SwE. Therefore, other constraints such as constraints applied in de Lacy's (2006) Markedness theory, and the constraints applied in Staroverov's (2015) Splitting theory are also necessary. Each constraint is selected based on its effectiveness in directly realising the epenthesis pattern being analysed.

The analysis focuses on the epenthesis patterns of the Mesolect form because it is the form that represents typical SwE norms. In contrast, the Acrolect form proved to be inclined towards the native-like norms as the speakers insert [ə] or [ɐ], which are rare in the Mesolect form and the African English varieties (Huber, 2004; Kadenge, 2009; van

Rooy & van Huyssteen, 2000). Furthermore, this study's generalisations provide new details about the SwE Mesolectal epenthesis patterns, but the Acrolect form is essentially faithful, so it had no unique patterns to explain. Since this is a purely phonological analysis, I present an OT analysis of the epenthetic patterns that arise from phonotactic factors.

6.2 An overview of the system

The constraint sets applied in this analysis comprise a combination of markedness and faithfulness constraints proposed in the various relevant theories. The markedness constraints applied in this analysis are of two kinds. One group of markedness constraints drives the production of well-formed prosodic structures, including the syllable and segments that constitute the syllable. As mentioned earlier, I term this group of constraints *well-formedness* constraints. Such constraints are adopted from traditional OT (Prince & Smolensky, 1993, 2004), SSP (Clements, 1990), BST (Prince & Smolensky, 1993) as well as other constraint proposals considering the restrictions placed on certain segments/ sequences according to the phonotactic restrictions of SwE. The second group of markedness constraints is adopted from de Lacy's (2004,2006) Markedness theory, driving the production of the default epenthetic vowel quality at different prosodic positions. I use the term vowel sonority constraints. This group comprised the vowel sonority DTE and non-DTE constraints as proposed by de Lacy (2004, 2006). The faithfulness constraints that enforce the identity between the input and output structures, as well as the similarity between an input consonant and epenthetic vowel, are based on McCarthy & Prince's (1995) Correspondence theory, which was also adopted and adapted in the Splitting theory (Staroverov, 2014). A detailed and referenced explanation of the constraints is provided in *Section 6.5*.

6.3 The GEN component

OT is a method of formalising the grammar of a language as the construction and selection of universal constraints that are ranked in a language-specific way to produce a linguistic output (Prince & Smolensky, 1993, 2004; McCarthy, 2007). Kager (1999) describes OT as an input-output device in which the grammar creates and evaluates an infinite number of output candidates for a given input, from which it selects the best candidate, which is

the actual output. According to literature, the architecture of an OT grammar comprises three parts: GEN, CON, and EVAL (Kager, 1999; McCarthy, 2007; Prince & Smolensky, 1993, 2004).

As mentioned earlier, the function of GEN is to produce a set of all candidates which could be possible outputs for the analysis. In the current analysis, the candidates included in GEN comprised all the attested pronunciations collected in the SwE data, reflecting the various epenthesis patterns and other repair strategies, as well as the forms with syllabic consonants of various kinds and the /əC/ forms. I also included other possible epenthetic vowel qualities and epenthesis sites not attested in the SwE data to show how the rankings conspire against them.

6.3.1 Grouping of segments into syllables

Any analysis of vowel epenthesis entails analysing a pattern in which a language fixes an impermissible syllable pattern. As a result, the syllable is the primary analytical unit in this work. The constraints describing the phonological sub-grammar of SwE refer to the syllable and its constituents. All acceptable syllables must meet universal as well as language-specific syllable well-formedness conditions. Each candidate needs to reference their input for constraints on syllable structure well-formedness to know how to assess it. In my analysis, I drew on some of the basic architecture of Prince & Smolensky's (1993) BST theory.

6.3.2 The internal composition of syllables

All syllables must have a nucleus. To satisfy syllable structure well-formedness, the candidates must not violate NUC, a constraint that makes it imperative for syllables to have a nucleus (Prince & Smolensky, 1993). Following Yip (1993), I consider NUC a member of the OK-σ set of constraints and I build it into GEN as a condition on representations. So, I posit it as OK-σ(NUC) and I define it as,

95. OK-σ (NUC)

    A syllable must have a nucleus (Prince & Smolensky, 1993: 96; Yip, 1993: 263)

In the analysis presented in this study, OK-σ (NUC) is not violable to satisfy a higher constraint. Generally, the grammar of English is flexible with the constituency of the

nucleus, as both vocalic and consonantal nuclei are acceptable. So, candidates with both vocalic and consonantal nuclei were submitted for analysis. Secondly, English permits both open and closed syllable structures. A syllable may begin with a vowel or have sequences of consonants in its margins. Thus, any form of a syllable nucleus, be it a vowel or a syllabic consonant, satisfies OK-σ (NUC) and is considered part of GEN.

6.4 The input

The general concept of the input is that it is the underlying phonetic structure before any phonological change occurs. While there is agreement in the literature about the tonal and morphological position of syllabic consonants, there is disagreement in the literature about syllabic consonant formation regarding the forms that surface structures containing syllabic consonants take underlyingly. Firstly, while some researchers argue that syllabic consonants are underlyingly /əC/ (Wells, 1995), others argue that syllabic consonants should not be analysed uniformly because they exhibit different phonetic and phonological behaviours (Toft, 2002). For example, in an acoustic experiment on the phonetics and phonology of [l̩] and [n̩], Toft found that [l̩] was always realised as syllabic both underlyingly and on the surface. Toft (2002) classified the target consonants as syllabic or not syllabic based on two criteria: evidence of the occurrence of a vowel, and distribution. Where a vowel was absent from the soundwaves and spectrogram, the target consonant was assumed to be syllabic on the surface and thus mapped directly to the nucleus. On the contrary, where the visual inspections showed the presence of a vowel, the target consonant was regarded as part of the /əC/ sequence and thus not syllabic. In addition, Toft considered the target consonant to be syllabic phonologically when it occurred without a vowel irrespective of context. Contrary to [l̩], potential [n̩] exhibited a co-variation with [ən]. Secondly, because of the variability of the strategies and processes of acquisition of English in L2 contexts, it becomes difficult to account for the underlying form of a system in a synchronic study such as this one. Consequently, each input of the analyses performed in the current study was presented as strings of sounds without any indication of the syllabicity of the potential syllabic consonants or a schwa. The input consisted of words of various morphological structures containing potential [l̩], [n̩], [m̩], and [ŋ̩]. Potential syllabic [r] was left because it occurs in rhotic accents, and British Standard English is non-rhotic. Words in which the first

recommended variant to foreign speakers is the default syllabic consonant as well as words in which both the default syllabic consonant and /əC/ are equally acceptable (Akamatsu, 2013) were selected because this thesis aimed to find out how speakers of SwE repair such potential syllabic consonants through vowel epenthesis. Words in which the first recommended variant is /əC/ were not included because the pronunciation of a syllabic consonant in such words is considered a mispronunciation (Roach, 2009). Consider the following examples:

Table 6-1: Types of words included as GEN

Morphological structure	**Input**	**First recommended variant for foreign speakers**	**Variant not recommended for foreign speakers (considered mispronunciation)**
(a) simple: *trouble*	/trʌbl/	[trʌbl̩]	/trʌbəl/
(b) simple: *gentle*	/ʤentl/	[ʤentl̩]	/ʤentəl/
(c) simple: *incident*	/insidnt/	[insidn̩t]	/insidənt/
(d)simple: *important*	/impɔːtnt/	[impɔːtn̩t]	/impɔːtənt/
(e) simple: *fathom*	/fæðm/	[fæðm̩]	/fæðəm/
(f) complex: *buttonhole*	/bʌtnhəʊl/	[bʌtn̩həʊl]	bʌtənhəʊl
(g) complex: *gentleman*	/ʤentlmən/	[ʤentl̩mən]	/ʤentəlmən/
(h) complex: *broken*	[brəʊk(ə)n] ~ [brəʊk(ə)n̩]	[brəʊk(ə)n̩] ~ [brəʊk(ə)ŋ̩]	Both variants are equally acceptable
(i) complex: *thicken*	[θɪk(ə)n] ~ [θɪk(ə)ŋ]	[θɪk(ə)n̩] ~ [θɪk(ə)ŋ̩]	Both variants are equally acceptable

Table 6-1 illustrates the types of words that were selected as inputs for the analysis. The list comprised simple and complex words containing potential syllabic consonants of different kinds. The recommended pronunciations of these words were pronunciations with a syllabic consonant as the default pronunciation and/or pronunciations allowing both the syllabic consonant and /əC/ equally. The list excluded the words in which the pronunciation of a syllabic consonant is considered a mispronunciation, such as *bottom* [bɒtəm] and *colon* [kɒlən] where syllabic consonants are not permitted.

6.5 Constraint definitions

6.5.1 Markedness constraints

As highlighted earlier, markedness constraints have been divided into two subgroups. The first group of markedness constraints, which I termed *well-formedness constraints*, ensures the correctness of the shape of syllables and segments making up syllables following the phonotactic restrictions of English. This group is heterogeneous and is derived from various theories. The second group named vowel sonority DTE and non-DTE constraints focuses on the correctness of the default epenthetic vowel quality.

Well-formedness constraints

96. *P/C

    A consonant may not associate with Peak/ Nucleus nodes (Prince and Smolensky, 1993:96).

This constraint prohibits the occurrence of [+consonantal] segments at the syllable nucleus position. Therefore, all acceptable syllable structures in SwE must have a vowel as the nucleus. This well-formedness constraint bans any output candidate that has a consonantal nucleus, *P/C. This is part of what is driving the vowel epenthesis process in SwE because speakers tend to insert a vowel that provides a vocalic nucleus to satisfy *P/C.

97. ONSET

    Syllables begin with a consonant. (Prince & Smolensky, 1993; Archangeli, 1997:7)

ONSET is a syllable well-formedness constraint that prevents syllable structures beginning with a vowel. Therefore, all output candidates that do not begin with a consonant are banned by ONSET.

98. SSP

> A string of tautosyllabic segments should rise in sonority to the syllable nucleus and fall in sonority within the coda. (Clements, 1990: 292; Henke, Kaisse, & Wright, 2013: 66)

This constraint penalises any output with onsets that violate the sonority sequencing and distance requirements such as onsets that do not observe the sonority distance requirements and codas with a rising sonority from the nucleus.

According to the results in Chapter 5, when vowel epenthesis produces /dl/ or /tl/ sequences, participants make some alterations, replacing the coronal stop with a velar stop. These adjustments indicate that SwE restricts syllable-initial coronal stop and coronal lateral sequences. These sequences meet SSP because the segments in such sequences rise in sonority towards the peak (the epenthetic vowel) and they meet the minimum sonority distance requirements of two steps; however, they are still not admitted to the SwE grammar. Thus, the restriction placed by SwE on these sequences cannot be explained by SSP because they satisfy this constraint. To explain the restriction on syllable-initial sequences that satisfy SSP, I employ the Onset Well-formedness constraint proposed by Hall (2004). Hall (2004) defines this constraint as follows:

99. Onset Well-formedness (OSW)

> Syllable onsets comprising coronal stop–lateral sequences are prohibited in the output (Hall, 2004: 7)

OSW penalises /tl/ and /dl/ sequences in the output.

The findings in Chapter 5 indicated a variation of epenthetic quality and epenthesis site where [l̩] is involved. Whenever [i] was inserted to repair [l̩], the epenthesis site was always after [l̩]. However, when any other vowel quality including [u] and [e] was inserted to repair [l̩], it was inserted before [l̩] or when [i] was inserted to fix [m̩], and [n̩], the epenthesis site was always before each of these syllabic consonants. Based on this observation, I assumed that the grammar of SwE prohibits the sequence [il] if [i] is

epenthetic and is inserted to repair syllabic [l]. I therefore propose a well-formedness constraint *il that will prevent the occurrence of epenthetic [i] before syllabic [l]. I define this proposed constraint in (100) as follows:

100. *il

Assign a violation mark for every [i] that occurs before [l] if [i] is epenthetic and [l] is syllabic.

The well-formedness constraint *il bans the occurrence of output structures that have epenthetic [i] before syllabic [l] but permits any other vowel quality to be inserted before syllabic [l]. This constraint does not penalise outputs in which [i] is inserted before a potential syllabic consonant that is not [l]. This only constraint applies for syllabic [l], otherwise, any other [il] sequence where [i] is not epenthetic and [l] is not syllabic is allowed.

Previous literature reveals that syllabic consonants are restricted to unstressed/ weak syllables occurring word-medially and word-finally in the semi-formal register of Standard British English (Toft, 2002; Bonilla, 2003; Roach, 2009; Akamatsu, 2013). Akamatsu (2013) adds that a preceding accented or stressed syllable is a necessary precondition to all syllabic consonants in British English. While the occurrence of a syllabic consonant sometimes co-varies with a schwa plus a non-syllabic consonant, /əC/ in these contexts, there are some cases whereby Standard BrE makes it compulsory for a syllabic consonant to be pronounced instead of a vowel (Roach, 2009; Akamatsu, 2013). In contrast, the results of this study indicate that SwE prohibits consonantal nuclei in all contexts. Because Standard BrE places conditions on the type of nucleus to occur in specific prosodic positions whereby in weak syllables of trochaic feet, vocalic nuclei are prohibited and only consonantal nuclei are permitted, and vocalic nuclei are permitted in any other prosodic positions, there is a need for a constraint that addresses this condition. An existing nuclear constraint that permits consonantal nuclei is the Nuclear Harmony Constraint (HNUC) that operates in ITB (Prince & Smolensky, 1993, 2004). According to Prince & Smolensky (1993, 2004), in ITB, any consonant can be a nucleus in any prosodic position as long as that consonant is of the lowest sonority in the cluster. However, this constraint does not fit quite well in the context of Standard BrE because HNUC does not put restrictions on the type of consonant to be syllabic as well as on the prosodic context of the consonant cluster. In light of this shortcoming of HNUC, I propose a constraint that

places conditions on the prosodic position where a consonantal nucleus can occur as well as where a vocalic nucleus can occur in Standard BrE. I will term this proposed constraint the Nucleus Condition Constraint (NUCCOND). The NUCCOND constraint permits only a syllabic consonant as a nucleus of a weak syllable of a trochaic foot, otherwise a vocalic nucleus in any other prosodic position. So, NUCCOND is the source of pressure on consonants to be syllabic. I define NUCCOND as follows:

101. NUCCOND

A syllabic consonant is required as the peak in a weak syllable of a trochaic foot, otherwise, a vocalic nucleus is expected in any other prosodic position.

NUCCOND bans all output structures that contain vocalic nuclei in weak syllables of trochaic feet, whereas an output that satisfies this constraint must have a syllabic consonant as the nucleus of a weak syllable of a trochaic foot. Consider the following examples.

102. *hotel* [həʊˈt**e**l] *[həʊˈtl̩]

103. *bottle* [ˈbɒtl̩] *[ˈbɒtəl]

The examples in (102) and (103) above illustrate words with different foot structures and the types of nuclei they take. Example (102) permits only vocalic nuclei on both syllables because the foot structure of this word is not a trochee. As it has been illustrated, the form with a syllabic consonant is unacceptable because the second syllable is stressed while the first syllable is weak/ unstressed. In example (103), the first syllable bears a primary stress while the second syllable is unstressed, which means that *bottle* has a trochaic foot structure. Therefore, the weak syllable of this trochee must have a syllabic consonant as the nucleus following NUCCOND. That is why the form*[ˈbɒtəl] is not acceptable because the weak syllable has a vocalic nucleus. NUCCOND assigns a violation mark to any weak syllable of a trochaic foot that has a vowel as the nucleus.

104. NOCODA

Syllables end with a vowel. (Prince & Smolensky, 1993; Archangeli, 1997:7)

According to this constraint, an acceptable syllable structure ends with a vowel, and a syllable structure that ends with a consonant or sequence of consonants violates this syllable well-formedness constraint.

105. *COMPLEX

Syllables have at most one consonant at an edge and one vowel at the peak. (Prince & Smolensky, 1993: 96; Archangeli, 1997:7)

Therefore, a syllable with a sequence of consonants at a margin violates *COMPLEX and a syllable with only one consonant at the margin satisfies this constraint.

In some varieties of BrE within the inner circle, such as the casual register, a syllabic consonant often co-varies with the /əC/ form (Akamatsu, 2013; Toft, 2002). A schwa is one of the default epenthetic vowels of English (Hume et al., 2015). Therefore, it would be expected that speakers who cannot produce syllabic consonants would opt for the /əC/ form. However, as pointed out in the reviewed literature, a schwa is very scarce in most African English varieties including SwE, and is often replaced by a full vowel that is available in the inventories of the L1s of the speakers (Arua, 1999; Huber, 2004; Kadenge, 2009; Kamwangamalu & Moyo, 2003; van Rooy & van Huyssteen, 2000). The results of this study presented in Chapter 4 reveal that the Mesolect speakers of SwE insert a full vowel to repair syllabic consonants instead of a schwa as would be expected in a vowel epenthesis process of English. Due to the unavailability of the schwa in the inventory of these speakers, I propose a new well-formedness constraint, *ə, that bans the occurrence of a schwa in the output. This constraint has never been proposed before. I define the proposed constraint, *ə as follows:

106. *ə

Assign a violation mark for every schwa.

Any output structure that has a schwa violates the constraint *ə, but any output structure that has a syllabic consonant or a peripheral vowel fulfills this constraint.

Vowel sonority constraints

As mentioned earlier, the role of this subset of markedness constraints is to enforce some sort of well-formedness on default epenthetic vowels. The constraints are in a stringency hierarchy as violation assignment is cumulative. This means that for every point along the sonority scale, there is a constraint that assigns a violation to that point as well as for every other point up to and including the most marked element in the sonority scale (de Lacy, 2004). For example, the most marked vowel in a non-DTE is [a] and because this vowel is the most marked, it incurs a set of other candidates' violations including [e] and

[o]. Conversely, [i] being the least marked non-DTE available in the SwE inventory incurs only a subset of violations because there is no constraint for which any of the non-high peripheral vowels could incur fewer violations than [i]. De Lacy (2006) provides a large list of vowel sonority constraints with each point along the scale having a constraint that assigns a violation to that point for both the DTE and non-DTE prosodic contexts. However, because the constraints are in a stringency hierarchy, I selected only three which pay attention to the points of the sonority scale relevant to SwE. I define these constraints as follows.

107. * - Δ Ft ≥ {e, o}

Assign a violation mark for every vowel of equal or greater sonority than [e] or [o] at a foot non-DTE (de Lacy, 2006).

This constraint penalises output candidates with epenthetic [e], [o], and [a] in favour of output candidates with vowels of low sonority [i], [u], and [ə] at prosodic non-heads.

108. * Δ σ ≤ {e, o}

Assign a violation mark for every epenthetic vowel of equal or lesser sonority than [e] or [o] at a syllable DTE. (de Lacy, 2006)

This constraint penalises output candidates with the low-sonority epenthetic vowels [e], [o], [i], [u], and [ə] in favour of output candidates with the high-sonority vowel [a] at prosodic heads.

109. *- Δ Ft ≥ {i, u}

Assign a violation mark for every vowel of equal or greater sonority than [i] or [u] at a foot non-DTE (de Lacy, 2006).

This constraint penalises output candidates with epenthetic [i], [u], [e], [o], and [a] in favour of output candidates with [ə] at prosodic non-heads.

6.5.2 Faithfulness constraints

110. MAX-C

A consonant in the input corresponds to a consonant in the output. (No consonant deletion) (McCarthy and Prince, 1995:16)

This constraint prohibits the deletion of consonants, so any output that has deleted a consonant from the input receives a violation mark for MAX-C. Therefore, any output that

prevents the occurrence of a syllabic consonant by deleting a consonant of the input is penalised by MAX-C and is never optimal.

111. DEP-V

> A vowel in the output corresponds to a vowel in the input. (No vowel epenthesis) (McCarthy and Prince, 1995:16)

This constraint bans the insertion of vowels, so any output candidate with an epenthetic vowel is assigned a violation mark for DEP-V.

112. INTEGRITY

> Assign a violation mark for every input segment that has multiple correspondents in the output (McCarthy & Prince, 1995; Staroverov, 2014). This constraint, which McCarthy & Prince (1995: 124) defined as "no breaking" penalises the breaking/ splitting of segments in the input into two output segments.

In the vowel epenthesis process, INTEGRITY militates against any candidate that splits/ breaks a consonant of the input so that a single consonant of the input corresponds to two segments in the output comprising a consonant and a vowel. Therefore, an output candidate that has an epenthetic vowel resulting from splitting an input consonant is penalised by INTEGRITY.

In essence, there are two different means of achieving vowel epenthesis – splitting and default insertion, and these two violate different faithfulness constraints. Default insertion is achieved by violating DEP-V, the faithfulness constraint that prohibits the insertion of a vowel. Splitting is achieved by violating INTEGRITY, the faithfulness constraint that penalises the breaking of an input segment into two output segments. Both processes are triggered by the same markedness factors – the restriction on consonantal nuclei. Acceptable structures must satisfy *P/C which penalises consonantal nuclei in the output, thus putting pressure on output candidates to have an epenthetic vowel.

113. IO-IDENT [place]

> Assign a violation mark to every output segment that is not identical to the input correspondent regarding place features. (Staroverov, 2014)

IO-IDENT [place], which has been adapted to accommodate the vowel epenthesis process, penalises any candidate whose epenthetic vowel fails to adopt the place features of its consonantal input correspondent.

114. IO-IDENT [consonantal]

Assign a violation mark to every [+consonantal] input with a [-consonantal] output correspondent. (Staroverov, 2014)

IO-IDENT [consonantal] militates against splitting vowels out of consonants. This constraint penalises any candidate with an epenthetic vowel because the epenthetic vowel is not identical to its consonantal input in terms of the feature [consonantal]. Vowels are [-consonantal] while consonants are [+consonantal].

In Chapter 5, I highlighted the importance of proximity between the consonantal element of the output and the vocalic element of the output in splitting. I mentioned that the epenthetic vowel, which is the vocalic element of the output, that results from splitting has to immediately follow the consonantal element of the output. The consonantal output correspondent becomes the onset of the syllable with the epenthetic vowel; thus, these two segments occur within the same syllable. In other words, there should be no intervening segments between the consonantal and the vocalic elements of the output. I draw on the constraint *SKIP to explain the restrictions concerning adjacency between the two output elements resulting from splitting.

115. *SKIP

No material should come between interacting segments. (Uffman, 2005:40)

This constraint penalises output structures where the epenthetic vowel does not immediately follow the consonantal element of the output. Put differently, *SKIP penalises output forms that have a segment between the epenthetic vowel and the consonant that split from an input consonant preceding the potential syllabic consonant.

6.6 Constraint ranking

The constraints outlined in *Section 6.5.* form part of the CON component of OT. Each constraint plays an important role in driving the different patterns of vowel epenthesis according to the requirements of SwE. The constraints have to be ranked in a particular

way, and the ranking is imperative to the function of each constraint. For example, suppose the well-formedness constraint *P/C prohibiting consonantal nuclei, is ranked below the anti-insertion faithfulness constraints DEP-V or INTEGRITY, in that case, the constraint restricting the occurrence of vocalic nuclei will not be allowed to force any alternation on the type of nucleus to trigger vowel epenthesis. The optimal ranking for deriving the optimal candidate in SwE is dependent on the epenthesis pattern being analysed and the type of candidate being submitted to EVAL. The constraint ranking was done on OTWorkplace version 123 of 2019 (Prince, Merchant & Tesar, 2019).

6.7 Some orthographic adjustments

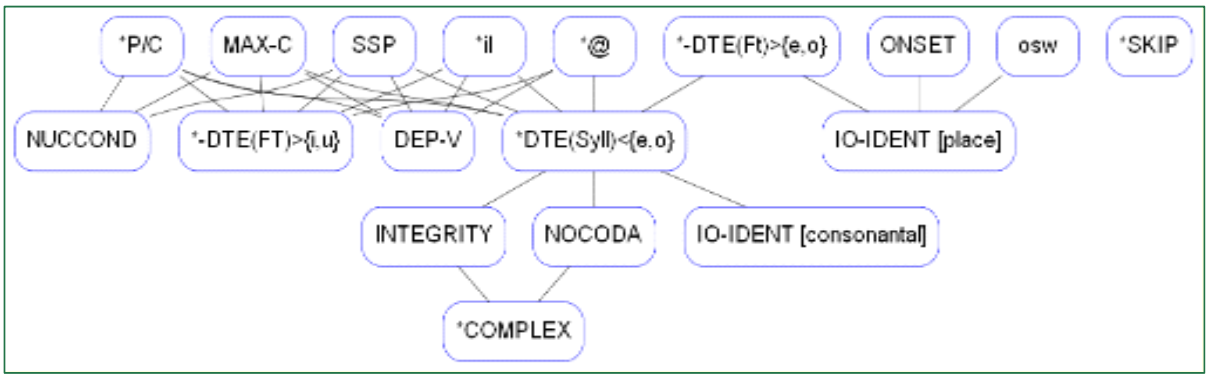
Because OTWorkplace could not decipher some of the IPA symbols, the following orthographic substitutions were made on the constraints and candidate sets entered in the OTWorkplace:

- Syllabic consonants were written in upper case.
- Schwa was represented using the **@** symbol
- The vowel [ʌ] was represented by a normal letter **a**
- The vowel [ɜ] was represented by a normal letter **e**
- The velar nasal was represented by the symbol **#**
- Δ was written as **DTE**
- The σ symbol was written as **Syll**
- The vowel [ɪ] was written as the normal letter **i**
- The sound [ʤ] was represented by the sign **&**
- The sound [ʧ] was represented by the sign **$**
- The sound [ɒ] was written as the normal letter **o**
- The sound [θ] was written as the normal letter **t.**
- The sign ≥ was replaced by **>**
- The sign ≤ was replaced by **<**

6.8 The factorial typology and the overall ranking hierarchy in SwE vowel epenthesis

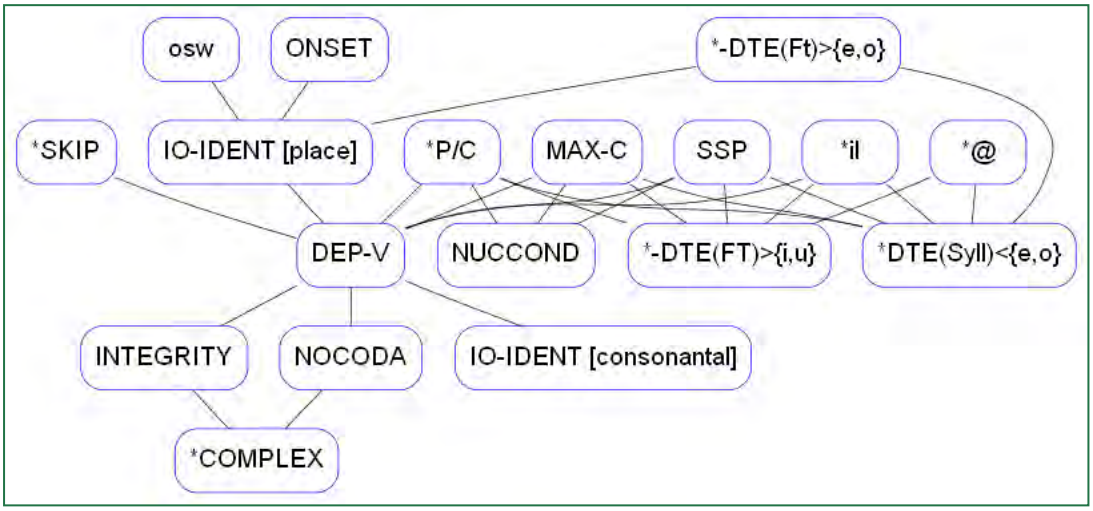
The results of the factorial typology calculation revealed a complex system of disjointed rankings that derive the different patterns of the SwE vowel epenthesis process. The Hasse diagram in ***Figure 6-1*** demonstrates part of the ranking that represents this system.

Figure 6-1: A partial ranking hierarchy reflecting the different patterns of the SwE vowel epenthesis process



The system represented in ***Figure 6-1*** demonstrates a complex, disjointed ranking where each of the constraints {*P/C, MAX-C, ONSET, OSW, *ə, *il, SSP, *- Δ Ft ≥ {e, o}} is indomitable and plays a crucial role in deciding on the winning candidate. *COMPLEX ranks below all the constraints in the entire system. In the hierarchy in ***Figure 6-1***, *SKIP plays no crucial role because it dominates no constraint. ***Figure 6-2*** shows a different ranking hierarchy where *SKIP dominates above DEP-V and DEP-V dominates above INTEGRITY, NOCODA, and IO-IDENT [consonantal].

Figure 6-2: Another partial ranking hierarchy reflecting the different patterns of the SwE vowel epenthesis process



These two Hasse diagrams paint a very complicated picture whereby the constraints can be re-ranked in many different ways to derive the different patterns of vowel epenthesis concerning epenthetic vowel qualities and epenthesis sites. I provide a summary of the overall ranking in the Most Informative Basis (MIB) (Brasoveanu & Prince 2011) attached as APPENDIX M: THE OVERALL MIB RAKING IN THE SwE VOWEL EPENTHESIS PROCESS.

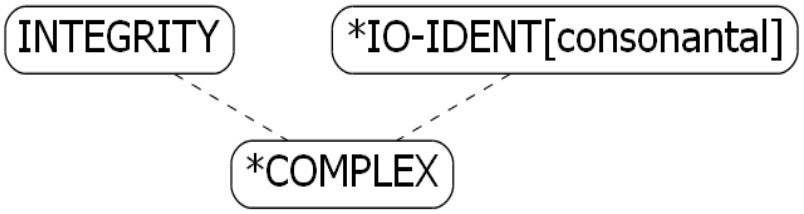
6.9 A description of SwE partial rankings of the vowel epenthesis process

In this section, I describe the partial rankings that reflect the different aspects of the SwE vowel epenthesis process.

*6.9.1 NOCODA, INTEGRITY, and IO-IDENT [consonantal] above *COMPLEX*

The ranking reveals a disjunctive kind of ranking where either INTEGRITY or IO-IDENT [consonantal] rank above *COMPLEX. INTEGRITY prohibits an input consonant from splitting into two output correspondents, and IO-IDENT [consonantal] penalises vocalic outputs resulting from split consonantal inputs. *COMPLEX bans more than one consonant at syllable margins. In addition, NOCODA, the well-formedness constraint that bans syllable-final consonants dominates *COMPLEX. ***Figure 6-2*** and ***Figure 6-3*** are Hasse diagrams demonstrating this partial ranking.

Figure 6-3: INTEGRITY or IO-IDENT [consonantal] above *COMPLEX



Having either INTEGRITY or IO-IDENT [consonantal] dominate *COMPLEX means that the grammar prefers an output with a consonant cluster to an output that avoids a consonant cluster through splitting. In other words, putting INTEGRITY above *COMPLEX preserves the consonant cluster by preventing the input consonant from splitting into a consonant and a vowel whereby the vowel would break the consonant cluster. Putting IO-IDENT [consonantal] above *COMPLEX prevents the occurrence of any vocalic element of the output that would break a consonant cluster. Consider the following example:

116. *whistle*: /hwi**sl**/ **SwE:** [hwi.**sl**i] **Not attested:** *[hwi.**si.li**]

Example (116) illustrates that the acceptable output for *whistle* in SwE is [hwi.sli], which has a consonant cluster /sl/ in violation of *COMPLEX. The output [hwi.si.li] in which there is an epenthetic vowel breaking the cluster /sl/ is not acceptable in the grammar of SwE. The output *[hwi.si.li] is produced by splitting /s/ of the input into [s] and [i] in violation of INTEGRITY. Because the epenthetic vowel is not faithful to its input correspondent in terms of the feature [consonantal], the faithfulness constraint IO-IDENT [consonantal] is thus violated. In contrast, [hwi.sli] satisfies both INTEGRITY and IO-IDENT [consonantal]. ***Tableau 6-1*** demonstrates the ranking of INTEGRITY and *COMPLEX and ***Tableau 6-2*** demonstrates the ranking of IO-IDENT [consonantal] and *COMPLEX using /hwisl/. Constraint violations are indicated by asterisks, and the optimal output is indicated by the sign ☺.

Tableau 6-1: INTEGRITY above *COMPLEX in /hwisl/

/hwisl/	**INTEGRITY**	***COMPLEX**	**NOTE**
a. hwi.**si**.li	***!**	*	**Splitting *s* into [s] and [i]**

b. ☺hwi.**sli**		**	**Default insertion of [i]**

In ***Tableau 6-1***, candidate (a) loses to candidate (b) because it (candidate a) unnecessarily inserts a vowel to avoid the consonant cluster /sl/. Candidate (a) violates INTEGRITY by splitting /s/ into [s] and [i]. Candidate (b) comes out as the optimal output despite its violation of *COMPLEX more than once because it satisfies INTEGRITY. INTEGRITY thus dominates *COMPLEX in the SwE vowel epenthesis process. This ranking means that in SwE, the process of vowel epenthesis (splitting) has a different function than breaking consonant clusters. Applying vowel epenthesis to avoid consonant clusters often results in an unacceptable output. ***Tableau 6-2*** demonstrates the ranking of IO-IDENT [consonantal] and *COMPLEX using /hwisl/.

Tableau 6-2: IO-IDENT [consonantal] above *COMPLEX in /hwisl/

/hwisl/	**IO-IDENT [consonantal]**	***COMPLEX**	**NOTE**
a. hwi.**si**.li	***!**	*	**Splitting [s], [i]**
b. ☺hwi.**sli**		**	**Default insertion [i]**

In ***Tableau 6-2*** candidate (a) loses because it has an epenthetic vowel resulting from splitting /s/ of the input to break the cluster /sl/ in violation of IO-IDENT [consonantal]. Candidate (b) satisfies IO-IDENT [consonantal] because this candidate does not have an epenthetic vowel that breaks /sl/ and thus it becomes the optimal output despite violating *COMPLEX twice. Therefore, in the SwE vowel epenthesis process, IO-IDENT [consonantal] ranks above *COMPLEX because epenthetic vowels are not intended to prevent consonant clusters.

Moreover, NOCODA ranks above *COMPLEX in SwE. Ranking NOCODA above *COMPLEX in the SwE vowel epenthesis process indicates that the grammar of SwE prefers consonant clusters to codas. ***Figure 6-4*** demonstrates a ranking in which NOCODA dominates *COMPLEX.

Figure 6-4: NOCODA above *COMPLEX

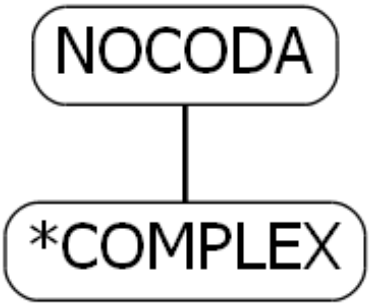


Tableau 6-3 presents the ranking of *COMPLEX and NOCODA in *circled* /sɜ:klɪd/.

Tableau 6-3: NOCODA above *COMPLEX in /sɜ:klɪd/.

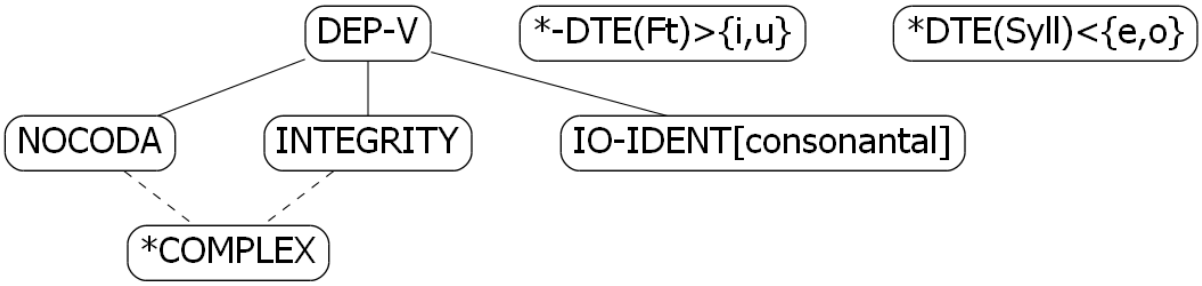
/sɜ:klɪd/	**NOCODA**	***COMPLEX**
a. ☺se. kl**i**d	*	*
b. sek.l**i**d	**	
c. sɜ:k.**ə**l.ɪd	***	

In ***Tableau 6-3*,** each of the candidates in (b) and (c) has a coda in every syllable thus violating NOCODA more than once. The two candidates satisfy *COMPLEX because none of the syllables has a consonant cluster at its margin. Candidate (a) violates both constraints. When the vowel was inserted, the potential syllabic consonant /l/ combined with consonant /k/ immediately preceded it to form an onset cluster [kl]. Therefore, the second syllable of this candidate has an onset cluster [kl] and a coda [d]. Although candidate (a) violates both NOCODA and *COMPLEX, it still comes out as the optimal output because it has incurred the least number of violations of NOCODA compared to candidates (b) and (c). This ranking shows that NOCODA dominates *COMPLEX because a candidate that violates *COMPLEX wins over candidates that do not violate this constraint but incur more violation counts in NOCODA. The word /sɜ:klɪd/ may not be a good example to illustrate vowel epenthesis, particularly at the outset of this discussion because someone may argue that what I claim to be an epenthetic vowel is the vowel of the suffix /-ɪd/. However, considering the epenthesis pattern of other words from the SwE data that have a similar phonological structure, such as *gentle* [ʤeŋkli] and *uncle* [aŋkli], I consider [seklid] to have a similar pattern. Therefore, [i] in [se.klid] is epenthetic.

*6.9.2 DEP-V above {NOCODA, INTEGRITY, IO-IDENT [consonantal]} and *COMPLEX*

Another partial ranking on SwE vowel epenthesis is the ranking where each constraint from the subset {NOCODA, INTEGRITY, IO-IDENT [consonantal]} and *COMPLEX is dominated by DEP-V. This partial ranking is represented in the Hasse diagram labelled ***Figure 6-5***.

Figure 6-5: DEP-V above {NOCODA, INTEGRITY, IO-IDENT [consonantal]} and *COMPLEX



DEP-V functions to ban vowel insertion, and the two vowel sonority constraints * Δ σ ≤ {e, o} and *- Δ Ft ≥ {i, u} function to specify the correct default epenthetic vowel quality. Although these three constraints appear to be playing different roles, they often work as a team – if you choose to insert a vowel, you ought to insert the correct vowel quality, otherwise, the output will not be acceptable. Because default epenthetic vowels have no underlying form to which to be faithful, their quality normally gets dictated by vowel sonority constraints, and these constraints will affect vowel quality no matter where they fit in the ranking. Therefore, these two vowel sonority constraints show no crucial ranking relations in this hierarchy. This means that these two constraints play no role in deciding whether or not to insert a vowel; however, once default vowel insertion is triggered, they become activated to dictate the acceptable quality of the epenthetic vowel.

In SwE vowel epenthesis, the two strategies do not apply interchangeably, each has a specific context in which it operates. In some words, splitting is preferred to default insertion while in others default insertion is preferred to splitting. The ranking of the constraints DEP-V, {* Δ σ ≤ {e, o} and *- Δ Ft ≥ {i, u}}, and {NOCODA, INTEGRITY, IO-IDENT [consonantal]} determines the epenthesis strategy. In the analysis of consonant epenthesis using the Splitting theory, Staroverov (2014) argues that the relevant family of constraints to employ is the IO-IDENT family of constraints because they are the

constraints responsible for epenthetic quality and they are the ones regulating featural alterations in a language. As a result, Staroverov (2014) opines that the Splitting theory renders the DEP family of constraints unnecessary. While Staroverov's view may work well for consonant epenthesis where default insertion is inapplicable, this view does not hold for a heterogenous process like vowel epenthesis where several strategies including default insertion and splitting define the quality of the epenthetic vowel. Therefore DEP-V is crucial in the vowel epenthesis process.

Having DEP-V dominate above INTEGRITY means that splitting is preferred to default insertion. Furthermore, when DEP-V ranks above IO-IDENT [consonantal], it means that the candidate that has an epenthetic vowel resulting from splitting violates IO-IDENT [consonantal] in that the vocalic element of the output is not faithful to its input correspondent in terms of the feature [consonantal]. Finally, DEP-V ranks above *COMPLEX meaning that the grammar permits consonant clusters even when insertion is prohibited. Because codas and consonant clusters are permitted in SwE even where insertion is banned, the constraints *COMPLEX and NOCODA are violated. Having DEP-V above NOCODA means that the SwE grammar prefers a coda to a default epenthetic vowel. Consider the following examples.

117. *couple* /kʌpl/ → [ka.pul] not attested *[ka.pli]

118. *chasm* / kæzm/ → [ka.zim]/ [ʧa.zim] not attested *[kaz.mi]/*[ka.zi.mi]

119. *prison* /prizn/ →[pri.zin] not attested *[priz.ni]/*[pri.zi.ni]

120. *cotton* /kɒtn/ →[ko.tin] not attested *[kot.ni]/*[ko.ti.ni]

The examples in (117) to (120) illustrate that splitting is preferred to insertion in the pronunciation of the words *couple*, *chasm*, *prison*, and *cotton* because the forms with default epenthetic vowels were not attested as alternative pronunciations. Instead, the epenthetic vowels [u] in [ka.pul] and [i] in [ka.zim], [pri.zin], and [ko.tin] result from splitting. These epenthetic vowels are not faithful to their consonant input correspondents regarding the feature [consonantal]. Moreover, the potential syllabic consonants /l/, /m/, and /n/ have been assigned to the coda position, showing that codas are permitted even though default epenthetic vowels are disallowed in those words.

Finally, [pri.zin] has the consonant cluster /pr/ showing that consonant clusters are permitted even though insertion is prohibited. The constraint ranking in these examples is illustrated in ***Tableau 6-4*** using /kæzm/.

Tableau 6-4: DEP-V above {NOCODA, INTEGRITY, IO-IDENT [consonantal]} in /kæzm/

/ kæzm/	**DEP-V**	*** Δ σ ≤ {e, o}**	***_ Δ Ft ≥ {i, u}**	**NOCODA**	**INTEGRITY**	**IO-IDENT [consonantal]**
a.☺ ka.zim				*	*	*
b. kaz.mi	*	*	*	*		

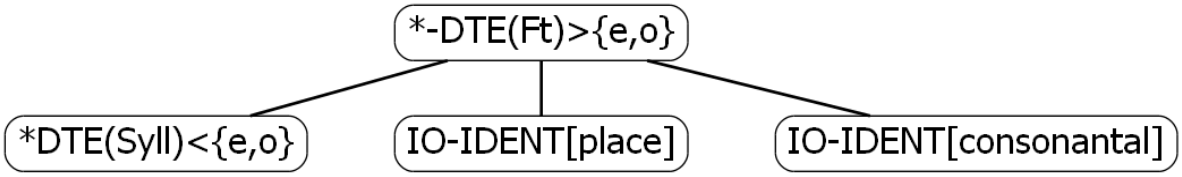
Note: Some participants pronounced 'chasm' as [ʧazim]. However, this variation is not linked to the vowel epenthesis process but comes as a spelling effect. Sometimes the 'ch' combination represents the sound [ʧ] as in 'church', 'children', and 'choice', to mention a few.

In ***Tableau 6-4***, candidate (b) has a default epenthetic vowel [i] in violation of the constraints DEP-V, {* Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}. This default epenthetic vowel [i] in candidate (b) has a higher sonority than [e] and [o] thus it violates the vowel sonority constraint * Δ σ ≤ {e, o}. Default epenthetic [i] also violates *- Δ Ft ≥ {i, u} because it has equal sonority to [i] and [u]. Candidate (a) satisfies the three constraints DEP-V, {* Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}} but violates the sub-set {NOCODA, INTEGRITY, IO-IDENT [consonantal]} by splitting the consonant /z/ of the input into two outputs [z] and [i] in violation of INTEGRITY. In addition, the epenthetic vowel [i] is not faithful to its input correspondent /z/ because [i] is [- consonantal] and /z/ is [+consonantal], thus, IO-IDENT [consonantal] is violated. Finally, candidate (a) has the coda [m] in violation of NOCODA. Because the faithfulness constraint DEP-V which bans insertion dominates the sub-set {NOCODA, INTEGRITY, IO-IDENT [consonantal]}, candidate (a), [ka.zim] is therefore the optimal output because it satisfies this dominant constraint.

6.9.3 The dominance of a vowel sonority non-DTE constraint

The SwE grammar also has a ranking where the vowel sonority non-DTE constraint *- Δ Ft ≥ {e, o} dominates the vowel sonority DTE constraint * Δ σ ≤ {e, o}, and the faithfulness constraints IO- IDENT [place] and IO-IDENT [consonantal]. This partial ranking is demonstrated in ***Figure 6-6***.

Figure 6-6: *- Δ Ft ≥ {e, o} above * Δ σ ≤ {e, o}, IO- IDENT [place] and IO-IDENT [consonantal].



As highlighted in the markedness and splitting theories, vowel sonority DTE and non-DTE constraints determine the acceptable default epenthetic quality, whereas IO-IDENT constraints determine the acceptable epenthetic quality resulting from splitting (de Lacy, 2006; Staroverov, 2014). According to the theory of markedness underpinning this study, a grammar in which a non-DTE constraint dominates a DTE constraint epenthesizes a low-sonority vowel, whereas a grammar that epenthesizes highly-sonorous vowel results from a DTE constraint dominating over a non-DTE constraint (de Lacy, 2006). Because in SwE the vowel sonority non-DTE constraint *- Δ Ft ≥ {e, o} dominates the vowel sonority DTE constraint * Δ σ ≤ {e, o}, the grammar therefore epenthesizes a low-sonority vowel. *- Δ Ft ≥ {e, o} favours [i], [u], and [ə] at the expense of [e], [o], and [a] (de Lacy, 2006). Conversely, * Δ σ ≤ {e, o} penalises [e], [o], [i], [u], and [ə] as epenthetic vowels in favour of [a] (de Lacy, 2006). Therefore, a winning candidate in SwE must have any of [i], [u], or [ə] as the default epenthetic vowel but not [a]. However, according to the theory, back vowels are harmonic bounds of front vowels; in addition, they are considered marked (de Lacy, 2006); therefore, the back vowel [u] cannot appear as the optimal output. Furthermore, [ə] was not attested in the pronunciation data of the Mesolect form of SwE; therefore, the only low sonority candidate left to compete with the high sonority [a] is [i]. So, the default epenthetic vowel of SwE is [i]. Consider the following examples:

121. *uncle* /ʌŋkl/ → [aŋ.kl**i**] not attested *[aŋ.kl**a**]

122. *whistle* /hwisl/ → [hwi.sl**i**] not attested *[hwi.sl**a**]

The examples in (121) and (122), illustrate the attested pronunciations of the words *uncle* and *whistle* in SwE as opposed to the unattested forms. Each of the attested forms [aŋ.kl**i**] and [hwi.sl**i**] has the low sonorous [i] as the default epenthetic vowel. In contrast, each of the unattested forms*[aŋ.kl**a**] and *[hwi.sl**a**] has the high sonorous [a] as the

default epenthetic vowel. The ranking of these vowel sonority constraints is demonstrated in ***Tableau 6-5*** using /ʌŋkl/.

Tableau 6-5: SwE ranking of the non-DTE and DTE constraints in /ʌŋkl/

/ʌŋkl/	***- Δ Ft ≥ {e, o}**	*** Δ σ ≤ {e, o}**
a. aŋ.kla	*	
b. aŋ.kle	*	*
c. ☺aŋ.kli		*

Candidate (a) in ***Tableau 6-5*** is penalised because it epenthesises [a] in violation of the high-ranking *- Δ Ft ≥ {e, o}. This non-DTE vowel sonority constraint penalises any vowel of higher sonority than {e, o}, which includes [e] and [a]. Candidate (b) is worse because it inserts [e] which is penalised by both *- Δ Ft ≥ {e, o} and * Δ σ ≤ {e, o}. As already mentioned, *- Δ Ft ≥ {e, o} penalises [e] and [a] as epenthetic vowels, and * Δ σ ≤ {e, o} penalises [e], [i], and [ə] as epenthetic vowels. Therefore, candidate (b) can never be better than any of the candidates (a) and (c). Candidate (c) comes out as the best candidate because it satisfies the high-ranking *- Δ Ft ≥ {e, o} by inserting [i], which is one of the epenthetic qualities favoured by this constraint.

Moreover, when *-Δ Ft ≥ {e, o} dominates both IO-IDENT [place] and IO-IDENT [consonantal], in addition to the low-ranking * Δ σ ≤ {e, o}, the result is a default epenthetic vowel of low sonority as opposed to a highly sonorous vowel or a vowel identical to its input correspondent because the non-DTE constraint overrules all the competing constraints. In this particular case, as it was explained prior, the dominance of *- Δ Ft ≥ {e, o} over * Δ σ ≤ {e, o} entails that the grammar permits the vowel of low sonority [i] and prohibits a vowel of high sonority [a]. Ranking IO-IDENT [place] and IO-IDENT [place] below *[θi.kan] indicates that the grammar chooses a default epenthetic vowel when splitting is an option. Consider the following example.

123. *thicken* /θɪkn/ → [θi.kin] not attested *[θi.kan]

Unlike all other words in the data, which clearly show that their pronunciations are the consequence of either insertion or splitting, example (123) does not follow the

common epenthetic pattern. Considering the epenthetic site, one may expect epenthetic [i] to result from splitting /k/ of the input. However, [i] does not take the feature [place] from /k/ because /k/ is [dorsal] and [i] is [coronal]. The expected epenthetic vowel would be [a] because /k/ and [a] share the place feature [dorsal], according to the Unified Place Theory as described in Clements (2004). In that case, a candidate with epenthetic [a] satisfies IO-IDENT [place], but [θi.kan] was not attested in the SwE pronunciation data. So, I concluded that epenthetic [i] is the default epenthetic vowel. Because of this irregularity, /θɪkn/ was evaluated on the vowel sonority DTE and non-DTE constraints, and the IO-IDENT constraints. The partial ranking is demonstrated in ***Tableau 6-6.***

Tableau 6-6: A vowel sonority non-DTE constraint dominating over a vowel sonority DTE constraint, and IO-IDENT constraints in /θɪkn/

/θɪkn/	***- Δ Ft ≥ {e, o}**	***Δ σ ≤ {e, o}**	**IO-IDENT [place]**	**IO-IDENT [consonantal]**
a. θi.kan	*			*
b. ☺θi.kin		*	*	*

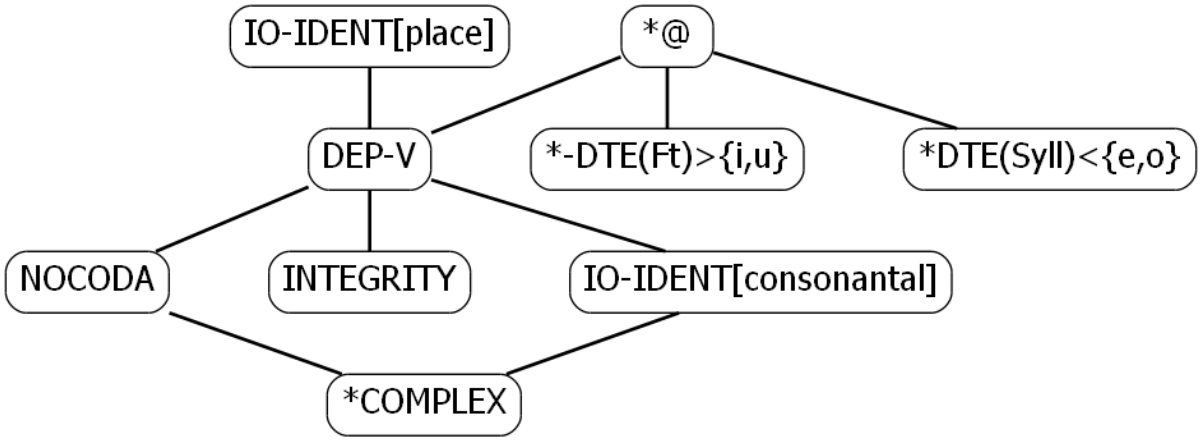
In ***Tableau 6-6***, candidate (a) is penalised for violating the high-ranking non-DTE constraint *- Δ Ft ≥ {e, o}by inserting a vowel of high sonority. Although the candidate satisfies the DTE constraint * Δ σ ≤ {e, o} which favours the low sonority vowel [a] and IO-IDENT [place] because [a] is identical to the input consonant /k/ in terms of the [place] feature, the dominance of *- Δ Ft ≥ {e, o} overrules these two constraints. Candidate (b) comes out as the optimal output because it has an epenthetic vowel of low sonority, thus satisfying the high-ranking non-DTE constraint *- Δ Ft ≥ {e, o}. This candidate's violation of each of the constraints * Δ σ ≤ {e, o}, IO-IDENT [place], and IO-IDENT [consonantal] is not fatal because the candidate satisfies the high-ranking constraint.

*6.9.4 The dominance of *ə and IO-IDENT [place]*

The SwE grammar has a partial ranking where either *ə or IO-IDENT [place] dominates DEP-V and DEP-V in turn dominates each of the constraints in the sub-set {NOCODA, INTEGRITY, IO-IDENT [consonantal]}, and *COMPLEX. The well-formedness constraint

*ə also dominates the vowel sonority constraints * Δ σ ≤ {e, o} and *- Δ Ft ≥ {i, u}. The Hasse diagram in ***Figure 6-7*** represents this partial ranking.

Figure 6-7: *ə or IO-IDENT [place] above {DEP-V, * Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}, {NOCODA, INTEGRITY, IO-IDENT [consonantal]}, and *COMPLEX



Ranking either *ə or IO-IDENT [place] above each of these other constraints means that in SwE, a schwa can never be epenthetic irrespective of the epenthesis strategy. The default epenthetic vowel of English is [ə] (Hume et al, 2013; Silverman, 2011). Akamatsu (2013) notes that the covariant of a syllabic consonant in English is /əC/. Therefore, it would be logical to have a schwa as an epenthetic vowel in SwE as well since it is a variety of English. However, the dominance of *ə over {DEP-V, * Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}} in SwE penalises a schwa as a default epenthetic vowel. Moreover, the dominance of IO-IDENT [place] penalises any vowel quality that is not identical to the corresponding input consonant in terms of [place] in splitting, and this includes a schwa. A schwa is a neutral vowel; hence it cannot be claimed to have inherited the place features of any of the consonants in the vowel epenthesis process. Consider the following examples.

124. *uncle* /ʌŋkl/ → [ʌŋ.kli] not attested *[ʤeŋ.klə]/ *[ʌŋ.kəl]

125. *gentle* /ʤentl/ → [ʤeŋ.kli] not attested *[ʤeŋ.klə]/*[ʤen.təl]

126. *meddle* /medl/ → [med.li] not attested *[med.lə]/ *[med.əl]

In the examples in (124) to (126), the attested SwE forms avoid schwa, be it as a default paragogic vowel or as a vowel resulting from splitting. All the acceptable forms have the paragogic vowel [i] instead of [ə] or [əC]. ***Tableau 6-7*** demonstrates this constraint interaction in /ʤentl/.

Tableau 6-7 : The dominance of *ə or IO-IDENT [place] in /ʤentl/

/ʤentl/	*ə	DEP-V	* Δ σ ≤ {e, o}	*-Δ Ft ≥ {i,u}	IO-IDENT [place]	NOCODA	INTEGRITY	IO-IDENT [cons]	*COMPLEX
a. ʤen.təl	*!				*	**	*	*	
b. ʤeŋ.klə	*!	*	*			*			*
c. ☺ʤeŋ.kli		*	*	*		*			*

In ***Tableau 6-7***, candidate (a) is eliminated for violating the two high-ranking constraints *ə and IO-IDENT [place] because the candidate has an epenthetic schwa before the potential syllabic /l/. The well-formedness constraint *ə bans the occurrence of an output schwa in the epenthesis process of any sort (default or splitting). IO-IDENT [place] bans any output that has an epenthetic vowel that is not identical to its corresponding consonant of the input in terms of place features. In the case of candidate (a), the correspondent input consonant /t/ is [+coronal]; hence the corresponding vocalic output ought to be a front vowel because front vowels are classified as [coronal] in the Unified Place Theory (Clements & Hume, 1995). On the contrary, the coronal consonant /t/ of the input has split into the output [t] and [ə]. A schwa is non-front hence [-coronal]. Therefore, splitting /t/ into [ə] violates IO-IDENT [place] because [ə] and /t/ have no place feature in common. In addition, candidate (a) also violates NOCODA because both the first and second syllables have syllable-final consonants. Moreover, because /t/ of the input has split into [t] and [ə] in candidate (a), INTEGRITY, the constraint that penalises segments that have more than one output correspondent has been violated; IO-IDENT [consonantal] is also violated because the vowel element of the output is not faithful to the consonantal input correspondent.

Candidate (b) is also eliminated for violating *ə because the default epenthetic vowel in this candidate is [ə]. Candidate (b) also violates DEP-V because it has epenthetic [ə] that has no input correspondent. The candidate also violates the DTE constraint * Δ σ ≤ {e, o} by inserting [ə] instead of [a] favoured by this DTE constraint. Although this candidate satisfies *-Δ Ft ≥ {i, u}, the non-DTE constraint that favours [ə] as the least

marked vowel in feet non-DTEs, the decision of this constraint is overruled by *ə. Finally, candidate (b) violates NOCODA and *COMPLEX because the output has a coda in the first syllable and an onset cluster in the second syllable.

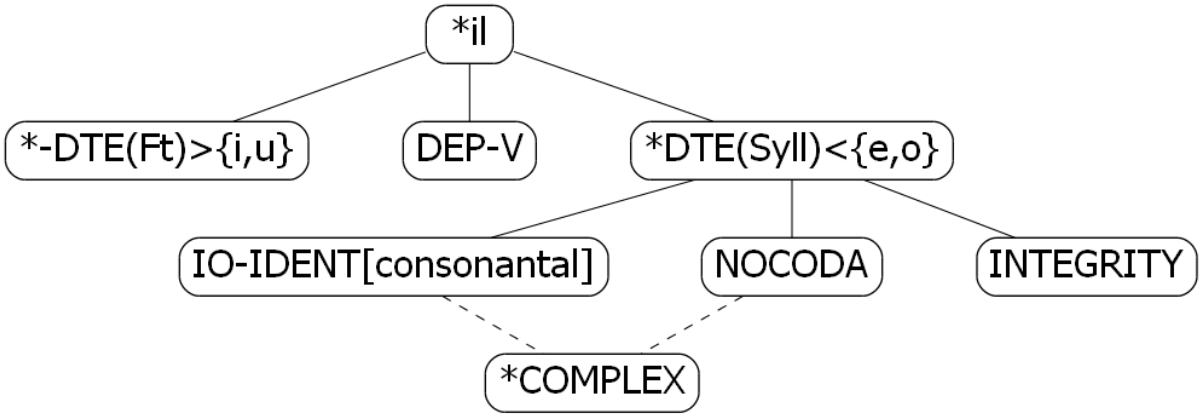
Candidate (c) is the optimal output because it satisfies the two high-ranking constraints. the epenthetic vowel of this candidate is [i], thus satisfying the high-ranking *ə. Furthermore, candidate (c) satisfies IO-IDENT [place] because there is no unfaithfulness to the input as the epenthetic vowel of this candidate has no input correspondent. Even though the candidate violates DEP-V by inserting a vowel, and * Δ σ ≤ {e, o} and *- Δ Ft ≥ {i, u} by inserting [i], the dominance of *ə overrules these constraints. Finally, the candidate also violates NOCODA and *COMPLEX but these two constraints are low-ranking hence their violation is not important. Therefore, in the SwE vowel epenthesis process, either *ə or IO-IDENT [place] rank high to determine the correct epenthetic vowel over [ə].

*6.9.5 The dominance of *il*

Another constraint in the indomitable stratum of the constraint sets is the well-formedness constraint *il. This constraint penalises any syllabic arrangement in which epenthetic [i] occurs before the potential syllabic /l/. As mentioned earlier, this restriction applies only if the vowel l[i] is epenthetic and /l/ is potentially syllabic and not in any other phonological arrangement. for example, *ill*, *milk*, and *peel* are phonotactically okay as words.

*il ranks above each of the constraints in the strata {DEP-V, * Δ σ ≤ {e, o}, *-Δ Ft ≥ {i, u}}, {NOCODA, INTEGRITY, IO-IDENT [cons]}, and *COMPLEX. The partial ranking where *il is dominant is represented in the Hasse diagram in ***Figure 6-8.***

Figure 6-8 *il above {DEP-V, * Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}, {NOCODA, INTEGRITY, IO-IDENT [cons]}, and *COMPLEX



The dominance of *il over the set {DEP-V, * Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u} means that any other epenthetic quality is allowed before potential syllabic /l/ except for [i]. In addition, INTEGRITY and IO-IDENT [consonant] rank below *il to prevent coronal input structures before potential syllabic /l/ from splitting into output structures with the sequence /il/. Moreover, the dominance of *il above NOCODA bans /l/ from becoming a coda when preceded by epenthetic [i] but allows any other consonant syllable-finally. Finally, *il dominates *COMPLEX to permit consonant clusters rather than /il/ sequences. Consider the following examples.

127. *gentle* /ʤentl/ → [ʤeŋ.kli] not attested *[ʤen.til]

128. *whistle* /hwisl/ → [hwi.sli] not attested *[hwi.sil]

The examples above demonstrate that epenthetic [i] before potential syllabic /l/ is prohibited in SwE. The splitting of /t/ and /s/ was expected as is the case with coronal consonants when they precede potential syllabic /n/ and /m/ as it happens in [ko.tin] and [ka.zim], or labial consonants when they precede potential syllabic /l/ as it happens in [tra.bul]. However, the examples in (127) and (128) are evidence that [i] is banned before potential syllabic /l/ because where splitting is expected, a default paragogic [i] occurs. **Tableau 6-8** illustrates the high ranking of *il to penalise an /il/sequence in the word /hwisl/.

Tableau 6-8: The high ranking of *il to ban /il/ sequence in /hwisl/

/hwisl/	***il**	**DEP-V**	**Δ σ ≤ {e, o}**	***-Δ Ft ≥ {i, u}**	**NOCODA**	**INTEGRITY**	**IO-IDENT [cons]**	***COMPLEX**
a. hwi.sil	***!**				*	*	*	*
b. ☺hwi.sli		*	*	*				**

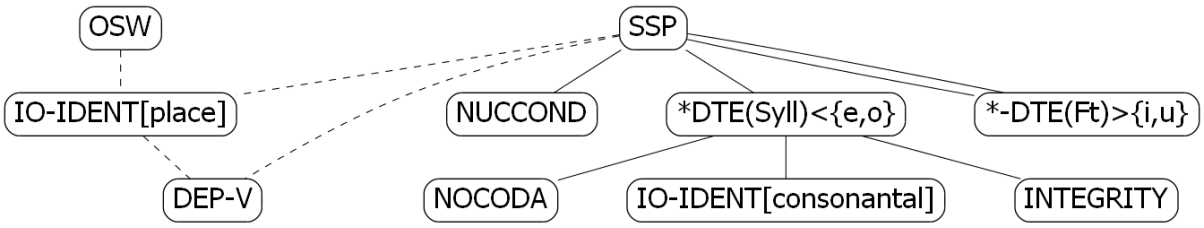
*Note: Epenthetic [i] in [hwi.sil] and [i] in [hwi.sli] are two different kinds of epenthetic [i] derived by different constraint sets; hence, they have different violation profiles. Epenthetic [i] in [hwi.sil] results from splitting, so DEP-V and the vowel sonority constraints Δ σ ≤ {e, o} and *- Δ Ft ≥ {i, u} are not violated. Epenthetic [i] in [hwi.sli] results from default insertion, thus violating DEP-V and the vowel sonority constraints are active but INTEGRITY and IO-IDENT [consonantal] are not violated because there is no splitting.*

Candidate (a) ***in Tableau 6-8*** violates the high-ranking *il because the epenthetic vowel [i] occurs before the potential syllabic /l/. The epenthetic vowel results from splitting coronal /s/ of the input into [s] and [i] in violation of INTEGRITY and IO-IDENT [consonantal]. So, *il dominates INTEGRITY and IO-IDENT [consonantal] because a candidate that draws on these constraints does not become the optimal output. While candidate (a) satisfies {DEP-V, Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}, candidate (b) nevertheless violates these constraints but still comes out as the optimal output because candidate (b) still satisfies the high-ranking *il. Therefore, in the SwE vowel epenthesis process, *il dominates {DEP-V, Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}. In addition, candidate (a) has the potential syllabic /l/ as the coda thus violating NOCODA. Candidate (a) is penalised since this sequence violates the high-ranking *il because the coda [l] is preceded by the epenthetic [i]. To avoid the sequence /il/, candidate (b) inserts the vowel word finally; nevertheless, this causes the potential syllabic /l/ and the consonant that comes right before it to form an onset cluster, which violates *COMPLEX. Thus, *COMPLEX ranks below. Of important note here is that the pressure to avoid /il/ sequences is one factor determining the position of the epenthetic vowel in SwE. The SwE epenthesis sites are discussed in detail in *Section 6.10.4*.

6.9.6 The dominance of OSW and SSP

In another partial ranking, OSW or SSP dominates the constraints IO-IDENT [PLACE] and DEP-V. In addition, SSP dominates {NUCCOND, * Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}, {NOCODA, INTEGRITY, IO-IDENT [cons]}. This partial ranking is represented by the Hasse diagram in ***Figure 6-9***.

Figure 6-9 : The dominance of OSW and SSP



The dominance of either OSW or SSP above these constraint sets means that all winning candidates must have onsets that comply with the phonotactic restrictions of SwE onsets and that sound sequences in all winning candidates must comply with SSP. The SSP requires that a string of segments should rise in sonority towards the peak and fall in sonority within the coda (Clements,1990; Henke et al, 2012). OSW bans candidates that violate the phonotactic restrictions of English onsets including consonant sequences consisting of an alveolar coronal plus a coronal lateral and those violating SSP. Consider the following examples.

129. *thicken* /θɪkn/ → [θi.kin] *[θi.kni]

130. *uncle* /ʌŋkl/ → [aŋ.kli] *[aŋkl]

The examples in (120) and (130) above demonstrate that in the process of avoiding syllabic consonants, the SwE grammar observes the phonotactic restrictions on English onsets and it ensures that all output structures are following either OSW or SSP or both. In (129), *[θi.kni] is not allowed in SwE because the sequence [kn] is not allowed by the phonotactic restrictions of English onsets (Hall, 2004). In addition, the sonority distance of this obstruent-nasal sequence is insufficient. According to Clements (1990) and Henke et al. (2012), the required sonority distance for English onsets is minimally two steps while [kn] has a sonority distance of one step. In (130) *[aŋkl] is not an acceptable SwE form because the coda violates SSP by having a coda that has a rising sonority between

the obstruent [k] and the liquid [l]. The partial ranking is demonstrated in ***Tableau 6-9*** and ***Tableau 6-10***.

Tableau 6-9: The dominance of OSW and SSP in [θi.kin]

/θɪkn/	OSW	SSP	IO-IDENT [place]	NOCODA	INTEGRITY	IO-IDENT [cons]
a. θi.kni	*!	*				
b. ☺θi.kin			*	*	*	*

In ***Tableau 6-9***, candidate (a) is eliminated because it violates the high-ranking OSW and SSP. Even though this candidate incurs fewer violations overall, it cannot be the optimal output because it violates the two high-ranking constraints. The candidate violates OSW because it has the sequence [kn] as the onset of the second syllable, which goes against the phonotactic restrictions of English onsets. Moreover, the minimum sonority distance between the obstruent [k] and the nasal [n] is one step, which is against the required sonority distance; hence SSP is also violated by Candidate (a). Candidate (b) on the other hand, satisfies both high-ranking constraints OSW and SSP; thus, this candidate comes out as the optimal output. The constraints {IO-IDENT [place], NOCODA, INTEGRITY, IO-IDENT [consonantal]} are overruled by either OSW or SSP. This discussion shows that the position of the epenthetic vowel is not as simple a choice as epenthetic quality, but it is sensitive to many factors including onset cluster well-formedness. A discussion of epenthesis sites follows in *Section 6.10.4*.

Tableau 6-10: The dominance of SSP in /ʌŋkl/

/ʌŋkl/	SSP	NUCCOND	DEP-V	Δ σ ≤ {e, o}	*- Δ Ft ≥ {i, u}	NOCODA
a. ☺aŋ.kli		*	*	*	*	*
b. aŋkl	*!					*

In ***Tableau 6-10***, candidate (a) is the optimal output because it satisfies the high-ranking constraint SSP. The coda of the first syllable falls in sonority from the peak, and the onset of the second syllable rises in sonority towards the peak. However, in candidate (b) the sequence [kl] within the coda rises in sonority in violation of SSP. Therefore, even though

candidate (b) satisfies {NUCCOND, DEP-V, Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}, this candidate is still eliminated for the violation of the indomitable SSP.

6.9.7 The dominance of MAX-C

Another ranking hierarchy revealed in SwE grammar is the ranking where MAX-C dominates and overrules several constraints, including {NUCCOND, DEP-V, Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}, {NOCODA, INTEGRITY, IO-IDENT [cons]}, and *COMPLEX. MAX-C militates against the deletion of consonants. Therefore, having MAX-C dominate these groups of constraints means that a winning candidate must not delete a consonant. The ranking also means that a winning candidate may have an epenthetic vowel, a coda, and a consonant cluster but not delete a consonant. Consider the following examples:

131. *couple* /kʌpl/ → [ka.pul] *[kap]/ *[ka.pu]

132. *uncle* /ʌŋkl/ → [aŋ.kli] *[aŋk]/ *[aŋ.ki]

133. *cotton* /kɒtn/ → [ko.tin] *[kot]/ *[ko.ti]

134. *prison* /prizn/ → [pri.zin] *[priz]/ *[pri.zi]

135. *chasm* /kæzm/→ [ka.zim] *[kaz]/ *[ka.zi]

136. *castle* /ka:**s**l/ → [ka.sel] *[kas]/ *[ka.se]

137. *trouble* /trʌbl/→ [tra.bul] *[trab]/*[trabu]

In the examples in (131) to (137), all the candidates that have deleted the potential syllabic consonants, including those with epenthetic vowels, are not acceptable. Only the candidates with both the epenthetic vowel and the potential syllabic consonants are acceptable. This partial ranking is represented in ***Figure 6-10***.

Figure 6-10: The dominance of MAX-C

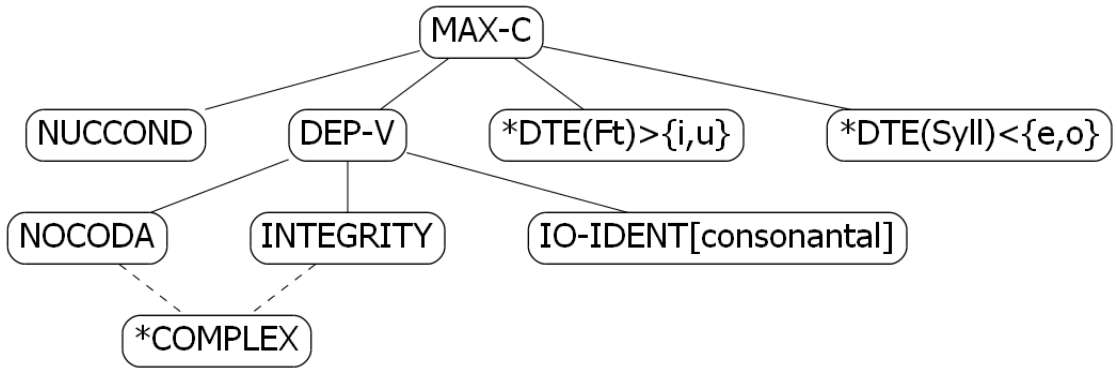


Tableau 6-11 and***Tableau 6-12*** demonstrate the ranking of constraints in /kʌpl/ and /ʌŋkl/ to demonstrate the high ranking of MAX-C. In ***Tableau 6-11***, MAX-C dominates above NUCCOND, NOCODA, INTEGRITY, and IO-IDENT [consonantal].

Tableau 6-11: The dominance of MAX-C in /kɒtn/

/kɒtn/	**MAX-C**	**NUCCOND**	**NOCODA**	**INTEGRITY**	**IO-IDENT cons]**
a. ko.ti	***!**	*		*	*
b. kot	***!**		*		
c. ☺ ko.tin		*	*	*	*

In ***Tableau 6-11***, candidate (a) is eliminated for its deletion of the potential syllabic /n/ in violation of the high-ranking MAX-C. The candidate has an epenthetic vowel [i] resulting from splitting /t/ of the input into [t] and [i] to fix the potential syllabic /n/. The occurrence of this epenthetic vowel in candidate (a) comes at the expense of NUCCOND, the well-formedness constraint prohibiting the occurrence of a vocalic nucleus in a weak syllable of a trochaic foot, and INTEGRITY and IO-IDENT [consonantal] which prohibit splitting. Similarly, candidate (b) is eliminated for its deletion of the potential syllabic /n/ in violation of MAX-C even though this candidate has incurred fewer violations overall because it does not have an epenthetic vowel. Candidate (c) surfaces as the optimal output in that it avoids a consonant deletion thus satisfying this high-ranking MAX-C constraint. By splitting, this candidate preserves the potential syllabic consonant, allowing for the appearance of a vocalic nucleus at the surface. Splitting the input consonant /t/ in this candidate comes at the expense of several constraints including

NUCCOND which prevents a vocalic nucleus; INTEGRITY, which forbids splitting; IO-IDENT [cons] which forbids a vocalic output correspondent of a consonantal input, and NOCODA because the potential syllabic consonant is assigned to the coda position. However, the violations are non-fatal because these constraints rank below MAX-C. Now, consider the ranking in ***Tableau 6-12*** where MAX-C dominates over NUCCOND, DEP-V, NOCODA, and *COMPLEX.

Tableau 6-12: The dominance of MAX-C in /ʌŋkl/

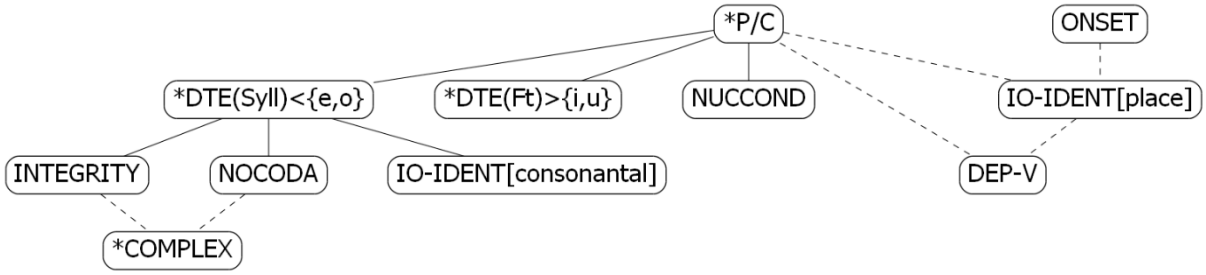
/ʌŋkl/	**MAX-C**	**NUCCOND**	**DEP-V**	**NOCODA**	***COMPLEX**
a. aŋk	***!**			*	*
b. aŋ.ki	***!**	*	*	*	
c. ☺ aŋ.kli		*	*	*	*

In ***Tableau 6-12*** above, candidate (a) is eliminated for its violation of the indomitable MAX-C, even though this candidate has incurred fewer violation counts than candidates (b) and (c). Candidate (b) is also eliminated because of its violation of MAX-C, even though this candidate has a default epenthetic vowel [i], which is inserted to fix the potential syllabic /l/. The ranking gives candidate (c) the optimal output because it satisfies the indomitable MAX-C constraint. Candidates (b) and (c) have the same default epenthetic vowel [i] in violation of NUCCOND, which prohibits a consonantal nucleus and DEP-V, which prohibits insertion. In addition, these two candidates have an equal number of violations; however, MAX-C decides that candidate (c) should be the optimal candidate, overruling *COMPLEX. This means that faithfulness to the input consonant is paramount, hence MAX-C dominates over NUCCOND, DEP-V, NOCODA, and *COMPLEX in the vowel epenthesis process.

*6.9.8 The dominance of either *P/C or ONSET*

Another ranking occurring in SwE ranking is the disjunctive ranking in which either of the well-formedness constraints *P/C or ONSET dominates above DEP-V and IO-IDENT [place]. In addition, *P/C dominates above the constraint sets {Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}, NUCCOND}, {NOCODA, INTEGRITY, IO-IDENT [consonantal]}, and *COMPLEX. This partial ranking is represented by the Hasse diagram in ***Figure 6-11***.

Figure 6-11: The dominance of *P/C or ONSET



As explained earlier, *P/C militates against output structures with a consonant as the syllable peak. Therefore, putting *P/C above NUCCOND means that consonantal nuclei are prohibited in any prosodic position including weak syllables of trochaic feet and a winning candidate ought to invariably violate NUCCOND in that it has to have a vocalic nucleus. In addition, putting *P/C above DEP-V, INTEGRITY, and IO-IDENT [consonantal] means that an epenthetic vowel of any sort is better than a consonantal nucleus. A violation of the insertion and splitting constraints triggers vowel epenthesis to provide a vocalic nucleus to a syllable with a potential syllabic consonant. The two vowel sonority constraints Δ σ ≤ {e, o} and *- Δ Ft ≥ {i, u} ensure that a correct vowel quality is inserted. Furthermore, the dominance of *P/C above NOCODA means that a coda is preferred to a syllabic consonant, so this ranking permits an adjustment whereby the potential syllabic consonant is assigned a coda position. Additionally, ranking *P/C above *COMPLEX means that consonants are allowed to form clusters at syllable margins rather than occurring at syllable peaks.

The other part of this partial ranking is where ONSET is dominant over IO-IDENT [place], and IO-IDENT [place] dominates DEP-V. As indicated in *Section 6.9.2*, DEP-V dominates above {NOCODA, INTEGRITY, and IO-IDENT [consonantal]}, so ONSET indirectly dominates this constraint sub-set as well. This partial ranking means that the grammar prioritises onsets over onsetless syllables with epenthetic vowels resulting from either default insertion or splitting. As indicated earlier, in the SwE vowel epenthesis process, the consonant immediately preceding the potential syllabic consonant is positioned at the syllable margin forming an onset, sometimes combining with the potential syllabic consonant to form a cluster and the epenthetic vowel being the nucleus. The epenthetic vowel occurring before the potential syllabic consonant often results from splitting so it ought to copy the place features of the consonant before it. So,

ONSET puts pressure on the epenthetic vowel to be identical to the preceding consonant concerning place features; hence ONSET dominates IO-IDENT [place]. Consider the following examples.

138. *trouble* /trʌbl/ → [tra.bul] *[trʌb.l̩]

139. *candle* /kændl/ → [keŋ.gli] *[ken.dl̩]

140. *thicken* /θɪkn/ → [θi.kin] *[θɪk.n̩]

141. *uncle* /ʌŋkl/ → [aŋ.kli] *[ʌŋ.kl̩]

142. *chasm* /kæzm/→ [ka.zim]/ [ʧa.zim] *[kæz.m̩]

The examples in (138) to (142) demonstrate that all the forms with syllabic consonants are unacceptable in SwE, and the acceptable forms are those with epenthetic vowels. Secondly, examples (138), (140), and (142) illustrate a syllabic arrangement where the potential syllabic consonants /l/, /n/, and /m/ are assigned to the coda positions in the acceptable SwE pronunciations, showing that the grammar prefers codas to syllabic consonants. Thirdly, examples (139) and (141) illustrate an arrangement in which the potential syllabic consonant /l/ combines with the consonant that precedes it to form an onset cluster, showing that onset clusters are preferred to syllabic consonants. Finally, it can be noticed that the SwE forms avoid onsetless syllables in the vowel epenthesis process by either taking the consonant that immediately precedes the potential syllabic consonant to be the onset of the second syllable, while the potential syllabic consonant becomes a coda (see examples 119, 121, and 122).

Tableaux 6-13 and ***6-14*** demonstrate the ranking hierarchy in which either *P/C or ONSET is dominant using [tra. bul] and [aŋ.kli], respectively.

Tableau 6-13: *P/C or ONSET above NUCCOND, NOCODA, INTEGRITY, and *COMPLEX in [tra.bul]

/trʌbl/	***P/C**	**ONSET**	**NUCCOND**	**IO-IDENT [place]**	**NOCODA**	**INTEGRITY**	***COMPLEX**
a. trab. Ul		***!**	*		**	*	*
b. ☺ tra.bul			*		*	*	*
c. tra.bil			*	*	*	*	*

d. trʌb. l̩	***!**	*****			*****		*****

In ***Tableau 6-13***, candidate (a) is eliminated for violating the indomitable ONSET because the second syllable [ul] is onsetless. This candidate satisfies *P/C because it has epenthetic [u] as the nucleus of the second syllable instead of a syllabic consonant; however, ONSET proves crucial in making the decision.

Candidate (b) is the optimal output because it satisfies *P/C. The candidate has an epenthetic vowel as the nucleus instead of a syllabic consonant. Moreover, candidate (b) satisfies ONSET because both syllables of this candidate begin with consonants. The candidate violates NUCCOND, NOCODA, and INTEGRITY but the violation of these constraints is not crucial because *P/C and ONSET rank above each of these constraint

Candidate (c) satisfies *P/C and ONSET because this candidate has onsets on both syllables. Like Candidate (b) this candidate avoids the occurrence of a syllabic consonant so that it satisfies the high-ranking *P/C by intentionally violating NUCCOND and splits /b/ of the input into [b] and [i] to provide the nucleus of the second syllable. In so-doing, the candidate also violates NOCODA and INTEGRITY. However, Candidate (c) cannot be the optimal output because it violates IO-IDENT [place] in that the epenthetic vowel is not identical to its input correspondent concerning place features.

Candidate (d) has [l̩] instead of a vowel nucleus, thus violating *P/C. In addition, the syllable with [l̩] does not begin with a consonant, thus the candidate violates another high-ranking constraint, ONSET. Even though the candidate satisfies NUCCOND, and INTEGRITY, candidate (d) cannot be the optimal output because it violates *P/C and ONSET.

Tableau 6-14: The dominance of *P/C in [aŋ.kli]

/ʌŋkl/	***P/C**	**ONSET**	**NUCCOND**	**DEP-V**	***COMPLEX**
a. ʌŋ.kl̩	***!**	*****			
b. ☺ aŋ.kli		*****	*****	*****	*****

In ***Tableau 6-14***, Candidate (a) is eliminated for violating *P/C which militates against the occurrence of consonantal nuclei. This candidate has a syllabic consonant as the

nucleus of the second syllable. Candidate (b) is the winner because it satisfies *P/C, although the candidate violates all other constraints in the ranking, including ONSET. Unlike in ***Tableau 6-13***, in this case, the violation of ONSET proves not to be crucial in deciding which candidate should be the optimal output because it is violated by both the losing and the winning candidate. Therefore, the decision lies with *P/C. However, as noted in ***Tableau 6-13***, where a syllabic consonant occurs in an onsetless syllable as in /trʌb. l̩/, an onset is prioritised over the syllabic consonant, thus ONSET also becomes crucial. In essence, *P/C militates against the occurrence of a syllabic consonant in any form of syllabic arrangement, and ONSET bans the occurrence of onsetless syllables in a syllabic arrangement where one of the consonants has the potential of being syllabic.

*6.9.9 The dominance of *SKIP, ONSET, and *ə*

Finally, the SwE vowel epenthesis process has a disjunctive ranking where *SKIP or ONSET, or *ə dominate the constraints in the sub-sets {DEP-V, IO-IDENT [place], * Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}, {NOCODA, INTEGRITY, IO-IDENT [consonantal]}, and *COMPLEX. I mentioned earlier that the two epenthesis strategies do not apply interchangeably as each has a specific context in which it operates. Some contexts prefer splitting while others prefer default insertion; thus, the grammar has to re-rank the constraints to yield each of these strategies. In Chapter 5, I highlighted the importance of proximity between the consonantal element of the output and the vocalic element of the output in splitting. I mentioned that the epenthetic vowel that results from splitting has to immediately follow the consonantal correspondent of the output. The consonantal output correspondent becomes the onset of the syllable with the epenthetic vowel; thus, these two segments occur within the same syllable. In other words, there should be no intervening segments between the consonantal and the vocalic elements of the output. Conversely, default insertion tends to occur word-finally, allowing for segments to occur between the consonant that precedes the potential syllabic consonant and the epenthetic vowel. Therefore, *SKIP dominates above DEP-V in splitting. In addition, I mentioned that DEP-V has to dominate INTEGRITY to allow for splitting. Moreover, since the consonantal output of splitting becomes the onset of the epenthetic vowel, it means that ONSET is prioritised. Finally, I mentioned that the SwE grammar penalises a schwa; thus, the epenthetic vowel cannot be a schwa.

Tableau 6-15: The dominance of ONSET, *ə, and *SKIP in /tr∧bl/

/tr∧bl/	**ONSET**	***ə**	***SKIP**	**IO-IDENT [place]**	**DEP-V**	*** Δ σ ≤ {e, o}**	***- Δ Ft ≥ {i, u}**	**NOCODA**	**INTEGRITY**	**IO-IDENT [cons]**
a. ☺tra.bul								*	*	*
b. trab.əl	*!	*		*				**	*	*
c. tra.blu			*!					*	*	*

In **Tableau 6-16,** Candidate (a) is the optimal output because it satisfies the high-ranking ONSET in that both syllables of this candidate have onsets. In the second syllable, the output correspondent of the input consonant /b/ is the onset, while the epenthetic vowel is the nucleus. This candidate also satisfies *ə because the epenthetic vowel is [u] and not a schwa. Moreover, Candidate (a) satisfies high-ranking *SKIP in that the epenthetic vowel (vocalic element of the output) occurs immediately after the consonantal element of the output – there are no segments in between. Furthermore, Candidate (a) satisfies IO-IDENT [place] because the epenthetic vowel is faithful to the consonantal input correspondent /b/ concerning place features. Finally, this candidate fulfils DEP-V to avoid default insertion and violates INTEGRITY and IO-IDENT [consonantal] to allow for splitting. When splitting takes place, the potential syllabic consonant is assigned to the coda position, thus violating NOCODA.

Candidate (b) violates all the indomitable constraint sets. The syllable with an epenthetic vowel is onsetless, hence violating the high-ranking ONSET. Secondly, the epenthetic vowel in this candidate is a schwa, so Candidate (b) violates another high-ranking constraint *ə. Thirdly, the epenthetic vowel is not faithful to its input correspondent concerning place features, as the input correspondent /b/ is [labial] while ə is a central vowel [-labial], hence violating IO-IDENT [place]. Lastly, this candidate satisfies DEP-V to block default insertion while violating INTEGRITY and IO-IDENT [consonantal] to allow for splitting. When splitting takes place, the potential syllabic consonant is assigned to the coda position, thus violating NOCODA. Candidate (c) fulfils ONSET and *ə but violates *SKIP; thus, this candidate is eliminated. The ranking described in this section shows that proximity is important in SwE splitting.

6.10 How the ranking reflects the different aspects of the SwE vowel epenthesis process

The ranking patterns as described in Section 5.7. above reflect the complex nature of the SwE vowel epenthesis process. In this section, I discuss the different aspects of the SwE vowel epenthesis process reflected in the rankings including the purpose of vowel epenthesis, the patterns of the epenthesis process, and what makes vowel epenthesis a preferred strategy to other possible strategies.

6.10.1 The linguistic factors for vowel epenthesis in SwE

In the SwE partial rankings described above, *COMPLEX ranks low so that it cannot be above any constraint. This ranking demonstrates that while some languages, such as Siswati (Mkoko, 2021), Lebanese Arabic (Hall, 2011), and EAE (Schmied, 2006), forbid consonant clusters, the SwE phonotactic restrictions allow for them. This result is consistent with Arua's (1999) conclusion that SwE allows for consonant clusters and that vowel epenthesis is not used to reduce consonant clusters, as is the case with the languages mentioned above. According to Mkoko's (2021) optimality-theoretic analysis of the vowel epenthesis process in Siswati loanwords, *COMPLEX dominates the anti-insertion constraint DEP-IO. Mkoko explains that the dominance of *COMPLEX over DEP-IO triggers a violation of the anti-insertion constraint to permit the insertion of a vowel that will break consonant clusters in fulfilment of the phonotactic restrictions of Siswati. In addition, Mkoko (2021) notes that Siswati prefers vowel epenthesis to consonant deletion in the consonant cluster reduction process. The Hasse diagram in ***Figure 6-12*** represents the constraint ranking in Siswati vowel epenthesis. Instead of DEP-IO and MAX-IO, I use the DEP-V and MAX-C constraints.

Figure 6-12: The constraint ranking in the Siswati vowel epenthesis process

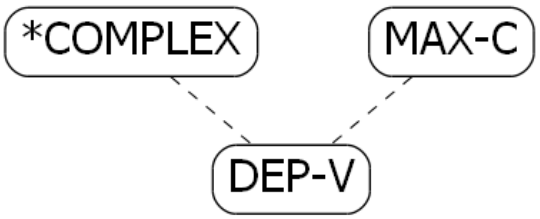


Tableau 6-17 demonstrates cluster reduction through vowel insertion in Siswati. The tableau has been adapted from Mkoko (2021:160).

Tableau 6-17: Siswati consonant cluster reduction through vowel epenthesis

/stəʊv/	***COMPLEX**	**MAX-C**	**DEP-V**
a. stof	***!**		
b. so.fu		***!**	*
c. ☺si.to.fu			*

In ***Tableau 6-17*** Candidate (a) has the cluster /st/ in violation of the highly ranked *COMPLEX, hence this candidate is eliminated. Candidate (b) satisfies *COMPLEX but violates MAX-C and is thus eliminated. The elimination of candidate (b), because of its violation of MAX-C, means that Siswati prohibits consonant cluster reduction through deletion but prefers vowel epenthesis. Candidate (c) becomes the optimal output because it avoids the consonant cluster /st/ through inserting vowel [i], thus fulfilling *COMPLEX and MAX-C at the expense of DEP-V. In essence, this ranking shows that vowel epenthesis in Siswati serves a different purpose than in SwE. Therefore, SwE vowel epenthesis is not a case of a transfer of Siswati L1 phonotactic restrictions on consonant clusters.

A similar analysis can be made for EAE because this variety avoids consonant clusters through vowel epenthesis. According to Schmied (2006), speakers of EAE insert a vowel into consonant clusters due to the influence of their mother tongues, which prohibit consonant clusters. The speakers then transfer the L1 features to their L2. The elimination of consonant clusters through vowel epenthesis in EAE is illustrated in ***Tableau 6-17*** using the word /hɒspit(ə)l/.

Tableau 6-18: Consonant cluster reduction through vowel epenthesis in EAE

/hɒspit(ə)l/	***COMPLEX**	**MAX-C**	**DEP-V**
a. ho.spi.tal	***!**		
b. ho.pi.tal		***!**	
c. ☺ho.si.pi.ta.li			**

Candidate (a) in ***Tableau 6-17*** above has a consonant cluster [sp] violating *COMPLEX. Thus, candidate (a) is eliminated. Candidate (b) avoids the consonant cluster by deleting [p] in violation of MAX-C. However, the candidate is also eliminated, meaning that MAX-C also ranks high. Candidate (c) is the optimal output because it avoids the consonant

cluster by inserting a vowel. This candidate satisfies the highly-ranked *COMPLEX at the expense of DEP-V.

Conversely, the partial ranking described in *Section 6.9.1* showed that each of the constraints that forbid vowel epenthesis, INTEGRITY, and IO-IDENT [consonantal] dominate above *COMPLEX, indicating that some other high-ranking constraint—rather than *COMPLEX—is what sets off the violation of the two. Tableaux 1 and 2 demonstrated the dominance of INTEGRITY and IO-IDENT [consonantal] above *COMPLEX, respectively.

The discussion has highlighted how SwE preserves consonant clusters. What follows in this discussion is the demonstration that SwE allows for codas; hence, the vowels epenthesis process is not intended to eliminate codas. As already explained in Section 5.6.2, the factorial typology shows a ranking where NOCODA ranks below each of the constraints {DEP-V, Δ σ ≤ {e, o}, *-Δ Ft ≥ {i, u}}. As mentioned earlier, DEP-V and the two DTE constraints work as a team because DEP-V blocks vowel insertion, and its violation triggers vowel epenthesis, and the violation of each of these vowel sonority constraints ensures that the correct epenthetic quality is inserted. The dominance of {DEP-V, Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}} above NOCODA therefore blocks the insertion of a vowel that would eliminate the coda, thus preserving the coda. This specific partial ranking is illustrated in ***Tableau 6-18***.

Tableau 6-19: Codas are permitted in SwE

/kʌpl/	**DEP-V**	**Δ σ ≤ {e, o}**	***-Δ Ft ≥ {i, u}**	**NOCODA**
a. ka.pli	*	*	*	
b. ☺ ka.pul				*

In ***Tableau 6-18*** above, candidate (a) is eliminated for violating {DEP-V, Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}. The candidate has a default epenthetic vowel in the second syllable, making it an open syllable. Candidate (b) satisfies {DEP-V, Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}} but has a coda in violation of NOCODA. Candidate (b) is the acceptable output in SwE, showing that the grammar permits codas. What this ranking shows is that NOCODA is not the trigger for the violation of {DEP-V, Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}. Put differently, the purpose of vowel epenthesis in SwE is not to eliminate codas to create open syllable structures as it

happens in other African English varieties like EAE, creole languages like Sranan, and the different indigenous African languages like Zulu, Shona, Tswana, Sesotho, and Siswati (Khumalo, 1984; Mkoko, 2021; Uffman, 2006; Rose & Demuth, 2006; Batibo, 1995; Alber & Plag, 1999).

In a grammar where codas are eliminated through vowel epenthesis, NOCODA dominates the anti-insertion constraint, DEP (Zec, 2007). For example, when making a comparison of the vowel epenthesis process between Siswati and Tswana, Mkoko (2021) showed that in the two languages, NOCODA ranks above DEP-IO. The author concluded that the ranking in these two languages prohibits codas and repairs them by inserting a vowel. ***Tableau 6-20*** and ***Tableau 6-21*** have been adapted from Mkoko (2021) to demonstrate the ranking where codas are avoided by inserting a vowel in Siswati and Tswana, respectively.

Tableau 6-20: Vowel epenthesis to avoid codas in Siswati

/stəʊv/	***COMPLEX**	**NOCODA**	**MAX-C**	**DEP-V**
a. stof	***!**			
b. si.tof		***!**		
c. so.fu			***!**	*
d. ☺si.to.fu				**

In ***Tableau 6-20***, candidate (a) is eliminated for violating the highly-ranked *COMPLEX. Candidate (b) violates NOCODA. Although this candidate satisfies *COMPLEX and MAX-C, its violation of NOCODA makes it lose to Candidate (d). Candidate (d) avoids a coda by inserting epenthetic [u] at the expense of DEP-V. Ranking NOCODA above DEP-V indicates that Siswati grammar forbids codas and intentionally violates DEP-V to fulfil the phonotactic restrictions on codas. ***Tableau 6-21*** demonstrates how Tswana; another indigenous African language eliminates codas by inserting a vowel.

Tableau 6-21: Vowel epenthesis to eliminate codas in Tswana

/pɛn/	**NOCODA**	**MAX-C**	**DEP-V**
a. pɛn	***!**		
b. ☺ pɛ.ne			*
c. pe		***!**	

Candidate (a) in ***Tableau 6-21*** has a final consonant in violation of NOCODA; thus, the candidate is eliminated. Candidate (c) avoids the coda by deletion and thus violates MAX-C. Still, this candidate cannot win. Candidate (c) is the optimal output. This candidate avoids the coda by inserting epenthetic [e] in violation of DEP-V. Candidate (c) satisfies NOCODA and MAX-C but violates DEP-V. In this ranking, NOCODA ranks above both MAX-C and DEP-V, and DEP-V ranks below MAX-C. Therefore, the Tswana grammar prohibits consonant deletion but prefers vowel epenthesis as a strategy to eliminate codas.

Coda elimination through vowel epenthesis is also observed in other African English varieties like EAE (Schmied, 2006). ***Tableau 6-22*** demonstrates how EAE eliminates codas by vowel epenthesis.

Tableau 6-22: Coda elimination by vowel epenthesis in EAE

/hɒspit(ə)l/	***COMPLEX**	**NOCODA**	**MAX-C**	**DEP-V**
a. ho.spi.tal	***!**	*		
b. ho.si.pi.tal		*		*
c. ho.si.pi.ta			*	
d. ☺ ho.si.pi.ta.li				**

In ***Tableau 6-22***, candidate (a) has a consonant cluster in violation of the high-ranking *COMPLEX. The candidate also has a coda in violation of NOCODA. Candidate (b) satisfies *COMPLEX but violates NOCODA, and this candidate is eliminated. Candidate (c) avoids the coda and satisfies NOCODA but violates MAX-C because the coda is avoided by deletion. Candidate (c) is the optimal output. This candidate satisfies the high ranking *COMPLEX. The candidate also satisfies NOCODA at the expense of DEP-V by inserting a vowel. So, in EAE, NOCODA dominates DEP-V because codas are eliminated through vowel epenthesis.

Compared to Siswati, other native African languages, or other African English dialects, SwE has a distinct phonological grammar. Unlike Siswati and Tswana, SwE permits consonant clusters and codas. SwE does not behave like other African English varieties like EAE which transfers L1 norms into L2. Thus, vowel epenthesis in SwE does not indicate that L1 Siswati sound patterns have been transferred to L2 English. This finding brings into question the conclusion drawn by Arua (1999) that speakers of SwE transfer

Siswati norms into English and insert a vowel in syllables containing syllabic consonants to generate CV syllable structures.

The discussion we have had so far has shown that the purpose of vowel epenthesis in SwE is not to prevent the occurrence of consonant clusters or codas. The low ranking of NOCODA and *COMPLEX indicates that vowel epenthesis does not stem from the pressure to satisfy these constraints but from some other highly ranked constraint(s). In the Elementary Ranking Condition (ERC) results, *P/C is indomitable, and this constraint militates against the occurrence of a consonantal nucleus in any prosodic position, including weak syllables of trochaic feet. *P/C dominates NUCCOND, the constraint which could have allowed for the occurrence of consonantal nuclei in weak syllables of trochaic feet as per the phonotactic restrictions of Standard BrE. Due to the pressure to satisfy *P/C, SwE intentionally violates all constraints that may have otherwise prevented the occurrence of an epenthetic vowel, including DEP-V, INTEGRITY, and IO-IDENT [consonantal]. See ***Tableau 6-21*** and ***Tableau 6-22*** above.

6.10.2 The Cophonologies

The above discussion has proved that the syllable structure of SwE is not different from BrE because SwE treats consonant clusters the same way as BrE. In addition, similar to BrE, the phonotactic restrictions of SwE allow for codas. The two varieties of English differ in the treatment of syllabic consonants. As proposed earlier, SwE and Standard BrE pronunciations are two distinct phonological sub-grammars of English connected to social register. Each of these variants has a distinct phonological sub-grammar that either accepts or rejects the occurrence of syllabic consonants.

The grammar lattice

Previous researchers proposed that cophonologies of a language are organised in a network of relationships, which they term a 'grammar lattice'. The grammar lattice is organised such that there is a superordinate node that contains a partial ranking of constraints that is shared by the individual cophonologies (Master Ranking), and subordinate nodes containing the different rankings that result in the individual cophonologies (Antilla, 1998; Inkelas and Zoll, 2007). In the context of the current study, the ranking that is shared by both Standard BrE is the ranking of the English language in

general. The fragment of the grammar lattice relevant to SwE vowel epenthesis is shown in **Figure 6-13.**

The Master Ranking, which is a part of GEN, makes it imperative that syllable nuclei, making OK-σ(NUC) indomitable. Because English allows both syllabic consonants and vocalic nuclei, *P/C and NUCCOND also rank high in the Master Ranking. Each cophonology then re-ranks *P/C and NUCCOND to give the preferred type of nucleus – consonantal nuclei for Standard BrE and vocalic nuclei for SwE. It remains with the individual cophonologies to specify the relevant ranking of faithfulness constraints to repair dispreferred nuclei. BrE syncopates/deletes the schwa because it is a dispreferred vocalic nucleus in weak syllables of trochaic feet (Bell, 1978). I draw on MAX-V (McCarthy & Prince, 1995). I define MAX-V as follows:

143. MAX-V

> A vowel in the input corresponds to a vowel in the output. (No vowel deletion) (McCarthy & Prince, 1995:16)

Syncopating the schwa to create a syllabic consonant violates MAX-V. On the contrary, SwE inserts a vowel to repair a consonantal nucleus, in violation of DEP-V and INTEGRITY. ***Figure 6-13*** shows the English grammar semi-lattice and the rankings of the SwE Mesolect and BrE cophonologies. As mentioned earlier, the SwE Acrolect form is essentially faithful to BrE norms. Thus, I assume that the Acrolect form has the same ranking as BrE, so I will not represent it in the grammar semi-lattice.

Figure 6-13: The English grammar semi-lattice

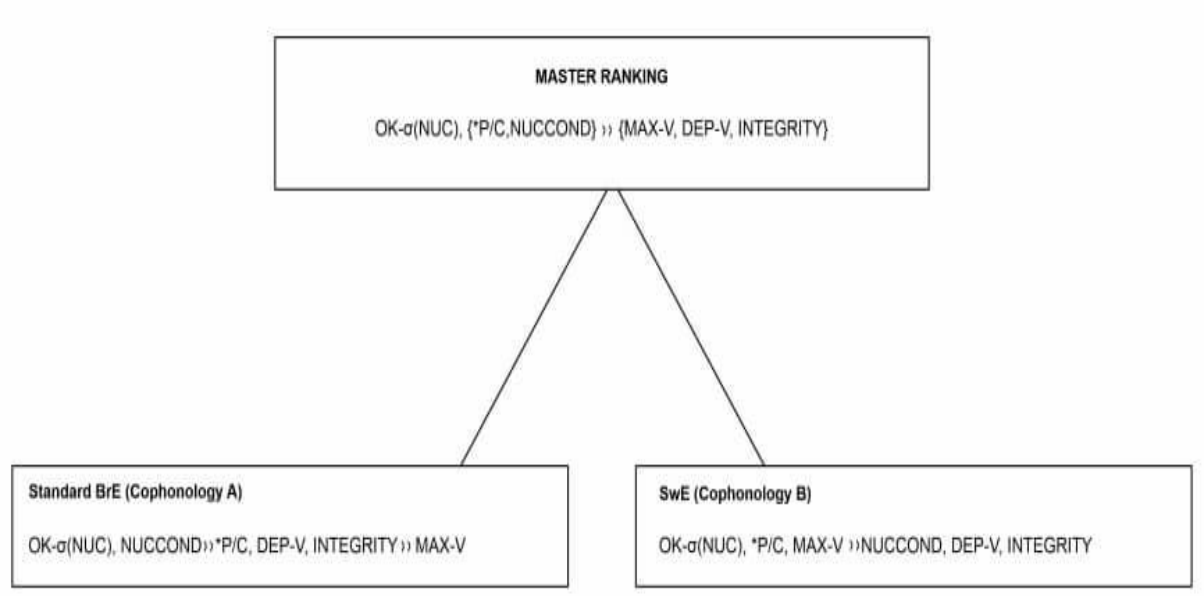


Figure 6-13 illustrates the ranking of the constraints OK-σ(NUC), *P/C, and NUCCOND in the English grammar lattice. In English in general, both vocalic and consonantal nuclei are acceptable, thus *P/C and NUCCOND are equally highly ranked. However, in Standard BrE, vocalic nuclei are prohibited in weak syllables of trochaic feet, and only consonantal nuclei are permitted. Therefore, in the Standard BrE cophonology, NUCCOND dominates *P/C. The dominance of NUCCOND forces the grammar to violate MAX-V to delete any underlying schwa. Thus, in the Standard BrE grammar, DEP-V and INTEGRITY are above MAX-V because vowel epenthesis is prohibited in this prosodic position. Conversely, in SwE, consonantal nuclei are prohibited regardless of the prosodic position. Thus, in SwE, *P/C dominates NUCCOND. As already indicated throughout this discussion so far, to prevent the occurrence of syllabic consonants, the SwE grammar violates DEP-V and INTEGRITY. MAX-V does not play an important role in SwE because this variety prohibits a shwa, so the work done by MAX-V is taken care of by *ə. The ranking of constraints of the Standard BrE cophonology is outside the scope of this thesis.

6.10.3 The SwE vowel epenthesis patterns

The epenthesis patterns of SwE vary in terms of epenthetic quality and epenthesis sites. Cross-linguistic investigations on vowel epenthesis reveal that epenthetic qualities are determined in one of two ways: they are either realised by default/ unmarked or they are determined by some part of their phonetic environment, where adjacent segments

influence the output (Hall, 2011; Kawahara, 2007; Kitto and de Lacy, 1999; Rose & Demuth, 2006; Uffman, 2006). In cases where the epenthetic vowel is context-dependent, the epenthetic vowel tends to attain its features from either the consonant that precedes it (splitting) or from the neighbouring vowels (copy epenthesis). Copy epenthesis was not attested in the SwE data. The two epenthesis strategies that were attested to be common in SwE were splitting and default insertion. In addition, it was observed that the epenthetic vowel may occur either after the potential syllabic consonant or word-medially after the consonant that preceded the potential syllabic consonant. I analysed the epenthesis patterns within the categories of splitting, default insertion, and epenthesis site (before and after the potential syllabic consonant). In this section, I discuss splitting and default insertion separately because each of these two strategies involves a different set of constraints from the other.

Splitting

Staroverov (2014) defines splitting as the epenthesis process whereby an input segment corresponds to two output segments. The Splitting theory proposes that there is no insertion of additional segments, instead, input segments split into two output segments. Splitting was originally proposed for consonant epenthesis in the works of Bakovic (1999), Kramer (2008), and Staroverov (2014), but in this study, I extend the concept to the process of vowel epenthesis where the epenthetic vowel attains its features from the consonant that precedes it. While previous researchers analyse such vowels as true insertion (insertion of an additional segment) followed by the spreading of place features from the preceding consonant to the newly inserted segment (Clements &Hume, 1995; Uffman, 2005,2006), I propose that epenthetic vowels of this sort do not result from insertion but from splitting an input consonant into two output segments, one being consonant and the other being a vowel. The consonantal output correspondent assumes a syllable margin position while the vocalic output correspondent assumes the syllable nucleus position. The output segments are required to be as identical as possible to their input correspondent. Therefore, coronal consonants split into coronal consonants and front vowels [i] and [e]; labial consonants split into a round vowel [u]. This is in line with Clements &Hume's (1995) Unified Place Theory which groups vowels and consonants according to the same place features [coronal] and [labial]. Consider the examples in (144) to (149).

144. /kʌ**p**l/ → [ka.**pu**l] /p/ → [p^1, u^1]

145. /kɒ**t**n/ → [ko.**ti**n] /t/ → [t^1, i^1]

146. /pri**z**n/ → [pri.**zi**n] /z/→ [z^1, i^1]

147. /kæ**z**m/→ [ka.**zi**m] /z/→ [z^1, i^1]

148. /ka:**s**l/ → [ka.**se**l] /s/ → [s^1, e^1]

149. /trʌ**b**l/ → [tra.**bu**l] /b/ → [b^1, u^1]

The examples above illustrate the splitting of the input consonant that precedes a prospective syllabic consonant into two output correspondents, one being a consonant and the other being a vowel. The input coronal consonants /t/, /z/, and /s/ have split into the output coronal consonants [t^1], [z^1], and [s^1], respectively plus the coronal vowels [i^1] and [e^1]. The input labial consonants /p/ and /b/ have each split into the output labial consonant [p^1], [b^1], and the labial vowel [u^1], respectively.

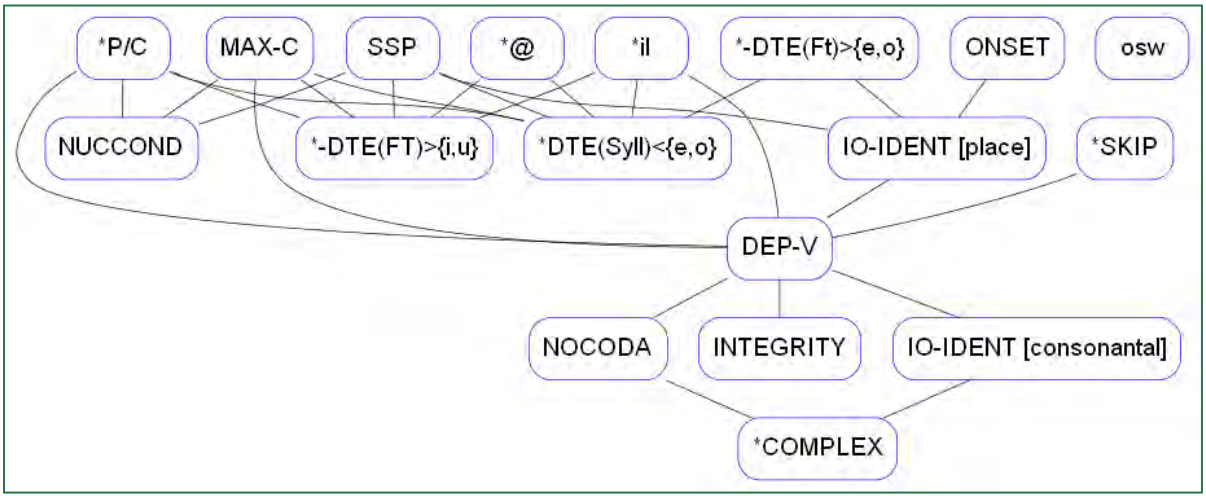
Because each of the two output correspondents relates independently to the input due to its positional demand, the margin output correspondent is completely identical to its consonantal input correspondent while the nucleus output correspondent differs from its input correspondent in having a [-consonantal] feature to fulfill *P/C. The unfaithfulness of the nucleus output in terms of the [-consonantal] feature is motivated by the *P/C well-formedness constrain which requires only vocalic nuclei and bans consonantal nuclei, otherwise, it is faithful in terms of place features.

As already discussed, the grammar of SwE disallows consonantal nuclei. To harmonise the input forms, the grammar uses *P/C to block the occurrence of any prospective consonantal nuclei in the output. For this reason, any optimal candidate invariably violates NUCCOND, the well-formedness constraint that requires a consonantal nucleus in a weak syllable of a trochaic foot. Because every acceptable syllable must have a nucleus, the grammar then triggers the consonant that precedes the potential syllabic consonant to split into a consonant and a vowel output so that the vowel correspondent occupies the position of a nucleus and the consonantal correspondent takes the position of the onset. This syllabic arrangement is driven by the dominance of ONSET, which indicates that during the process of splitting, the grammar prioritises onsets over syllabic consonants. The potential syllabic consonant occupies the position of the coda in violation of NOCODA. To allow the splitting of the input consonant into two output

correspondents, any optimal candidate must violate INTEGRITY, the constraint that prohibits an input from having more than one output correspondent.

In addition, because the principle of closeness governs splitting, IO-IDENT [place] is above INTEGRITY and IO-IDENT [consonantal] since the epenthetic vowel is identical to its input consonant in terms of place features rather than the feature [consonantal]. The epenthetic vowel is unfaithful to the input in that it is [-consonantal] while the input is [+consonantal]. IO-IDENT [consonantal] is violated by all the output epenthetic vowels, so there is no way that this constraint can be above IO-IDENT [place]. The Hasse diagram in ***Figure 6-14*** represents the partial ranking hierarchy in SwE splitting. I draw the reader's attention to the *P/C, ONSET, and IO-IDENT [place] nodes and their edges.

Figure 6-14: The partial ranking hierarchy in SwE splitting



Tableu 6-23 and ***Tableu 6-24*** represent the ranking of constraints for SwE splitting in /kʌ**p**l/ and /kɒ**t**n/. See also ***Tableau 6-13.***

Tableau 6-23: SwE ranking of constraints for splitting in /kʌpl/

/kʌpl/	*P/C	ONSET	NUCCOND	IO-IDENT [place]	NOCODA	INTEGRITY	IO-IDENT [cons]
a. /kap.l̩	*!	*			*		
b. kap.ul		*!	*		**	*	*
c. ☺ ka.pul			*		*	*	*
d. ka.pil			*	*	*	*	*

Tableau 6-23 above demonstrates the epenthetic strategy of splitting to avoid syllabic consonants. Candidate (a) is eliminated because it has a syllabic consonant thus violating the indomitable *P/C which militates against outputs that have consonantal nuclei. This candidate also violates another indomitable constraint, ONSET in that the syllabic consonant forms a syllable on its own without any initial consonant (onset). Candidate (b) satisfies *P/C but still violates ONSET in that when the input consonant /p/ split, the consonantal output correspondent [p] was not assigned to the onset position of the syllable that contains the potential syllabic consonant but to the coda position of the preceding syllable. Therefore candidate (b) is eliminated for its violation of ONSET. Candidate (d) satisfies the two indomitable constraints but it is eliminated because the epenthetic vowel [i] is not faithful to its input correspondent /p/ in terms of place features. /p/ is labial and [i] is coronal thus violating IO-IDENT [place]. Candidate (c) is the best candidate because it satisfies both *P/C and ONSET, and it has an epenthetic vowel quality [u] that is faithful to its input correspondent /p/ in terms of [place] thus fulfilling IO-IDENT [place]. The violation of NUCCOND, NOCODA, INTEGRITY, and IO-IDENT [consonantal] by Candidate (c) is overruled by *P/C, ONSET, and IO-IDENT [place]. ***Tableau 6-24Tableau 6-24*** illustrates the partial ranking in splitting that yields a different epenthetic quality.

Tableau 6-24: SwE ranking of constraints for splitting in /kɒtn/

/kɒtn/	*P/C	ONSET	NUCCOND	IO-IDENT [place]	NOCODA	INTEGRITY	IO IDENT [cons]
a. kɒt.n̩	*!	*			*		
b. kot.in		*!	*		**	*	*
c. ☺ ko.tin			*		*	*	*
d. ko.tan			*	*	*	*	*

In ***Tableau 6-24*** above, candidate (a) is eliminated for violating *P/C and ONSET. These two indomitable constraints overrule this candidate's fulfilment of NUCCOND. Candidate (b) violates ONSET and thus is eliminated. Candidate (d) satisfies the two constraints but inserts a vowel that is unfaithful to its input correspondent in terms of place features, which is against the principle of closeness in the Splitting theory. The input correspondent is [+coronal] while the epenthetic vowel is [+dorsal]; thus, IO-IDENT [place] is violated by Candidate (d). For this reason, candidate (d) loses to candidate (c) which becomes the optimal output because the candidate satisfies *P/C and ONSET, and it has an epenthetic vowel that is faithful to its input correspondent in terms of place features, thus satisfying IO-IDENT [place].

Default insertion

The second epenthesis strategy observed in SwE is default insertion, the insertion of an additional vowel that has no correspondent in the input. Default insertion, just like splitting, is motivated by the need to satisfy the high-ranking *P/C. An additional vowel has to be inserted to provide a vocalic nucleus to prevent the occurrence of a consonantal nucleus. Therefore, *P/C must dominate NUCCOND and DEP-V. When a default vowel is inserted, the potential syllabic consonant takes the position of the onset, sometimes forming a cluster with the consonant that immediately precedes it. This arrangement indicates that SwE prioritises onsets over syllabic consonants. Therefore, ONSET dominates NUCCOND and the rest of the constraints on the lower side of the hierarchy. The factorial typology has shown a ranking where the vowel sonority non-DTE constraint $*- \Delta F_t \geq \{e, o\}$ dominates the vowel sonority DTE constraint $* \Delta \sigma \leq \{e, o\}$. Thus, the default

epenthetic vowel has low sonority as it was explained in Section 5.7.3. Given this ranking, an output could have any of [i], [u], or [ə] as the default epenthetic vowel but not [a]. However, [u] is a dispreferred output because, according to the theory, back vowels are harmonic bounds of front vowels; in addition, [u] is considered marked (de Lacy, 2006). In addition, because of the high ranking *ə, the default epenthetic vowel cannot be [ə] either. Therefore, [i] becomes the best candidate for default epenthesis. ***Figure 6-15*** demonstrates the partial ranking of the SwE default epenthesis process. Attention is drawn to the *P/C, ONSET, *ə, and *- DTE(Ft) ≥ {e, o} nodes and their edges.

Figure 6-15: A partial ranking hierarchy in SwE default insertion

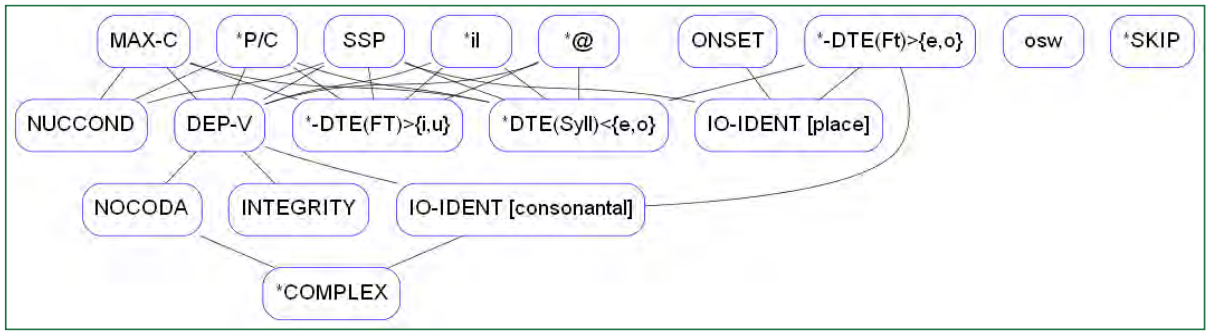


Tableau 6-25 illustrates this partial ranking using /hwisl/

Tableau 6-25: Default insertion in /hwisl/

	*P/C	ONSET	*ə	*- Δ F_t ≥ {e, o}	NUCCOND	DEP-V	* Δ σ ≤ {e, o}	*_ Δ F_t ≥ {i, u}	NOCODA	*COMPLEX
a. hwis.l̩	*!	*							*	*
b. hwi.sla				*!	*	*				**
c. hwi.slə			*!		*	*	*			**
d. ☺hwi.sli					*	*	*	*		**

In ***Tableau 6-25***, candidate (a) has a syllabic consonant thus violating the high ranking *P/C. The syllable with the syllabic consonant is onset less; hence candidate (a) violates another high-ranking constraint ONSET and is thus eliminated. Candidate (b) satisfies the

three high-ranking constraints *P/C, ONSET, and *ə, but this candidate has inserted the wrong vowel quality [a] in violation of the high ranking *- Δ Ft ≥ {e, o}. so, candidate (b) is also eliminated. Candidate (c) satisfies *P/C and ONSET but violates *ə by inserting epenthetic [ə]. This candidate is also eliminated. Candidate (d) is the optimum output because the candidate satisfies *P/C by avoiding a syllabic consonant. To satisfy the phonotactic restriction that only vowels can be nuclei, this candidate violates DEP-V by inserting vowel [i] that occupies the nucleus position of the second syllable. In that process, NUCCOND is also violated. Epenthetic [i] is the correct epenthetic vowel allowed by the dominant vowel sonority non-DTE constraint *- Δ Ft ≥ {e, o} and at the same time this epenthetic quality is the best choice because it satisfies *ə. The epenthetic vowel has been inserted word-finally, making /s/ and the potential syllabic consonant /l/ an onset cluster in fulfilment ONSET. Therefore, candidate (d) satisfies all the indomitable in the grammar of SwE and violates only the low-ranking constraints NUCCOND, DEP-V, * Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}, and *COMPLEX.

6.10.4 Epenthesis sites

As it was highlighted earlier, the pronunciation pattern of the SwE speakers reflects two epenthesis sites for [i]. When [i] is intended to repair the syllabic consonants [n] and [m], the epenthesis site is before these potential syllabic consonants. However, when [i] is intended to repair syllabic /l/, the epenthesis site is always paragogic (after the potential syllabic /l/). Other vowel qualities are permitted before the potential syllabic /l/, so the challenge is only when the epenthetic [i] is to be followed by the potential syllabic /l/. To explain this epenthetic pattern, I draw on the constraint *il, which militates against a syllabic arrangement in which epenthetic [i] is followed by the potential syllabic /l/. *il ranks high in the SwE grammar, putting every optimal output under pressure to satisfy this high-ranking constraint. Therefore, in cases where a coronal consonant of the input immediately precedes potential syllabic /l/, splitting is avoided because the output would be [il]; instead, default epenthesis takes place whereby the default epenthetic [i] is inserted word-finally after the potential syllabic [l]. The discussion in Section 5.9.5. explains how the dominance of *il, determines the epenthesis site for [i]. Refer to ***Tableau 6-8*** for information on how a candidate with a word-final epenthetic [i] wins over a candidate with the [il] sequence.

In another case, the epenthesis site is determined by the dominance of either OSW or SSP over {NUCCOND, DEP-V, * Δ σ ≤ {e, o}, *-Δ Ft ≥ {i, u}, IO-IDENT [place]}, {NOCODA, INTEGRITY, IO-IDENT [cons]}. Refer to *Section 5.9.6*. English places some restrictions on the type of consonants that form onset clusters. According to Hall (2004), certain well-formed onset clusters concerning sonority sequencing may nonetheless be regarded as ill-formed, therefore, SSP alone is not the only restriction governing the well-formedness of onset clusters. Hall (2004) then distinguishes between the constraints on onset well-formedness, OSW and SSP, such that OSW controls onset well-formedness, including that which is well-formed concerning SSP, while SSP alone controls segment sequencing concerning sonority hierarchy. Therefore, while determining the position of an epenthetic vowel in SwE, consideration is given to the segments or sequences of segments that constitute onset clusters. Care is taken to ensure that the language's phonotactic restrictions on onsets and sonority sequencing are respected. In *Section 6.9.6*, I highlighted that *[θi.kni] is not an acceptable form in SwE because the onset [kn] violates both OSW and SSP. In the acceptable form [θi.k**i**n], the epenthesis site is before the potential syllabic /n/, yet epenthetic [i] is the default epenthetic vowel. As per the SwE norms, there is a clear division of labour between splitting and default insertion concerning the epenthesis site. In SwE, epenthetic vowels typically appear word-finally in default insertion, and they appear before potential syllabic consonants in splitting. Nevertheless, [θi.kin] turns out to be an anomaly. Since this vowel differs from the preceding consonant in terms of place features, it cannot be claimed that epenthetic [i] is the outcome of splitting. To meet the sonority sequencing requirements and satisfy SSP, as well as the phonotactic restrictions on English onsets and satisfy OSW, the default epenthetic vowel is placed before the prospective syllabic consonant. See ***Figure 6-9*** in *Section 6.9.6* for details about the ranking hierarchy.

6.11 Vowel epenthesis versus other repair strategies

There are other universal strategies to avoid the occurrence of syllabic consonants apart from vowel epenthesis including L-vocalisation (Bobda, 2001; Gut, 2004; Huber, 2004; Wolf, 2021), and assigning the potential syllabic consonant to the margin of an existing vowel (Bell, 1978). The SwE data revealed the second. In addition, there were observed cases where the potential syllabic consonant was deleted without inserting a vowel.

However, as highlighted in Chapter 5, the occurrence of the two alternative strategies was very minimal as their frequency was only 2.08% combined. Furthermore, none of these methods' occurrences could be connected to outside variables like the English language learning environment because they did not correspond with any particular pattern of segments or individual participants. Therefore, I concluded that these were mere outliers and that vowel epenthesis is the preferred repair strategy for syllabic consonants in SwE because vowel epenthesis had a frequency of 86.9%. Section 5.9.1. discusses how the ranking of constraints in SwE yields output forms with epenthetic vowels rather than output forms where the potential syllabic consonant is deleted or where the potential syllabic consonant is assigned to the margin of an existing vowel.

6.11.1 Vowel epenthesis versus deletion

Section 5.9.7 discussed a partial ranking where MAX-C dominates {NUCCOND, DEP-V, Δ σ ≤ {e, o}, *- Δ Ft ≥ {i, u}}, {NOCODA, INTEGRITY, IO-IDENT [cons]}, and *COMPLEX. Refer to ***Figure 6-10*** for details on the ranking hierarchy. Of importance to this current section is the dominance of MAX-C over the anti-insertion constraints, DEP-V and INTEGRITY. As stated earlier, this ranking shows that SwE favours vowel epenthesis over consonant deletion. Outputs, where the potential syllabic consonant has been deleted, are never optimal in SwE. See ***Tableau 6-11*** and ***Tableau 6-12*** in *Section 6.9.7*. for these constraints interaction. Below, in ***Tableau 6-26***, I demonstrate the interaction between MAX-C and DEP-V.

Tableau 6-26: Vowel epenthesis over consonant deletion in /ʌŋkl/

/ʌŋkl/	***P/C**	**MAX-C**	**NUCCOND**	**DEP-V**
a. ʌŋ.kl̩	***!**			
b. Aŋk		***!**		
c. aŋ.ki		***!**	*	*
d. ☺ aŋ.kli			*	*

Tableau 6-26 demonstrates that syllabic consonants are not tolerated in SwE, and deleting the potential syllabic consonant is not tolerated either. Candidate (a) is eliminated for its violation of the high-ranking constraint, *P/C. The grammar further

eliminates candidates (b) and (c) for fatally deleting the input potential syllabic consonant. Candidate (c) surfaces as the optimal output in that this candidate satisfies the high-ranking constraint *P/C by avoiding the occurrence of a syllabic consonant. The candidate avoids a syllabic consonant by inserting vowel [i] in violation of DEP-V and NUCCOND. Faithfulness to the input is very important in the SwE vowel epenthesis process; hence MAX-C ranks higher than DEP-V.

The pattern of repairing syllabic consonants in other African English varieties shows a variation of the vowel epenthesis effects than observed in SwE. As it was previously mentioned, WAE and EAE employ L-vocalisation to avoid syllabic /l/ (Bobda, 2001; Huber, 2004; Nelson & Todd, 1992b; Wolf, 2021). Considering the various explanations provided in the literature for L-vocalisation and the restrictions that WAE /l/ cannot occur as a coda word finally noted by Wolf (2021), I argued that the L-vocalisation process involves two processes – the insertion of a vowel and the deletion of word-final /l/. It was also noted that NigE has a variation where the prospective syllabic consonant is eliminated through L-vocalisation like in GhE and EAE (Gut, 2004), or preserved with an epenthetic vowel in certain instances (Akinjobi, 2009). BSAE behaves in a similar way to SwE in that the potential syllabic consonant is retained when a vowel is inserted (Hundleby, 1964). Consider the following examples.

150. GhE: /æpl/ → [ap**ɔ**]

151. EAE: /bætl/ → [bat**o**]

152. NigE: /bɒtl/ → [bɔt**ʊ**l]; /pebl/ → [peb**u**]

153. BSAE: /bʌtn/ → [bat**o**n]

Examples (150) and (151) illustrate the avoidance of potential syllabic /l/ in GhE and EAE using the L-reduction/vocalisation strategies. In (152), NigE shows a vowel epenthesis process where the potential syllabic /l/ is retained in [bɔt**ʊ**l]. In (153), BSAE inserts a vowel and also retains the potential syllabic /n/ in [baton].

The phonotactic restrictions on EAE and WAE described above indicate that *P/C is indomitable, so an output with a syllabic consonant is never optimal. Potential syllabic /l/ is avoided by employing either vowel epenthesis or the L-reduction/ vocalisation process, where a vowel is inserted in violation of DEP-V. Therefore, DEP-V must be below

*P/C to allow for the insertion of a vowel. Because /l/ is prohibited word-finally, the potential syllabic consonant is eventually eliminated in violation of MAX-C. Since the elimination of word-final /l/ does not result from phonotactic restrictions that forbid codas entirely but from a condition placed by the WAE grammar on which consonants cannot be codas, I adopt Ito's (1986) concept of coda condition. I phrase the well-formedness constraint, Coda Condition (CodaCond) as follows:

154. CodaCond

/l/ is banned as a coda word-finally.

In the L-reduction process, CodaCond is dominant to prevent the occurrence of the potential syllabic /l/, and MAX-C ranks below CodaCond to allow for the deletion of this consonant in fulfilment of CodaCond. ***Tableau 6-27*** demonstrates this constraint interaction in EAE.

Tableau 6-27: L-vocalisation process in EAE /bætl/

/bætl/	***P/C**	**CodaCond**	**NUCCOND**	**DEP-V**	**MAX-C**
a. bæt.l̩	***!**				
b. ba.tol		***!**	*	*	
c. ☺ ba.to			*	*	*

In ***Tableau 6-27***, candidate (a) is eliminated for violating *P/C. Candidate (b) is eliminated for violating CodaCond, another high-ranking constraint in the grammar. Candidate (c) is the optimum output because it avoids a syllabic consonant by inserting a vowel thus satisfying *P/C at the expense of DEP-V. The candidate also satisfies the high-ranking CodaCond by intentionally deleting the potential syllabic /l/ at the expense of MAX-C. Therefore, unlike in the SwE vowel epenthesis process where MAX-C is indomitable, in the EAE L-vocalisation process, MAX-C ranks low.

I now turn to the vowel epenthesis process in EAE and WAE to repair the syllabic /l/. In the vowel epenthesis process, the potential syllabic /l/ is retained but as a coda; therefore, CodaCond ranks low. Because /l/ ought to be preserved, MAX-C ranks above CodaCond. ***Tableau 6-28*** illustrates this constraint interaction in NigE.

Tableau 6-28: Vowel epenthesis to repair syllabic /l/ in NigE /bɒtl/

/bɒtl/	*P/C	MAX-C	NUCCOND	DEP-V	CodaCond
a. bɒt.l̩	*!				
b. bɔ.tʊ		*!	*	*	
c. ☺ bɔ.tʊl			*	*	*

In ***Tableau 6-28***, candidate (a) has a syllabic consonant; thus, the candidate is eliminated for violating *P/C. Candidate (b) satisfies *P/C by deleting the potential syllabic /l/ in violation of the high-ranking MAX-C. Therefore, candidate (b) is eliminated because it violates a high-ranking constraint. Candidate (c) is the optimal output because it satisfies *P/C and MAX-C. To satisfy *P/C, the candidate violates DEP-V to trigger vowel epenthesis to provide a vocalic nucleus. In addition, the candidate intentionally violates CodaCond to preserve the word-final potential syllabic /l/ in fulfilment of MAX-C. NUCCOND is also violated by this candidate as it prefers a vocalic nucleus to a consonantal nucleus.

In summary, ***Tableau 6-27*** and ***Tableau 6-28*** demonstrate a re-ranking of constraints to yield the different strategies for repairing syllabic consonants. The dominance of MAX-C yields vowel epenthesis as a repair strategy. In contrast, when MAX-C ranks low, the L-vocalisation strategy results. Moreover, the ranking of constraints in the SwE grammar shows that vowel epenthesis is preferred to deletion or L-vocalisation in repairing syllabic consonants.

6.11.2 Vowel epenthesis versus assigning potential syllabic consonant to syllable margin

The other strategy that had a minimal occurrence in SwE was simply assigning the potential syllabic consonant to the margin as a coda. Contrary to vowel epenthesis where the insertion of the vowel creates a new nucleus which results in the formation of an additional syllable, in this method, the sound structure of the input is retained and parsed as they are. The consonants that come before the existing vowel take the onset position and the string of consonants that follow the existing vowel, including the potential syllabic consonant, forms a coda cluster. Because this method had a minimum

occurrence, I, therefore, concluded that SwE prefers vowel epenthesis to simply assigning the potential syllabic consonant to the coda position. ***Table 6-2*** presents illustrations from the SwE data.

Table 6-2: SwE preference of vowel epenthesis to simply assigning the potential syllabic consonant to the margin

Word	**BrE form (syllabic consonant)**	**SwE form (epenthetic vowel)**	**Potential syllabic consonant assigned to the margin of the preceding syllable (not preferred)**
a. chasm	kæz.m̩	tʃa.z**im**/ka.z**im**	tʃa**zm**/ka**zm**
b. trouble	trʌb.l̩	tra.b**ul**	Tra**bl**
c. uncle	ʌŋ.kl̩	aŋ.**kli**	Aŋ**kl**

The examples in ***Table 6-2*** demonstrate that SwE prefers vowel epenthesis to prevent the occurrence of a syllabic consonant than simply retaining the existing string of sounds and allocating the consonants that follow the existing vowel to the coda position. In (a), splitting the consonant /z/ into [z] and [i] yielding [tʃa.z**im]**/[ka.z**im]** is preferred as opposed to simply assigning potential **[**m̩] to the coda of the existing vowel, which would result in tʃa**zm**/ka**zm.** When potential **[**m̩] is assigned to the margin, it becomes part of the coda cluster [zm]. In (b), splitting /b/ to [b] and [u] is preferred to assigning potential [l̩] to the margin as part of the [bl**]** coda cluster. Lastly, (c) demonstrates that inserting [i] is preferred to assigning potential [l̩] to the margin as part of the [ŋkl] coda cluster.

Simply parsing the existing string of sounds by assigning the potential syllabic consonant to the coda of the existing vowel results in a candidate with ill-formed codas. The ill-formedness of the codas, for example, *[zm], *[bl], and *[ŋkl] is attributable to the phonotactic sequencing requirement that segments within codas should fall in sonority (Clements, 1990). The codas *[zm], *[bl], and *[ŋkl] have a rising sonority, which is against the sonority sequencing requirements. Outputs that violate the sonority

sequencing requirements are never optimal in SwE. Therefore, in the SwE grammar, SSP is indomitable. ***Tableau 6-29*** demonstrates how the ranking of constraints yields a SwE grammar that prefers vowel epenthesis rather than parsing the string of sounds as they are by assigning the potential syllabic consonant to be the coda of the existing vowel. See also ***Tableau 6-10***.

Tableau 6-29: Vowel epenthesis over assigning the potential syllabic consonant to be the coda of the existing vowel in /kæzm/

/kæzm/	***P/C**	**SSP**	**NUCCOND**	**INTEGRITY**	**IO-IDENT [cons]**
a. ☺ ka.z**im**			*	*	*
b. ka**zm**		***!**			
c. kæz.m̩	***!**				

In ***Tableau 6-29,*** Candidate (b) is eliminated for violating SSP. The candidate avoids the occurrence of a syllabic consonant by assigning the potential [m̩] to be part of the coda of the existing vowel, thus forming the cluster [zm]. This coda cluster violates SSP because it rises in sonority from [z] to [m]. Candidate (c) is eliminated for having a consonantal nucleus, thus violating the high-ranking *P/C. Candidate (a) is the optimal output because it satisfies *P/C by avoiding a consonantal nucleus by splitting /z/ into [z^{l}] and [i^{l}] in violation of INTEGRITY and IO-IDENT [consonantal] to provide a vowel that functions as a nucleus. At the same time, the potential [m̩] becomes the coda of the epenthetic vowel. The candidate also satisfies SSP because the coda has a falling sonority from the nucleus. Accordingly, the ranking indicates that SwE favours vowel epenthesis above designating the potential syllabic consonant as the coda of the existing vowel when repairing syllabic consonants.

6.12 Summary of the chapter

Chapter 6 presented The Optimality-theoretic analysis of the SwE vowel epenthesis process. I noted that constraint interaction hinges on what is permissible in this variety. I observed that the phonotactic restrictions of SwE permit consonant clusters and closed syllable structures but prohibit the occurrence of syllabic consonants. The analysis demonstrated how the dominance of *P/C prevents the occurrence of output forms with

syllabic consonants and triggers the violation of DEP-V, INTEGRITY, and IO-IDENT [consonantal] to allow for the occurrence of an epenthetic vowel that supplies the nucleus. Unlike in other languages like Siswati and Tswana and other African English varieties like EAE where NOCODA and *COMPLEX are dominant and prohibit closed syllable structures and consonant clusters, in SwE, these two constraints are overruled by some other constraints that rank above them.

In addition, the epenthesis strategy to be used is determined by the SwE phonotactic requirements, which leads to particular epenthetic vowel qualities occurring in specific epenthesis sites. Splitting seemed to be the main technique used to fix syllabic consonants of different kinds. Additionally, it was observed that when splitting was applied, the epenthetic vowel adopts the same place features as the preceding consonant following the Unified Place Theory (Clements & Hume, 1995). In the SwE vowel epenthesis process, an epenthetic vowel must be faithful to its input correspondent in terms of place features. Thus, IO-IDENT [place] makes a crucial decision in deciding the permitted quality of the epenthetic vowel in the SwE grammar. Moreover, it was noted that SwE places restrictions on /il/ sequences where the /l/ is a potential syllabic consonant. So, to satisfy *il which bans coronal consonants from splitting to repair syllabic /l/, default insertion takes place and the epenthetic vowel is inserted word-finally. The quality of the default epenthetic vowel results from ranking non-DTE constraints above the DTE constraints. Such ranking results in [i] and [ə] as possible SwE default epenthetic vowels. However, [ə] becomes eliminated by the indomitable *ə, leaving [i] to be the default SwE epenthetic vowel. These constraint interactions point to the uniqueness of the SwE vowel epenthesis process.

Furthermore, I observed that in addition to the avoidance of /il/ sequences, phonotactic requirements on onsets and sonority sequencing determine the epenthesis site. For example, a default epenthetic vowel cannot be inserted word-finally when the potential syllabic /n/ is preceded by a velar consonant because that arrangement would result in an onset cluster [kn] which violates the sonority sequencing requirements as well as the requirements of English onsets. Any output that violates these phonotactic requirements is penalised by either OSW or SSP and is never optimal. Consequently, in candidates where /k/ comes before a potential syllabic /n/, the default epenthetic vowel

is inserted before the potential syllabic consonant, deviating from the SwE standard epenthesis site for default epenthetic vowels.

Lastly, although other African English varieties forbid syllabic consonants like SwE, the repair strategies are dissimilar. While SwE and BSAE employ vowel epenthesis, EAE and WAE employ L-vocalisation/ reduction. In vowel epenthesis, the potential syllabic consonant is retained either as part of an onset cluster or as a coda while in L-vocalisation/reduction, the potential syllabic consonant is elided. As evident in the specific varieties investigated, the selection of repair strategies is dictated by the phonotactic requirements of each variety. For example, I demonstrated how the ranking of CodaCond as a high-ranking constraint in EAE and WAE penalises the retention of potential syllabic /l/. Conversely, SwE does not put restrictions on the sounds occurring as the coda. The dominance of MAX-C in SwE prevents any form of deletion of the potential syllabic consonant. Moreover, Bell (1978) pointed out that syllabic consonants could be eliminated by simply assigning the potential syllabic consonant to the margin of the preceding syllable. However, this study demonstrated how ranking SSP as a high-ranking constraint makes this strategy unworkable for the SwE grammar.

The two Tableaux below summarize the interaction of the constraints in the two epenthesis strategies, default insertion

Tableau 6-30: Default insertion in /ʤentl/

/ʤentl/	*P/C	MAX-C	ONSET	OSW	*ïl	SSP	*ə	*_ Δ F_t ≥ {e, o}	NUCCOND	DEP-V	* Δ σ ≤ {e, o}	*_ Δ F_t ≥ {i, u}	NOCODA	*COMPLEX
a. ʤen.tl̩	*!												*	
b. ʤent		*!											*	*
c. ʤen.til					*!					*	*	*	**	
d. ʤeŋkl						*!							*	*
e. ☺ ʤeŋ.kli									*	*	*	*	*	*
g. ʤeŋ.klə							*!		*	*	*		*	*
h. ʤen.ti		*!							*	*	*	*	*	
i. ʤeŋ.kla								*!	*	*		*	*	*

Tableau 6-31: Splitting in /prɪzn/

/prɪzn/	*P/C	MAX-C	ONSET	OSW	*ïl	SSP	*ə	NUCCOND	DEP-V	IO-	NOCODA	INTEGRITY	IO-IDENT [cons]	*COMPLEX
a. prɪz.n̩	*!		*								*			*
b. priz		*!									*			*
c. pri.zni				*!				*	*		*			*
d. pri.zi.ni								*	*!			*	*	*
e. prizn						*!					*			**
f. prɪz.ən			*!				*			*	*	*	*	*
g. ☺ pri.zin								*			*	*	*	*

CHAPTER 7: CONCLUSION

7.1 Introduction

This study explored the nature of the vowel epenthesis process in SwE. It was claimed that SwE's vowel epenthesis is unique because it serves a different purpose and displays a variety of epenthetic vowel qualities and epenthesis sites.

To achieve its aim, this descriptive qualitative study employed an experimental method of collecting data. Data were collected from 22 participants who were exclusively adult native Swati speakers of ESL who had gone through at least a five-year secondary education and qualified for tertiary education. The participants comprised students and staff at UNESWA. To solicit information about the participants' experiences with English I conducted a semi-structured interview that asked for information about the participants' linguistic backgrounds. I then used the participants' responses to determine whether they fit in the Acrolectal or Mesolectal groups of the L2 continuum. Participants were then made to read aloud a list of 50 words containing potential syllabic consonants to determine their pronunciation of the potential syllabic consonants. The CA method was administered as the first step of the data analysis to establish the deviations that the participants made from the Standard British English way of pronouncing the words in the list, in particular the potential syllabic consonants [l̩], [m̩], [n̩], and [ŋ̩]. The pronunciations that were seen to be more representative of SwE were then analysed using OT to determine the ranking of universal constraints in the SwE grammar that yields the various epenthesis patterns.

Chapter 7 reviews the questions the study attempted to answer and the hypotheses. The chapter further summarises the main findings of this research and tests the hypotheses against the analysis. Moreover, I highlight the contributions this research has made to the existing body of knowledge, and the limitations of my research, and then make recommendations for further investigation.

7.2 A review of the research questions and hypotheses

Previously listed in *Section 1 .3*, the research questions the study sought to answer are listed as follows:

- What are the linguistic factors of vowel epenthesis in clusters involving a syllabic consonant in SwE?
- What does the syllable structure of the clusters involving syllabic consonants look like after vowel epenthesis in SwE?
- What determines the epenthetic site?
- What are the variants of the epenthetic vowel in SwE
- What determines the quality of the epenthetic vowel?
- Can the variation in vowel quality be modelled within OT, and how?

My hypotheses as listed in *Section 1.4*. were as follows:

Hypothesis 1: Vowel epenthesis in SwE results from a highly ranked syllable well-formedness constraint that exists in the literature, which prohibits consonant sounds from occurring in the nucleus position.

Hypothesis 2: The epenthesis site is determined by the type of syllabic consonant, as well as the phonotactic restrictions on individual and combinations of consonants in SwE.

Hypothesis 3: The epenthetic vowels appear both as unmarked default vowels and in different forms of context-dependent qualities.

Hypothesis 4: The variation in vowel quality results from the ranking of universal markedness and faithfulness constraints already existing in the literature, which allow or prohibit certain epenthetic vowel qualities in specific contexts.

7.3 A summary of the main findings

In this section, I summarise the study's main findings which answer the research questions. I further indicate how the findings prove or disprove the hypotheses.

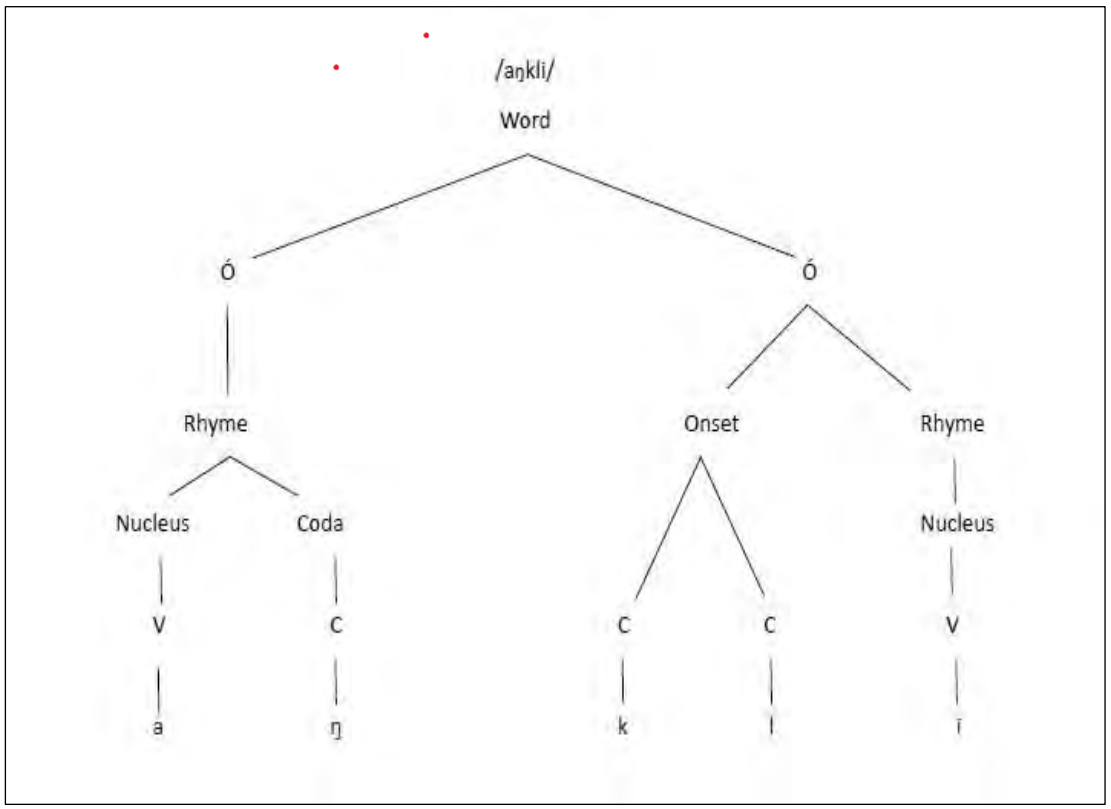
This thesis has shown that speakers of SwE avoid syllabic consonants and repair them by inserting a vowel. The results of the CA in Chapter 5 showed an overall (for both the Acrolect and Mesolect forms) 86.90% occurrence of vowel epenthesis; only 11.02% occurrence of syllabic consonants, and 2.08% additional repair strategies on potential syllabic consonants. When the data were divided into the Acrolect and Mesolect forms, the results reflected 90.37% occurrence of vowel epenthesis and 7.96% occurrence of

syllabic consonants in the Mesolect group. In the Acrolect group, the syllabic consonant occurrence was at 22.8% and vowel epenthesis occurrence was at 74.8%. Although the occurrence of syllabic consonants is slightly higher in the Acrolect group than in the Mesolect group, it is evident that speakers of SwE generally have a challenge in pronouncing syllabic consonants, and the statistics show a generally high preponderance of vowel epenthesis in both groups.

The results further showed that the syllable structure of SwE resembles that of Standard BrE English, as it permits closed syllable structures and allows consonant clusters syllable-initially and syllable-finally. As it was revealed in the results in Chapter 5, when a vowel is inserted, the potential syllabic consonant is rearranged to be at the syllable margin, sometimes forming an onset cluster with the consonant that immediately precedes it or part of a coda cluster. For example, after inserting a vowel, the potential syllabic /n/ in /insid**n**t/ and /impɔːt**n**t/ is assigned to be part of the coda cluster in the SwE pronunciation [in.si.de**nt**] and [im.po.te**nt**], respectively. In /ʤentlmən/ and /ʌŋkl/, potential syllabic /l/ forms part of the onset cluster in the SwE pronunciations [ʤeŋ.kli.men] and [aŋ.kli], respectively. These illustrations indicate that SwE permits consonant clusters syllable-initially and syllable-finally. Further evidence that SwE permits a complex system of onset and coda clusters was found in the existing literature. For example, when making illustrations of LMS stress shift, Kamwangamalu & Moyo (2003) give examples of words containing complex onsets and codas such as [admini'**str**eɪt], which has an onset cluster /str/ comprising three consonants and [sekam'stens], which has a two consonant clustered coda /ns/. The findings are in line with Arua's (1999) observation that the purpose of vowel epenthesis in SwE is not to decluster consonants per se as it is common in other African English varieties.

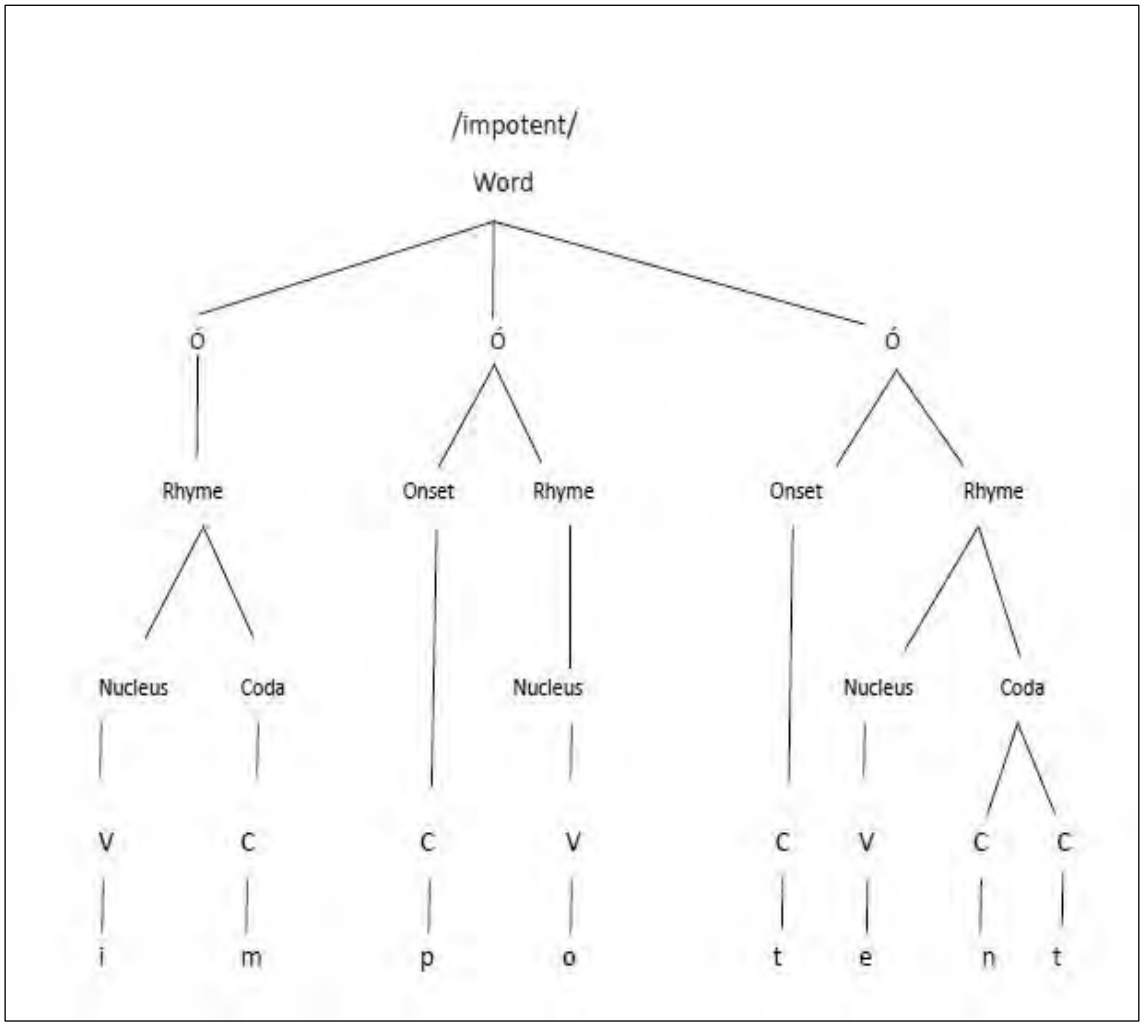
Using this evidence to answer the second research question, I argued that, like Standard BrE, SwE belongs to syllable TYPE IV languages, with the syllable structures CV, V, CVC, and VC as per Clement & Keyser's (1983) classification of languages according to syllable type. According to Clements & Keyser, TYPE IV languages allow a complex system of initial and final consonant clusters, which was observed in this study about vowel epenthesis in SwE. These syllable structures are illustrated in. ***Figure 7-1*** and ***Figure 7-2.***

Figure 7-1: The SwE syllable structure of [ʌŋ.kli]



From the example above, it can be noted that [ʌŋkli] is disyllabic. The first syllable has the structure VC, and the second syllable has a CCV syllable structure.

Figure 7-2: The SwE syllable structure of [impotent]



The word [impotent]is trisyllabic. The first syllable is VC; the second is CV, and the third is CVCC. These examples prove that SwE, like Standard BrE allows consonant clusters as onsets and codas.

It was noted that the only difference between SwE and BrE is a syllable arrangement where one of the consonants is syllabic. Drawing insights from the cophonologies framework (Inkelas, Zoll, & Orgun, 1996; Anttila, 1997; Inkelas & Zoll, 2007), I then argued that SwE has a phonological sub-grammar restricting consonants as syllable nuclei. In Chapter 6 (*Section 6.10.2*), I explained that the distinctions arise from the order in which the constraints are ranked in each of the two phonological sub-grammars: Standard BrE allows both vocalic and consonantal nuclei depending on the prosodic context, whereas SwE prioritises vocalic nuclei in all prosodic contexts. The results of the OT analysis show a SwE ranking where *P/C dominates NUCCOND and the anti-insertion

constraints DEP-V, INTEGRITY, and IO-IDENT [consonantal]. I explained that ranking *P/C above NUCCOND indicates that the grammar prohibits syllabic consonants even in weak syllables of trochaic feet where consonantal nuclei would be expected in Standard BrE. Furthermore, the OT results show a low ranking of NOCODA and *COMPLEX, indicating that the grammar permits codas and consonant clusters. To answer research question (1), this thesis has essentially shown that vowel epenthesis in SwE is caused by the phonotactic restriction that the grammar imposes on syllabic consonants. To meet this phonotactic requirement, the grammar ranks *P/C high to prevent the occurrence of a syllabic consonant at the same intentionally violating DEP-V, INTEGRITY, and IO-IDENT [consonantal] to cause default insertion and splitting to produce vocalic nuclei. Therefore, Hypothesis 1 which claims that vowel epenthesis in SwE is caused by a highly ranking syllable well-formedness constraint that exists in the grammar, which prohibits consonant sounds from occurring in the nucleus position is true.

The study further reveals that there were two locations for the epenthetic vowel in SwE – before the potential syllabic consonant and after the potential syllabic consonant. I observed that epenthesis before the potential syllabic consonant is a result of splitting the consonant that immediately preceded the potential syllabic consonant and that the default epenthetic vowel is often inserted word-finally (after the potential syllabic consonant). As revealed in Chapter 5, the location of the epenthetic vowel is determined by SwE's phonotactic restrictions. Firstly, the phonotactic restrictions forbid /il/ sequences when /l/ is a potential syllabic consonant. Thus, to meet this restriction, the grammar avoids splitting a coronal consonant into a coronal consonant and a front vowel to repair potential syllabic /l/. Consequently, a default epenthetic vowel is inserted after the potential syllabic /l/ if the potential syllabic /l/ is immediately preceded by a coronal consonant. In Chapter 6 (*Section 6.9.5*), I showed how the high-ranking *il determines the epenthesis site for vowels repairing potential syllabic /l/. Secondly, the phonotactic restrictions on English onsets and the sonority sequencing requirements influence the location of the epenthetic vowel. For instance, SwE tends to insert a default epenthetic vowel after the potential syllabic consonant. However, when the default epenthetic vowel is to repair potential syllabic /n/ that is immediately preceded by a dorsal consonant, it is placed before the potential syllabic consonant because placing the epenthetic vowel

word-finally yields structures that violate the sonority sequencing requirements and the requirements on onset well-formedness.

In OT terms, as shown in Chapter 6, it was found the high-ranking OSW and SSP determined the epenthesis site as any candidate that violates these two constraints is never optimal. Therefore, Hypothesis 2: The epenthesis site is determined by the type of syllabic consonant and the phonotactic restrictions on individual and combinations of consonants in SwE is confirmed. These are interesting findings because they reveal the uniqueness of the SwE vowel epenthesis process which has not been observed in the other African English varieties such as NigE, BSAE, EAE, and GhE.

The findings about the epenthesis sites in SwE bring to question Arua's (1999) claim that there is only one location for the epenthetic vowel, which is after the potential syllabic /l/. Arua used the transfer theory and claimed that speakers of SwE insert paragogic /i/ to create a CV structure following the Siswati L1 CV syllable structure. However, the current study found that vowel epenthesis is not merely intended to create a CV syllable structure because some of the syllables with an epenthetic vowel have codas. The reason for the differences between Arua's claims and this study's findings could be that Arua (1999) focused on only potential syllabic /l/ which was preceded by either a voiceless velar plosive /k/ or a voiceless alveolar plosive /t/ while the current study investigated a variety of the potential syllabic consonants occurring in a variety of phonological contexts. As a result, various patterns of the vowel epenthesis process are revealed in the current study.

To answer the third research question, the study revealed in Chapter 5 (*Sections 5.10.2* and *5.10.3*) that the SwE epenthetic vowel occurs in the following qualities: [u], [i], [o], [e], [a], [ɐ] and, [ə]. The central vowels [ɐ] and [ə] are found mostly in the Acrolect form while the Mesolect form mostly had the peripheral vowels. Several factors were found to be determinants of the occurrence of these different vowel qualities, including orthographic effects, markedness effects, phonotactic effects, and morphological effects (analogy). The study further reveals that where spelling pronunciations and analogy are ruled out, the epenthetic vowels [u], [e], and [i] assimilate to the preceding consonant, except where the preceding consonant is [dorsal]. For example, the occurrence of epenthetic [u] is determined by a preceding [labial] consonant, and the occurrence of

epenthetic [e] is determined by the preceding [coronal] consonant. Epenthetic [i] appears in two forms, as a vowel that copies the features of the preceding consonant, and as a default epenthetic vowel. It was observed that default epenthetic [i] occurs after dorsal consonants because dorsal consonants cannot split, and word-finally when the potential syllabic /l/ is immediately preceded by a coronal consonant. Essentially, two epenthesis strategies were found to be employed in the SwE vowel epenthesis process. The strategies are splitting and true insertion. Instances of copy epenthesis were not attested in the observed pronunciations of SwE. Given these findings, Hypothesis 3: The epenthetic vowels appear both as unmarked default vowels and in different forms of context-dependent qualities is partly confirmed because the occurrence of epenthetic [u], [e], and [i] depend on the place features of the preceding consonant. Moreover, epenthetic [i] in the Mesolect form, and [ɐ] and [ə] in the Acrolect form are default epenthetic vowels determined by unmarked features. However, not all the epenthetic qualities fall into these two groups because some are influenced by orthographic factors and others by morphological factors.

Moreover, the study shows that the occurrence of the different epenthetic qualities can be modelled in OT by ranking the universal markedness including well-formedness constraints, vowel sonority DTE/non-DTE constraints, and faithfulness constraints. In *Sections 6.9.3* and *6.9.4* of Chapter 6, it was observed that the default epenthetic vowel [i] results from the partial ranking where *ə and the vowel sonority non-DTE constraint *- $\Delta F_t \geq$ {e, o} dominate the vowel sonority constraints * $\Delta \sigma \leq$ {e, o} and*- $\Delta F_t \geq$ {i, u}. As mentioned in de Lacy (2006), a grammar in which a non-DTE constraint dominates a DTE constraint inserts a vowel of low sonority, SwE inserts a vowel of low sonority because *- $\Delta F_t \geq$ {e, o} dominates the DTE constraint * $\Delta \sigma \leq$ {e, o}. The non-DTE constraint *- $\Delta F_t \geq$ {e, o} penalises [e], [o], and [a] in favour of [i], [u], and [ə] (de Lacy, 2006). So, a winning candidate in SwE may have any of [i], [u], or [ə] as the default epenthetic vowel but not [a]. However, since back vowels are marked (de Lacy, 2006), [u] cannot appear as the optimal output. Furthermore, because of the high-ranking *ə, a schwa can never be epenthetic in SwE. Consequently, [i] becomes the ultimate default epenthetic vowel in SwE.

Furthermore, in *Section 6.9.4* of Chapter 6, it was shown that epenthetic qualities that assimilate to the preceding consonants result from a partial ranking where IO-IDENT

[place] dominates over INTEGRITY and IO-IDENT [consonantal]. This ranking allows for a consonant to split into two outputs, one being consonantal and the other one being vocalic. The consonantal output takes a position at a syllable margin (onset) and the vocalic output takes the position of a nucleus. Given these findings, hypothesis 4 is thus proven to be true. Indeed, the variation in the quality of the epenthetic vowel results from the ranking of universal markedness and faithfulness constraints, which allow or prohibit certain epenthetic vowel qualities in specific contexts.

Finally, the results of the study presented in Chapter 5 show two other repair strategies that participants employ to avoid syllabic consonants whereby in some cases, a participant would simply assign the potential syllabic consonant to the margin as a coda without adding a vowel. In other cases, the participants would delete the potential syllabic consonant after inserting a vowel in a way almost similar to L-reduction or simply delete it without adding a vowel. However, these strategies have very minimal occurrence frequencies and their occurrence is very varied within as well as across the participants such that they cannot be associated with either the Acrolect or Mesolect form or any of the extra-linguistic characteristics of the participants. Therefore, it was concluded that such strategies are outlier cases and that vowel epenthesis is the major repair strategy employed in SwE. The OT analyses performed in Chapter 6 (Section 6.9.11) show that these two strategies are avoided because of the high-ranking MAX-C which penalises consonant deletion and SSP which militates against codas with a rising sonority from the nucleus. This finding demonstrates the differences between the treatment of syllabic consonants in SwE and other comparable African English varieties.

7.4 Contributions of the study

This research has added new insights into understanding the nature of the vowel epenthesis process in SwE by revealing the trigger of this process and the different patterns that this process takes. Previous research by Arua (1999) as indicated in *Section 1.4*, claims that vowel epenthesis in SwE results from transferring Siswati L1 features into English. Arua (1999) argues that vowel epenthesis in SwE is aimed at creating a CV syllable structure, which takes after the Siswati syllable structure which is CV. However, this study provides evidence that SwE permits codas; hence bringing the issue of transfer of the Siswati CV syllable structure into question. In addition, previous research claimed

that vowel epenthesis targets potential syllabic /l/ exclusively; however, this study demonstrates that potential syllabic /n/ and /m/ also attract vowel epenthesis.

Secondly, this study has investigated the vowel epenthesis process from a different perspective (OT). It was argued that the source of vowel epenthesis is the dominance of the constraint prohibiting syllabic consonants, *P/C, over NUCCOND, the constraint requiring consonantal nuclei in weak syllables of trochees. The study has also explained the different epenthesis patterns concerning the quality of the epenthetic vowel as well as the epenthesis sites by drawing insights from several interrelated theories including BST, Splitting, and markedness (de Lacy, 2006), all used within OT. The results of the OT analysis have revealed new information about the overall ranking of the constraints in the SwE grammar yielding the different epenthesis patterns. Because of the uniqueness of the SwE epenthesis patterns, the study has proposed a new set of constraints including NUCCOND, *il, and *ə as the existing constraints from the various theories could not fully address the nitty gritty of these patterns.

Thirdly, by adjusting the constraints operating in SwE, the study has provided some fresh insights into what might be happening in other African varieties of English, such as EAE and WAE regarding the ranking of constraints to produce the epenthesis patterns occurring in these varieties. The new knowledge provided by this study was applied to studies on L-reduction/vocalization since the existing literature does not explain how this pattern is modelled in OT. For example, the study demonstrated that the constraints used for SwE vowel epenthesis could be tweaked to explain EAE L-vocalisation, whereby MAX-C ranks below CodaCond to allow for the deletion of the potential syllabic /l/ in the coda position because EAE does not permit /l/ as the coda.

Finally, the study has added new data on SwE pronunciations to the existing data from previous studies, thus increasing the SwE corpus database.

7.5 Limitation and recommendation for further investigation

The results of the study revealed inter-speaker variation whereby: (1) the same word has multiple epenthetic qualities and sites by the different speakers, and (2) the same speaker may employ more than one strategy to repair the potential syllabic consonants, and these repair strategies were different from those employed by the other African English

varieties reviewed in this study. For example, *muffle* had four different pronunciations [maful], [mafel], [mafli], and [mafɐl]. This word has four different epenthetic qualities [u], [e], [i], and [ɐ], and two epenthesis sites, that is before /l/ and after /l/. Epenthetic [ɐ] occurred in the Acrolect as a variant of [ə] and the other three epenthetic qualities occurred in the Mesolect form. However, the study could not associate these epenthetic qualities and sites with a particular extra-linguistic characteristic of the participants within the Mesolect group. Further investigation into the relationship between the extra-linguistic factors and each of the epenthetic qualities and epenthesis sites within and across speakers could possibly explain these variations. Moreover, the study could not explain the variation of epenthesis strategies by the same speaker(s). It remains unclear if exposure to other varieties of English has a role to play in these variations. Therefore, future research may look into the influence of exposure to other varieties of English on the strategies that SwE speakers employ to repair potential syllabic consonants. In short, the current study does not have a complete explanation of all the variations that emerged in the SwE data and I leave this area to future research.

7.6 Summary of the chapter

In summary, the chapter has highlighted the uniqueness of the vowel epenthesis process in SwE concerning the purpose of employing this repair strategy as well as the epenthesis patterns. It has revealed that vowel epenthesis primarily targets syllable structures containing syllabic consonants to avoid the occurrence of consonantal nuclei. The findings have further revealed the shortcomings of the transfer theory in providing a complete explanation of the nature of the SwE vowel epenthesis process and have shown that this phenomenon can be better explained by ranking universal constraints in OT.

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APPENDICES

APPENDIX A: FLYER

APPENDIX B: INVITATION TO PARTICIPATE LETTER

Rhodes University
Drosty Road,
Grahamstown,
6139

6 December 2022

Dear participant,

INVITATION TO PARTICIPATE IN A RESEARCH

I am a registered PhD student in the Department of Linguistics and Applied Language Studies at Rhodes University. I am hereby inviting you to participate in a research project I am conducting.

The topic of my research is *Vowel epenthesis in syllable structures containing syllabic consonants in Swati English.* Your participation will be in the form of reading aloud a list of English words that contain syllabic consonants. You will also be requested to answer a questionnaire that seeks your basic biographic information.

Should you require any further information, please do not hesitate to contact me or my supervisor. Our contact details are as follows: Thulisile Dlamini (researcher), email address: gciniledl@gmail.com, telephone number: +268 76058447.
Supervisor: Professor William Bennett at email: w.bennett@ru.ac.za.

Your participation in this study will be greatly appreciated.

Yours sincerely,

Thulisile Dlamini

APPENDIX C: PARTICIPANT INFORMATION SHEET

Participant Information Sheet

Title *Vowel epenthesis in syllable structures containing syllabic consonants in Swati English*

Short Title *The process of inserting a vowel in vowel-less syllable structures in the English spoken in Eswatini*

Principal Investigator Thulisile Gcinile Dlamini

Supervisor Professor William G. Bennett

1. Introduction

You are invited to take part in this research project on *Vowel epenthesis in syllable structures containing syllabic consonants in Swati English.* You are being invited because you are an adult native speaker of siSwati who speaks English as a Second Language. In addition, you have completed and passed Form 5/ Matric and you can speak and write English fluently. This makes you eligible to participate.

This information sheet tells you about the research project. It explains the processes involved with taking part. Knowing what is involved will help you decide if you want to take part in the research. Please read this information carefully. Ask questions about anything that you don't understand or want to know more about.

Participation in this research is entirely voluntary. If you do not wish to take part, you do not have to. If you decide you want to take part in the research project, you will be asked to sign a participant informed consent declaration form. By signing the consent form, you will be telling us that you:

(a) Understand what you have read;
(b) Agree to take part in this research project;
(c) Consent to the use of information as described;

2. The purpose of the research

The purpose of the research project is to examine the nature of the process of inserting a vowel within a vowel-less sequence of consonants in Swati English (SwE), a variety of English spoken in Eswatini. Speakers of SwE insert a vowel only in sequences of consonants that operate as a syllable on their own, with one of the consonants operating as the peak of the syllable instead of a vowel. However, when the same sequence occurs but now with a vowel operating as the peak, there is no additional vowel inserted to break the sequence of consonants. This shows that the problem does not just stem from the limitations a language may place on sequences of consonants per se or the characteristics

of the sounds that make up the sequence of consonants. Instead, the pattern in which one of the consonants in the cluster is syllabic (peak of a syllable) is the issue. In addition, there is variation in the position occupied by the inserted vowel; in some cases, the cluster is retained and the vowel is inserted at the end of the cluster, and in other cases, a vowel is inserted in between the consonants. There is also variation in the characteristics of the inserted vowel as some of the inserted vowels may be [u], [i], and [e]. From my review of the extant literature, there is limited research on the characteristics of the inserted vowel in SwE as well as the position it takes in the syllable structure. Therefore, the proposed study intends to fill this gap in the body of knowledge.

The data that will be collected in this study will create documentation of samples of SwE pronunciations (establishment of a databank) that will be accessible to future researchers in the field of linguistics who may wish to explore the sounds and sound patterns of SwE further. Secondly, the study will be an obvious benefit to society because people who are unfamiliar with Eswatini English can look up information about the distinct properties of the local pronunciation in the published thesis and journal articles. A previous study by de Koning (2009) reported that even though SwE can be identified as a new English, some people, including local and non-locals still perceive the unique features of SwE as errors, and thus dupped "inaccurate", and "inappropriate", and "poor" use of Standard English. This is partly because there is limited research and documentation of SwE, so society has nowhere to look for the norms of this local variety of English. As a result, it is assessed by native speakers and non-SwE groups against their own English as a standard. Therefore, the documentation of the SwE pronunciations that will be made in the current study might help facilitate communication and/or help alleviate the linguistic prejudice against this variety of English.

The study is conducted to obtain the qualification of a Ph.D. in the study of languages at Rhodes University.

3. Procedures and Activities

Firstly, you will have to read and sign a consent declaration form before you engage in the tasks for this research. After you have signed the consent form, there are two activities that you will be requested to perform: filling in a questionnaire that requires your biographic information and reading aloud a list of 50 English words. These activities should not take more than 10 minutes and both activities will be done at one point; there won't be any follow-ups. The reading-aloud task will be recorded using a digital voice recorder.

The activities of the research will take place at Office C4 in the New Academic Staff Office building behind the library at the University of Eswatini, Kwaluseni Campus. Staff at Kwaluseni who might wish to take part in this study may choose an alternative venue. A maximum number of 30 participants will take part in the study; however, each participant will be given a specific slot to perform the tasks when all the other participants will be absent.

4. The benefits of taking part in this study

By participating in this study, you will learn more about the differences between British English and Eswatini's pronunciation of some words, particularly those with syllabic consonants. You will learn that there are several English dialects and that variety is normal and should be embraced. You will also learn that the English spoken in Eswatini is a unique variety in its own right and that the distinct pronunciation patterns attested

in the speech of the local accent are not mere errors or distortions of British Standard English; instead, they are the unique properties that render SwE a unique variety. There is no correct or incorrect way to pronounce the words. Learning that will boost your confidence to speak English with both locals and non-local speakers of English without fear of suffering linguistic prejudice.

5. Potential risks and disadvantages of taking part

The main type of data to be collected are recordings of participants' pronunciations of words with the sounds under investigation. Pronouncing words carries virtually zero risk. The potential risk that may occur during this project's activities is that as a participant, you may feel embarrassed to participate because you will be reading English words, and the English language is not your first language. You may feel that your pronunciations are incorrect, illustrating your incompetence with the English language. In case you feel that way, be assured that there is no accurate or inaccurate way of pronouncing words in any language. Variation is normal and it is acceptable.

6. Do you have to take part in this research project?

Taking part in this research project is entirely voluntary. If you do not wish to take part, you do not have to. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. If you decide to withdraw from the project, please notify the researcher; you can do that verbally. The data already collected will not be included in the study. Your decision whether to take part or not or to take part and withdraw will not affect your relationship with the researcher or your relationship with Rhodes University either now or in the future.

7. Dissemination of results

At the end of this research project, a summary of the project results will be available through my published thesis and journal articles. The thesis and journal articles will be made available online. The information will also be shared through conferences and seminar presentations.

8. What will happen to the data and information about participants?

The identity of participants will be concealed through coding, and it will not be disclosed to anyone not participating in this research. Immediately after recording, the recorded data will be transferred to a password-protected external hard drive that will be kept securely in a locked office. It will also be saved on a password-protected Google Drive. The data will be kept for five years after which it will be destroyed. Only the researcher, the supervisor, and the examiners of the project (upon request) will have access to the data. The raw data will be used only for this project, but transcriptions will be used to establish a databank that will be accessed for future research.

9. Reviewers of the research project

The ethical aspects of this project have been reviewed and approved by the Rhodes University Human Research Ethics Committee (RU-HREC) and the Human Subjects Research Ethics Committee (HSREC) of the University of Eswatini.

10. Further information and whom to contact

If you want any further information concerning this project or if you have any problems that may be related to your involvement in the project, you can contact the researcher at +268 76058447 or the supervisor.

Research contact person

1. **Name:** Thulisile Dlamini **Position:** Researcher **Contact**: 76058447
   Email address: gciniledl@gmail.com
2. **Name:** Prof. W.G. Bennett **Position:** supervisor
   Email address: w.bennett@ru.ac.za

APPENDIX D: PARTICIPANT INFORMED CONSENT DECLARATION

PARTICIPANT INFORMED CONSENT DECLARATION

Title

Project Title: **Vowel epenthesis in syllable structures containing syllabic consonants in Swati English**

Thulisile Gcinile Dlamini from the Department of Linguistics and Applied Language Studies, Rhodes University has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to examine the nature of the process of inserting a vowel within a sequence of consonants containing syllabic consonants in Swati English (SwE), a variety of English spoken in Eswatini.
2. Rhodes University and UNESWA have given ethical clearance to this research project ***(Ethics Approval Number: 2022-5850-7266 and* 2022-HSREC-005-FR*)*** and I have seen/may request to see the clearance certificate by contacting the Ethics Coordinator (ethics-committee@ru.ac.za)
3. By participating in this research project I will be contributing towards the documentation of a corpus database of Swati English pronunciations that will be accessible to future researchers who may wish to explore the sounds and sound patterns of Swati English further. I will also be contributing to the documentation of the accent of the English language spoken in Eswatini where people who are not familiar with Eswatini English will look for information and learn about the unique ways in which speakers of Swati English pronounce some English ways.
4. I will participate in the project by answering a questionnaire and reading aloud a list of English words containing syllabic consonants.
5. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.
6. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.
7. The following risks are associated with my participation: (i) I might feel embarrassed to participate because I will be reading English words and the English language is not my first language. I might feel that my pronunciations are incorrect, illustrating my incompetence with the English language. However, the researcher has assured me that variation in pronunciation is normal and acceptable; therefore, I should not feel embarrassed that my pronunciations are different from the pronunciations of native speakers of English. She has explained to me that the differences in pronunciation are not an indication of my incompetence with the English language, so I should not feel embarrassed. Second, the exercise is conducted in a safe and quiet place where there is no intrusion by another person not participating in the research. The researcher has assured me

that she will not share my recording with any third party.

8. The Researcher intends to publish the research results in the form of a thesis and journal articles. However, confidentiality and anonymity of records will be maintained and my name and identity will not be revealed to anyone who has not been involved in the conducting of the research ***unless I indicate to the contrary/recognize that as a public figure, my identity will inevitably be/become known, in which case I agree to accept the loss of anonymity.***
9. In terms of the Protection of Personal Information Act (No. 4 of 2013) it remains my right to request the Researcher to provide me with a detailed explanation of exactly how confidentiality and anonymity of the data I provide will be achieved. I may also request to know exactly how my personal information will be stored securely, and for how long it will be stored.
10. If any data collected from me for this research project is to be used by the Researcher for any further study, I am to be informed in writing and my written consent is requested again. I need not give consent for the new research if it is incompatible with the initial purpose of the present study (POPIA, s15(3)). Equally, I can simply reject the request. In such cases, a formal request needs to be made to me by the researcher via the Ethics Coordinator (ethics-committee@ru.ac.za).
11. In terms of the POPI Act, I possess the right to receive feedback about this research. This will take the form of an email with a document containing the transcriptions of the recording and results from the analysis of the transcriptions unless ***I elect not to receive this feedback.***
12. Any further questions that I might have regarding the nature of the research and/or my participation in it will be answered by Thulisile Dlamini, email address: g20d5762@campus.ru.ac.za / tgdlamini@uniswa.sz/ gciniledl@gmail.com.
13. By signing this informed consent declaration, I am not waiving any legal claims, rights, or remedies. A copy of this informed consent declaration will be given to me, and the original will be kept on record by the Researcher.
14. I ***agree/disagree*** (delete inapplicable) to the Researcher's request to take photographs, or videoing me as part of this research project, recognizing that agreement here is likely to raise the risk of compromising my anonymity and that steps will be taken to ensure this will not happen it my consent is given.
15. I ***agree/disagree*** (delete inapplicable) to the Researcher's use of voice recording of my comments and opinions during interviews, the purpose of which is to ensure the accurate recording of my views/responses. Furthermore, I have the right to request a copy of the interview transcriptions to confirm that my opinions are accurately recorded

I, ……., have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I

wished to ask, and these have been answered to my satisfaction. I fully understand what is expected of me during the research.
I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

…….. …….. ……..
Participants' signature **Witness** **Date**

APPENDIX E PARTICIPANT DEMOGRAPHIC INFORMATION QUESTIONNAIRE

Project: Vowel epenthesis in syllable structures containing syllabic consonants in Swati English

Description of the project

This project aims to examine the nature of vowel epenthesis in consonant clusters containing syllabic consonants in Swati English. Data is being collected from individuals who are native Swati ESL speakers with a minimum of the Eswatini General Certificate in Secondary Education (EGCSE) or Matric, and they are between the ages of 18 and 55. Participation in this exercise involves answering a questionnaire that requires participants' biographic information and information about their exposure to English as a first language environment as well as exposure to other varieties of English apart from British English. Participants will also read aloud a list of 50 English words containing syllabic consonants. The purpose of the task is to gather information on how Swati speakers of English as a Second Language (ESL) pronounce consonant clusters with syllabic consonants. The reading will be recorded using a digital voice recorder. Each participant will be assigned a code so that their identity is concealed. The task should not take more than 10 minutes.

Informed consent declaration

Before you participate in the exercise, please read and sign the attached consent form as an indication that you are willing to participate in the exercise. Feel free to ask any questions regarding the consent form and the project as a whole.

Time of recording:……

Date:……

Place: ……..

Researcher:……

Participant:…….....

PART 1: PARTICIPANT DEMOGRAPHIC INFORMATION QUESTIONNAIRE

Gender: ……..

1. Age group: 18-24 35-45 46-55 (*circle the appropriate*)
2. Highest qualification:……..

PART 2: INTERVIEW QUESTIONS

1. Educational background (pre, primary, and high school). Indicate the type of schools you attended (private or public) and the medium of communication.
2. Which of the two official languages of Eswatini do you use in your environment (at home, with your peers, in your community)
3. Have you ever spent time in environments where English is used as a first language? If yes, please indicate the approximate amount of time spent in such an environment.
4. Are you exposed to other varieties of English other than British English? If so, state the variety(ies)

APPENDIX F: WORD LIST

PART 3: READING ALOUD EXERCISE

Word list

Read aloud the words below.

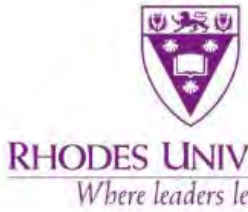
1. Trouble
2. Couple
3. Muffle
4. Gentle
5. Shovel
6. Lethal
7. Channel
8. Bushel
9. Sachel
10. Uncle
11. Jungle
12. Peril
13. Open
14. Ribbon
15. Cotton
16. Heathen
17. Lesson
18. Prison
19. Fusion
20. pardon
21. Rhythm
22. Prism

23. Chasm
24. fathom
25. Castle
26. Muscle
27. Whistle
28. Candle
29. Bacon
30. Meddle
31. Medal
32. Peddle
33. Wrestle
34. Italy
35. Catalogue
36. Riband
37. Incident
38. important
39. gentleman
40. bottleneck
41. troublesome
42. suddenly
43. broken
44. thicken
45. circled
46. candlelight
47. coupled
48. buttonhole

49. handsome

50. woodenheaded

APPENDIX G: RU-HREC APPROVAL CERTIFICATES



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21 November 2022

thulisile dlamini

Email: g20d5762@campus.ru.ac.za g20d5762@campus.ru.za

Review Reference: 2022-5850-7266

Dear thulisile dlamini

Title: Vowel epenthesis in syllable structures containing syllabic consonants in Swati English

Researcher: Thulisile Dlamini

Supervisor: Professor William Bennett

This letter confirms that the above research proposal has been reviewed and **APPROVED** by the Rhodes University Human Research Ethics Committee (RU-HREC). Your Approval number is: 2022-5850-7266

Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period. You will receive an email notifying you when the annual report is due.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this report is to indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloguing number allocated.

Sincerely,

Janet Hayward

Dr Janet Hayward

Chair: Rhodes University Human Research Ethics Committee, RU-HREC

cc: Ethics Coordinator

RHODES UNIVERSITY
Where leaders learn

Rhodes University Human Research Ethics Committee
PO Box 94, Makhanda, 6140, South Africa
t: +27 (0) 46 603 7727
f: +27 (0) 46 603 8822
e: ethics-committee@ru.ac.za

https://www.ru.ac.za/researchgateway/ethics/

15 November 2023

Miss Thulisile Dlamini

Email: g20d5762@campus.ru.ac.za

Review Reference: 2023-5850-8192

Dear Miss Thulisile Dlamini

Re: Human ethics renewal application: Vowel epenthesis in syllable structures containing syllabic consonants in Swati English

Researcher: Miss Thulisile Dlamini

Supervisors: Professor William Bennett ,

This letter confirms that the above Annual Report has been reviewed and **APPROVED** by the Rhodes University Human Research Ethics Committee (RU HREC). Your Approval number is: 2023-5850-8192

Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period.

Please ensure that the Human Research Ethics Committee is notified should any substantive change(s) be made, for whatever reason, during the research process. Thi includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this repo is to indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the Human Research Ethic Committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository please notify the committee of the date of submission and/or any reference or cataloguing number allocated.

Sincerely,

Janet Hayward

Dr Janet Hayward

Chair: Rhodes University Human Research Ethics Committee, RU-HREC

cc: Ethics Coordinator

APPENDIX H: HSREC APPROVAL CERTIFICATE

UNIVERSITY OF ESWATINI

NOTICE OF APPROVAL

Human Subjects Research Ethics Committee (HSREC)

Date:	27 January 2023
HSREC Ref. No.:	2022-HSREC-005-FR
Type of Application:	Full Review (FR)
Project Title:	Vowel epenthesis in syllable structures containing syllabic consonants in Swati English

Dear Ms. Thulisile G. Dlamini,

Your Initial Application Forms for a Full Review of protection of human research participants in your study submitted on 22nd September 2022 and resubmitted on the 6th December 2022 was reviewed and **approved** by the Human Subjects Research Ethics Committee on the 24th January 2023.

Please attend to the following concerns on your application:

1. Please revise your consent form and information sheet, they are too long. These documents should ideally be one-pagers to enable participants to get all the information they need, to make an informed decision, without having to spend too much time reading.

Please note below expiration date of this approved submission:

Protocol approval date	Protocol expiration date
27 January 2023	27 January 2024

Investigator responsibilities

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the HSREC, the researcher must notify the REC of these changes.

Please use the HSREC Register Number, **2022-HSREC-005-FR**, on any documents or correspondence with the HSREC concerning your project.

Please note that the HSREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process. *In this regard, the HSREC notes that you attached a letter of request to the Registrar seeking permission to undertake the study,* ***kindly share the letter of approval with the URC****.*

Continuation of projects after HSREC approval period

You are required to submit a progress report to the HSREC before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary).

Once you have completed your research, you are required to submit a final report to the HSREC for notification and review.

Included documents

Identity	File name	Date	Version
HSREC FORM 01	Application for ethics approval of confidential research involving human responses/participants	06.12.2022	1
HSREC FORM 02	Description of research dealing with human subjects	06.12.2022	1
HSREC FORM 03	Personal declaration of responsibility for human subjects research	06.12.2022	1
Comments	Response to HSREC Comments	06.12.2022	1
Research project documents	Revised Application Letter (HSREC) Revised Application Letter (UNESWA Registrar) Revised Participation Letter Revised Consent Form Revised Information Sheet Revised Data Collection Tools Revised Research Proposal Revised Poster	06.12.2022	1 1 1 1 1 1 1 1

If you have any questions or need further help, please contact the UNESWA Research Centre at research@uniswa.sz

Sincerely,

Prof. H. R. Mloza Banda
Director, UNESWA Research Centre (URC)

Principal Investigator Responsibilities

Protection of Human Research Participants

As soon as Research Ethics Committee approval is confirmed by the REC, the principal investigator (PI) is responsible for the following:

Conducting the Research: The PI is responsible for making sure that the research is conducted according to the REC-approved research protocol. The PI is jointly responsible for the conduct of co-investigators and any research staff involved with this research. The PI must ensure that the research is conducted according to the recognised standards of their research field/discipline and according to the principles and standards of ethical research and responsible research conduct.

Participant Enrolment: The PI may not recruit or enrol participants unless the protocol for recruitment is approved by the REC. Recruitment and data collection activities must cease after the expiration date of REC approval. All recruitment materials must be approved by the REC prior to their use.

Informed Consent: The PI is responsible for obtaining and documenting affirmative informed consent using only the REC-approved consent documents/process, and for ensuring that no participants are involved in research prior to obtaining their affirmative informed consent. The PI must give all participants copies of the signed informed consent documents, where required. The PI must keep the originals in a secured, REC-approved location for at least five (5) years after the research is complete.

Continuing Review: The REC must review and approve all REC-approved research proposals at intervals appropriate to the degree of risk but not less than once per year. There is no grace period. Prior to the date on which the REC approval of the research expires, it is the PI's responsibility to submit the progress report in a timely fashion to ensure a lapse in REC approval does not occur. Once REC approval of your research lapses, all research activities must cease, and contact must be made with the REC immediately.

Amendments and Changes: Any planned changes to any aspect of the research (such as research design, procedures, participant population, informed consent document, instruments, surveys or recruiting material, etc.), must be submitted to the REC for review and approval before implementation. Amendments may not be initiated without first obtaining written REC approval. The only exception is when it is necessary to eliminate apparent immediate hazards to participants and the REC should be immediately informed of this necessity.

Adverse or Unanticipated Events: Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research-related injuries, occurring at this institution or at other performance sites must be reported to the REC within five (5) days of discovery of the incident. The PI must also report any instances of serious or continuing problems, or non-compliance with the RECs requirements for protecting human research participants.

Research Record Keeping: The PI must keep the following research-related records, at a minimum, in a secure location for a minimum of five years: the REC approved research proposal and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence and approvals from the REC.

Provision of counselling or emergency support: When a dedicated counsellor or a psychologist provides support to a participant without prior REC review and approval, to the extent permitted by law, such activities will not be recognised as research nor the data used in support of research. Such cases should be indicated in the progress report or final report.

Final reports: When the research is completed (no further participant enrolment, interactions or interventions), the PI must submit a Final Report to the REC to close the study.

On-Site Evaluations, Inspections, or Audits: If the researcher is notified that the research will be reviewed or audited by the sponsor or any other external agency or any internal group, the PI must inform the REC immediately of the impending audit/evaluation.

APPENDIX I: GATEKEEPER PERMISSION LETTER

Rhodes University
Drosty Road,
Grahamstown,
6139

27 January 2023

The Registrar
University of Eswatini
Private Bag 4
Kwaluseni
M201

Dear Dr Simelane

REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT UNESWA

I am a registered PhD student in the Department of Linguistics and Applied Language Studies at Rhodes University. My supervisor is Professor William Bennett. I am also a lecturer in the Department of English Language and Literature, Faculty of Humanities at the University of Eswatini. I hereby write to seek your consent to collect data from students and staff at UNESWA.

The topic of my research is: *Vowel epenthesis in syllable structures containing syllabic consonants in Swati English.* The objectives of the study are:

(a) To describe the linguistic factors of vowel epenthesis in clusters containing syllabic consonants in Swati English (SwE).
(b) To describe the syllable structure of clusters containing syllabic consonants after vowel epenthesis in SwE, and to explain what determines the epenthetic site.
(c) To identify and describe the variants of the epenthetic vowel and to explain what determines the quality of the epenthetic vowel in SwE.
(d) To model the variation in vowel quality within Optimality Theory.

The participants will be reading aloud a list of English words containing syllabic consonants. They will also be requested to answer a questionnaire that seeks their biographic information. To assist you in reaching a decision, I have attached to this letter:

(a) A copy of an ethical clearance certificate issued by Rhodes University and UNESWA
(b) A copy the research instruments which I intend using in my research

Should you require any further information, please do not hesitate to contact me or my supervisor. Our contact details are as follows: Thulisile Dlamini (researcher), email

address: gciniledl@gmail.com, telephone number: +268 76058447.
Supervisor: Professor William Bennett at email: w.bennett@ru.ac.za.

Upon completion of the study, I undertake to provide you with a feedback.

Your permission to conduct this study will be greatly appreciated.

Yours sincerely,

Thulisile Dlamini

APPENDIX J: LETTER OF GRANT TO CONDUCT RESEARCH AT UNESWA

UNIVERSITY OF ESWATINI

Private Bag No. 4, Kwaluseni M201, Eswatini
Tel. (+268) 2517 0000 Fax. (+268) 2517 0001
Email: registrar@uniswa.sz
Website. www.uniswa.sz

REGISTRAR'S OFFICE

31 January 2023

Thulisile Dlamini
Rhodes University
Drosty Road
Grahamstown
6139

Dear Madam

RE: REQUEST TO CONDUCT RESEARCH AT UNESWA

Permission has been granted to Ms Thulisile Dlamini to conduct research at UNESWA for the project "Vowel epenthesis in syllable structures containing syllabic consonants in SiSwati English.

Yours Sincerely

Q.Z. Matse
Senior Assistant Registrar (Corporate Affairs)

cc: w.bennett@ru.ac.za

APPEND IX K: ACROLECT RAW DATA

ACROLECT RAW DATA

WORD	BrE PRC	P7MYA	P9FYA	P11MYA	P19MYA	P21MOA	TOTA	EP. FR	EP. QU	EP. SITE	syllabi	freq
trouble	trʌb.l̩	trabəl	trabul	trabul	trabul	trabul	5	100	u/ə	before /l	0	0
couple	kʌp.l̩	kapəl	kapul	kapul	kapul	kapəl	5	100	u/ə	before /l	0	0
muffle	mʌf.l̩	mafəl	maful	maful	maful	mafəl	5	100	u/ə	before /l	0	0
gentle	ʤen.tl̩	ʤen.tl̩	ʤen.tl̩	ʤen.tl̩	ʤen.tl̩	ʤeŋkl	0	0	ø	N/A	4	80
shovel	ʃʌv.l̩	ʃovəl	ʃovel	ʃovel	ʃovəl	ʃovəl	5	100	ə/e	before /l	0	0
lethal	li:.θl̩	leθel	leθel	liθəl	liθəl	leθal	5	100	ɐ/ə/a	before /l	0	0
channel	ʧæn.l̩	ʧanəl	ʧanɐl	ʧanel	ʧanel	ʧanel	5	100	ə/ɐ/e	before /l	0	0
bushel	bʊʃ.l̩	buʃəl	baʃel	buʃel	baʃəl	buʃel	5	100	ə/ɐ/e	before /l	0	0
sachel	sætʃ.l̩	satʃəl/sel	satʃɐl	seʃəl	satʃl̩	satʃel	4	80	ə/ɐ/e	before /l	1	20
uncle	ʌŋ.kl̩	aŋ.kl̩	aŋ.kl̩	aŋ.kl̩	aŋ.kl̩	aŋ.kl̩	0	0	ø	N/A	5	100
jungle	ʤʌŋg.l̩	ʤaŋg.l̩	ʤaŋg.l̩	ʤaŋg.l̩	ʤaŋg.l̩	ʤaŋg.l̩	0	0	ø	N/A	5	100
peril	per.l̩	peril	perɐl	perəl	per.l̩	perəl	4	80	ɐ/ə/i	before /l	1	20
open	əʊ.pn̩/ ə	ɔʊpən	ɔʊpen	ɔʊpen	open	open	5	100	ə/e	before /ɪ	0	0
ribbon	rib.n̩/ ril	ribən	ribɐn	reíbo	ribon	ribən	4	100	ɐ/o/ə	before /r	0	0
cotton	kɒt.n̩	kot.n̩	kotɐn	kotin	kotin	kot.n̩	3	60	ɐ/i	before /r	2	40
heathen	hi:.ðn̩	he.ðn̩	hiðɐn	hiten	hiten	hiðen	4	80	ɐ/e	before /ɪ	1	20
lesson	les.n̩	lesin	les.n̩	lesin	lesin	lesən	4	80	i/ə	before /r	1	20
prison	priz.n̩	prizin	prizɐn	prizin	prizin	prizin	5	100	i/ɐ	before /ɪ	0	0
fusion	fju:.ʒn̩	fjuʒin	fjuʒɐn	fjuʒin	fjuʒən	fjuʒin	5	100	ɐ/ə/i	before /r	0	0
pardon	pɑ:.dn̩	pa.dn̩	padɐn	padən	padən	pad.n̩	3	60	ɐ/ə	before/n	2	40
rhythm	rɪðm̩	riðəm	riðɐm	riðəm	riðəm	riðɪm	5	100	ə/ɐ/ɪ	before /r	0	0
prism	priz.m̩	prizim	prizɐm	prizim	prizim	prizim	5	100	i/ɐ	before /ɪ	0	0
chasm	kæz.m̩	ʧizəm	ʧazɐm		ʧazim	ʧazim	4	100	ə/ɐ/i	before /r	0	0
fathom	fæð.m̩	feð.m̩	faðɐm	faðəm	faðəm	faθom	4	80	ɐ/ə/o	before/n	1	20
castle	ka:s.l̩	kasəl	kɐsɐl	kasəl	kasel	kas.l̩	4	80	ə/ɐ/e	before /l	1	20
muscle	mʌs.l̩	masəl	masɐl	masəl	masəl	mas.l̩	4	80	ə/ɐ/e	before /l	1	20
whistle	*h*wɪs.l̩	hwis.l̩	wisɐl	wis.l̩	wisəl	wis.l̩	2	40	ɐ/ə	before /l	3	60
candle	kæn.dl̩	kenŋgl	ken.d.l̩	ken.dl̩	ken.dl̩	ken.dl̩	0	0	ø	N/A	4	80
bacon	beɪk.(ə)	beikən	beikɐn	beikon	beikən	beikon	5	100	ɐ/ə/o	before /r	0	0
meddle	med.l̩	med.l̩	medɐl	mend.l̩	med.l̩	med.l̩	1	20	ɐ	before /l	4	80
medal	med.l̩	medal	medal	medal	medəl	medal	5	100	a/ɐ	before /l	0	0
peddle	ped.l̩	ped.l̩	pedɐl	pedəl	ped.l̩	ped.l̩	2	40	ɐ/ə	before /l	3	60
wrestle	res.l̩	res.l̩	resɐl	resəl	resəl	res.l̩	3	60	ɐ/ə	before /l	2	40
Italy	it.l̩i	itali	itali	itali	itali	itali	5	100	a	before /l	0	0
catalog	kæt.l̩.ɒg	katalog	katalog	katalog	katalog	katalog	5	100	a	before /l	0	0
riband	rib.(ə)n̩	ribend	ribend	ribend	ribend	ribend	5	100	e	before /l	0	0
inciden	in.si.dn̩t	insident	insidɐnt	insident	insident	insident	5	100	e/ɐ	before /ɪ	0	0
importa	impɔ:.tn̩	impotent	impoter	impotent	impotent	impoten	5	100	e	before /ɪ	0	0
gentlen	ʤen.tl̩.n	ʤen.tl̩.m	ʤen.tl̩.ɪ	ʤen.tl̩.m	ʤeŋklm	ʤen.tl̩.n	0	0	ø	N/A	4	80
bottlen	bɒt.l̩.nel	botlinek	bot.l̩.ne	bot.l̩.nek	boklnek	boklnek	1	20	i	after /l/	2	40
trouble	trʌb.l̩.sə	trabulsar	trabulsa	trabulsar	trabulsar	trabulsa	5	100	u	before /l	0	0
suddenl	sʌd.n̩li	sadenli	sadenli	sadenli	sadenli	sadenli	5	100	e	before /ɪ	0	0
broken	brəʊk.n̩	broken	broken	broken	broken	broken	5	100	e	before /ɪ	0	0

thicken	θɪk.n̩	θiken	θiken	θiken	θiken	θikən	5	100	e/ə	before /ɪ	0	0
circled	sɜ:k.l̩.ɪd	sek.l̩d	sek.l̩d	sek.l̩d	sek.l̩d	sek.l̩d	0	0	ø	N/A	5	100
candlel	kæn.dl̩.l	keŋgllait	ken.d.l̩.l	ken.dl̩.la	ken.dl̩.la	ken.dl̩.la	0	0	ø	N/A	4	80
couplec	kʌp.l̩d	kapuld	kapult	kapuld	kapult	kapuld	5	100	u	before /l	0	0
buttonh	bʌt.n̩.hə	bat.n̩.hol	batenho	botonhol	batinhol	batinhol	4	80	i/o/ɐ	before /ɪ	1	20
handsoı	hænd.s(	hensam	hensam	hensam	hensam	hensam	5	100	a	before /ɪ	0	0
wooder	wʊd.n̩.h	wudenhe	wudenh	wudenhe	wudenhe	wudenhi	5	100	e	before /ɪ	0	0
							Mean	**74.8**				**22.8**
Total N	50	50	50	48	50	50	**248**					
Ep. occurences		34	41	38	38	34	**185**					
EP. FREQUEN		68	82	79.17	76	68	**74.8**					
SYL. CONS. C		14	9	10	10	14	**57**					
SYL. CONS. F		28	18	20.83	20	28	**22.8**					

APPENDIX L: MESOLECT RAW DATA

MESOLECT RAW DATA

WORD	BrE PRONUNCIATION	P1MYM	P2MYM	P3MYM	P4FYM	P5MYM	P6FYM	P8FYM	P10MYM	P12FOM	P13FYM
trouble	trʌb.l̩	trabul	trabul	trabul	trabul	trabul	trabul	trabul	trabul	trabul	trabul
couple	kʌp.l̩	kapul	kapul	kapul	kapul	kapul	kapul	kapul	kapul	kapul	kapul
muffle	mʌf.l̩	mafli	mafli	maful	maf.l̩	mafel	maful	maful	mafli	maful	maful
gentle	ʤen.tl̩	ʤeŋkli	ʤeŋkli	ʤeŋkli	ʤeŋkli	ʤent.l̩	ʤent.l̩	ʤen.tl̩	ʤentli	ʤen.tl̩	ʤeŋkli
shovel	ʃʌv.l̩	ʃovel	ʃov	ʃovel	ʃovel	ʃovel	ʃovel	ʃovel	ʃovel	ʃovel	ʃovel
lethal	liː.θl̩	leθal	latal	leθal	leθal	leθal	leθal	leθal	liθel	liθal	liðal
channel	ʧæn.l̩	ʧanel	ʧanel	ʧanel	ʧanel	ʧanel	ʧanel	ʧanel	ʧenel	ʧanel	ʧenel
bushel	bʊʃ.l̩	buʃel	buʃel	buʃel	buʃel	buʃel	buʃel	buʃel	buʃel	buʃel	buʃel
sachel	sætʃ.l̩	satʃel	sadʒel	satʃel	setʃel	setʃel	satʃel	seiʃel	satʃel	seitʃel	setʃel
uncle	ʌŋ.kl̩	aŋkli	aŋkli	aŋkli	aŋkli	aŋkl	aŋk.l̩	aŋ.kl̩	aŋkli	aŋ.kl̩	aŋkli
jungle	ʤʌŋg.l̩	ʤaŋgli	ʤaŋgli	ʤaŋgli	ʤaŋgli	ʤaŋgl	ʤaŋg.l̩	ʤaŋg.l̩	ʤaŋgli	ʤaŋg.l̩	ʤaŋgli
peril	per.l̩	peril	perifil	peril	peril	peril	peril	peril	periel	peril	perel
open	əʊ.pn̩/ əʊ.pm	open	open	open	ɔʊpen	oɲən	open	open	open	open	open
ribbon	rib.n̩/ rib.m	ribon	ribon	ribon	ribon	ribon	ribon	ribon	ribon	ribon	ribon
cotton	kɒt.n̩	kotin	kotin	kotin	kotin	kotin	kotin	kotin	kotin	kotin	kotin
heathen	hiː.ðn̩	heθen	hiθen	hiθen	hiðen	hiðen	heθen	hiðen	heiten	hiðen	hiðen
lesson	les.n̩	lesin	lesin	lesin	lesin	lesin	lesin	lesin	lesin	lesin	lesin
prison	priz.n̩	prizin	prizin	prizin	prizin	prizin	prizin	prizin	prizin	prizin	prizin
fusion	fjuː.ʒn̩	fjuʒin	fiʒin	fjuʒin	fjuʒin	fjuʒin	fjuʒin	fjuʒin	fjuʒin	fjuʒin	fjuʒin
pardon	pɑː.dn̩	padon	padon	padin	padin	padɛn	padin	padin	paden	padin	padin
rhythm	rɪðm̩	riðim	ridim	riðim	riðim	riðim	riðim	ridim	ridim	riðim	riðim
prism	priz.m̩	prizim	prizim	prizim	prizim	prizim	prizim	prizim	prizim	prizim	prizim
chasm	kæz.m̩	ʧams	ʧazm̩	ʧazim	ʧazim	kazim	ʧazim	ʧeizim	ʧezim	ʧazim	ʧazim
fathom	fæð.m̩	faθom	fantom	feθom	fadom	faθom	faθom	faðom	fatom	faθom	faθom
castle	kaːs.l̩	kasel	ketli	kesli	kasli	kas.l̩	kas.l̩	kes.l̩	kasel	kasel	kas.l̩
muscle	mʌs.l̩	masel	masel	masel	masel	mas.l̩	masel	mas.l̩	masel	masel	masel
whistle	ʰwɪs.l̩	hwisli	wisli	wisli	hwisli	wis.l̩	hwisli	hwis.l̩	wisli	hwɪsəl	hwisli

P14MM	P15FYM	P16FYM	P17FYM	P18FYM	P20FMM	P22FMM	TOTAL	EP. FRE	EP. QUA	EP. SITE	syllabic c	frequency
trabul	trabul	trabul	trabul	trabul	trabul	trabul	17	100	u	before /l/	0	0
kapul	kapul	kapul	kapul	kapul	kapul	kapul	17	100	u	before /l/	0	0
maful	maful	maful	maful	maful	maful	maful	16	94.12	u/i/e	u/e before	1	5.89
dʒeŋkli	dʒeŋkl	dʒen.tl̩	dʒentli	dʒeŋkli	dʒen.tl̩	dʒenti	10	58.82	i	after /l/	6	35.29
ʃovel	ʃovel	ʃovel	ʃovel	ʃovel	ʃovəl	ʃovel	16	100	e/ə	before /l/	0	0
liðal	leθal	lidal	leðal	letal	liθal	letal	17	100	a/e	before /l/	0	0
tʃanel	tʃanel	tʃanel	tʃanel	tʃanel	tʃanel	tʃanel	17	100	e	before /l/	0	0
baʃel	baʃel	baʃel	baʃel	buʃel		buʃel	16	100	e	before /l/	0	0
seitʃel	satʃel	satʃel	satʃel	satʃel		setʃel	16	100	e	before /l/	0	0
aŋkli	aŋkl	aŋ.kl̩	aŋkli	aŋkli	aŋ.kl̩	aŋkli	10	58.82	i	after /l/	5	29.41
dʒaŋgli	dʒaŋgl	dʒaŋg.l̩	dʒaŋgli	dʒaŋgli	dʒaŋg.l̩	dʒaŋgli	10	58.82	i	after /l/	5	29.41
peril	peril	peril	peril	peril		peril	15	100	i/e/ie	before /l/	0	0
open	open	open	open	open	open	open	17	100	e/ə	before /n/	0	0
ribon	ribon	ribon	ribon	ribon	ribon	ribon	17	100	o/ɐ	before /n/	0	0
kotin	kotin	kotin	kotin	kotin	kotin	kotin	17	100	i	before /n/	0	0
hiðen	hiθen	hiðen	hiðen	hiten	hiðen	heθen	17	100	e	before /n/	0	0
lesin	lesin	lesin	lesin	lesin	lesin	lesin	17	100	i	before /n/	0	0
prizin	prizin	prizin	prizin	prizin	prizin	prizin	17	100	i	before /n/	0	0
ʃjuʒin	ʃjuʒin	ʃjuʒin	ʃjuʒin	ʃjuʒin	ʃjuʒin	ʃjuʒin	17	100	i	before /n/	0	0
padon	padon	padin	padon	padon	padɐn	padon	17	100	i/o/ɐ	before /n/	0	0
riðim	riðim	riðim	riðim	riðim	riðəm	riðim	17	100	i/ə	before /m/	0	0
prizim	prizim	prizim	prizim	prizim	prizim	prizim	17	100	i	before /m/	0	0
tʃeizim	tʃezim	tʃazim	tʃazim	tʃam	tʃam	tʃazim	13	92.86	i	before /m/	1	7.14
faðom	faθom	fatom	faθom	fantom	fantom	fatom	17	100	o	before /m/	0	0
kasel	kas.l̩	kasəl	kasel	kasel	kasel	kasli	11	68.75	e/i/ə	e and ə be	5	31.25
masel	masel	masəl	masel	masel	masel	masli	15	88.24	e/i/ə	e/ə before	2	11.76
wisli	hwis.l̩	wis.l̩	wisli	hwisli	wisli	wisli	13	76.47	i/ə	i after /l/;	4	23.53

candle	kæn.dl̩	keŋgli	keŋgli	keŋgli	kand.l̩	kandl	kand.l̩	ken.dl̩	kadli	ken.dl̩	keŋgli
bacon	beɪk.(ə)ɲ̩/ beɪk.(ə)ŋ	beikon	beikon	beikon	beikon	beikɐn	beikon	beikon	beikon	beikon	beikon
meddle	med.l̩	medli	midli	medli	med.l̩	med.l̩	med.l̩	med.l̩	medli	med.l̩	miŋgli
medal	med.l̩	medal	medal	medal	medal	medal	medal	medal	medal	medal	medal
peddle	ped.l̩	pedli	pedli	pedli	ped.l̩	ped.l̩	ped.l̩	ped.l̩	pedli	ped.l̩	pedli
wrestle	res.l̩	resli	restli	resli	resli	res.l̩	res.l̩	res.l̩	hwisli	res.l̩	resli
Italy	it.l̩i	itali	itali	itali	itali	itali	ital	itali	itali	itali	itali
catalogue	kæt.l̩.ɒg	katalog	katalog	katalog	katalog	katalog	katalog	katalog	katalog	katalog	katalog
riband	rib.(ə)ɲ̩d	ribend	ribend	ribend	ribend	ribend	ribend	ribend	riband	raibend/ril	ribend
incident	in.si.dn̩t	insident	insident	insident	insident	insident	insident	insident	insident	insident	insident
important	impɔ:.tn̩t	impotent	impotent	impotent	impotent	impotent	impotent	impotent	impotent	impotent	impotent
gentlemen	ʤen.tl̩.mən	ʤeŋklime	ʤeŋklime	ʤeŋklime	ʤeŋklime	ʤeŋklime	ʤen.tl̩.me	ʤen.tl̩.me	ʤeŋklime	ʤeŋklime	ʤeŋklime
bottleneck	bɒt.l̩.nek	boklinek	boklinek	boklinek	boklinek	bot.l̩.nek	bot.l̩.nek	bot.l̩.nek	boklinek	boklnek	boklinek
troublesor	trʌb.l̩.səm	trabulsam	trabulsam	trabulsam	trabulsam	trabulsam	trabulsam	trabulsam	trabulsam	trabulsam	trabulsam
suddenly	sʌd.n̩li	sadenli	sadenli	sadenli	sadenli	sadenli	sadenli	sadenli	sadenli	sadenli	sadenli
broken	brəuk.n̩	broken	broken	broken	broken	broken	broken	broken	broken	broken	broken
thicken	θɪk.n̩	θiken	tiken	θiken	θiken	θiken	θiken	θikin	θiken	θiken	θiken
circled	sɜ:k.l̩.ɪd	seklid	seklid	seklid	sekld	sekld	set.l̩.d	sek.l̩d	seklid	sek.l̩d	seklid
candlelig	kæn.dl̩.laɪt	kendrilait	keŋglilait	keŋglilait	keŋgllait	keŋgllait	ken.dl̩.lait	ken.dl̩.lait	keŋglilait	ken.dl̩.lait	kendlilait
coupled	kʌp.l̩d	kapul	kapuld	kapuld	kapuld	kapuld	kapuld	kapult	kapuld	kapuld	kapult
buttonhol	bʌt.n̩.həʊl	botonhol	batinhol	batinhol	batinhol	batinhol	batinhol	batinhol	botonhol	batinhol	batinhol
handsome	hænd.s(ə)m̩	hensam	hensam	hensam	hensam	hensam	hensam	hensam	hensam	hensam	hensam
woodenhe	wʊd.n̩.hedɪd	wudenhed	wudenhed	wudenhed	wudenhed	wudenhed	wudenhed	wudenhid	wudenhed	wudenhid	wudenhid

Total No.	50	49	47	50	50	50	50	50	49	50	50
Ep. occurences		49	46	50	44	37	38	36	49	40	49
FREQUENCY %		100	97.87	100	88	74	76	72	100	80	98
SYL. CONS. OCC.		0	1	0	4	8	12	14	0	9	1
SYL. CONS. FREQUENCY %		0	2.17	0	8	16	24	28	0	18	2

keŋgli	ken.dl̩	ken.dl̩	keŋgli	keŋgli	ken.dl̩	keŋgli	9	52.94	i	after /l/	7	41.18
beikon	beikon	beikon	beikon	bekon	beikon	bekon	17	100	o/ɐ	before /n/	0	0
medli	medl	midli	medli	medli		midli	10	62.5	i	after /l/	5	29.41
medal	medal	medal	medal	medal	medal	medal	17	100	a	before /l/	0	0
pedli	pedl	pedli	pedli	pedli		pedli	10	62.5	i	after /l/	5	31.25
resəl	res.l̩	resə	resli	resli	resli	resli	10	66.67	i/ə	i after /l/;	5	33.33
itali	itali	itali	itali	itali	itali	itali	17	100	a	before /l/	0	0
katalog	katalog	katalog	katalog	ketalog	katalog	katalog	17	100	a	before /l/	0	0
ribend	riband	ribend	riband	ribend		ribend	16	100	e	before /n/	0	0
insident	insident	insident	insident	insident	insident	insident	17	100	e	before /n/	0	0
impotent	impotent	impotent	impotent	impotent	impotent	impotent	17	100	e	before /n/	0	0
ʤeŋklime	ʤeŋklime	ʤentmen	ʤeŋklime	ʤeŋklime	ʤeŋklime	ʤentimen	14	82.35	i	after /l/	2	11.76
boklinek	boklinek	botnek	boklinek	boklinek		boklinek	11	68.75	i	after /l/	3	18.75
trabulsam	trabulsam	trabulsam	trabulsam	trabulsam	trabulsam	trabulsam	17	100	u	before /l/	0	0
sadenli	sadenli	sadenli	sadenli	sadenli	sadenli	sadenli	17	100	e	before /n/	0	0
broken	broken	broken	broken	broken	broken	broken	17	100	e	before /n/	0	0
θiken	θiken	θiken	θiken	θiken	θiken	θiken	17	100	e/i	before /n/	0	0
seklid	seklid	sek.l̩d	seklid	seklid	sekli	seklid	11	64.71	i	after /l/	4	23.53
keŋglilait	keŋglilait	kendlilait	keŋglilait	keŋglilait	keŋglilait	keŋglilait	12	70.59	i	after /l/	6	35.29
kapult	kapuld	kapuld	kapult	kapuld	kapuld	kapuld	17	100	u	before /l/	0	0
batinhol	batinhol	batinhol	batinhol	batinhol	batinhol	batinhol	17	100	i/o	before /n/	0	0
hensam	hensam	hensam	hensam	hensam	hensam	hensam	17	100	a	before /m/	0	0
wudenhed	wudenhid	wudenhed	wudenhed	wudenhed	wudenhed	wudenhed	17	100	e	before /n/	0	0
								90.37				7.96

50	50	50	50	49	42	50	**836**	COLOR CODE TO MESOLECT RAW DATA
50	41	41	50	49	38	50	**757**	Red form with a syllabic consonant
100	82	82	100	100	90.48	100	**90.37**	Green no syllabic consonant and no epenthetic vowel
0	4	6	0	0	4	0	**63**	Orange form with epenthetic schwa or ɐ
0	8	12	0	0	9.52	0	**7.96**	Blue mispronunciations

APPENDIX M: THE OVERALL MIB RANKING IN THE SwE VOWEL EPENTHESIS PROCESS

Residue#	1: *P/C	2: MAX-C	3: ONSET	4: OSW	9: *il	10: SSP	11: *ə	12: *_ Δ F_t ≥ {e,	16: *SKIP	7: NUCCOND	8:DEP-V	13: * Δ σ ≤ {e,	14: *_ Δ F_t ≥ {i,	17:IO-IDENT [place]	5: NOCODA	15: INTEGRITY	18: IO-IDENT [consonantal	6: *COMPLEX
f.L.0001.2.3.4.9.10.11.12	W									L	L	L	L		L	L	L	L
f.L.0001.2.4.9.10.11.12	W		W							L	L	L	L	L	L	L	L	L
f.L.0001.1.3.4.9.10.11.12		W								L	L	L	L		L	L	L	L
f.L.0001.1.2.4.9.10.12.17			W				W		W		L	L	L		L	L	L	L
f.L.0001.1.2.3.9.11.12				W		W				L	L	L	L	L	L	L	L	L
f.L.0001.1.2.3.4.10.11.12.17					W						L	L	L		L	L	L	L
f.L.0001.1.2.3.4.9.11.12						W				L	L	L	L		L	L	L	L
f.L.0001.1.2.3.4.9.10.12							W				L	L	L	W	L	L	L	L
f.L.0001.1.2.3.4.9.10.12.17.8.5.15							W					L	L					
f.L.0001.1.2.3.4.9.10.11.8.5.15								W				L		L			L	
f.L.0001.1.2.3.4.9.10.11.12											W	W	W		L	L	L	L
f.L.0001.1.2.3.4.9.10.11.8.12.15															W			L
f.L.0001.1.2.3.4.9.10.11.8.5.12																W	W	L