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DEPARTMENT OF ENGLISH

A STUDY OF THE IMPACT OF AKAN INTONATION ON ENGLISH IN GHANA

A THESIS SUBMITTED TO THE DEPARTMENT OF ENGLISH IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF PHILOSOPHY IN ENGLISH

BY

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DECLARATION

I hereby declare that this thesis is my own original work towards the attainment of an MPhil degree from the Kwame Nkrumah University of Science and Technology. It does not contain any material previously published by another person or which has been awarded any other degree of the university, except where reference and acknowledgement has been made in the text.

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DATE **DR KOFI ADU MANYAH**

…… ……

DATE **HEAD OF DEPARTMENT**

DEDICATION

This work is dedicated to my wife – Afua Sarpong, my children – Nana Appau, Osei Asabere and Ohemaa Akyaa, and my mother – Ama Akyaa.

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ABSTRACT

The aim of this research is to investigate the intonation patterns of English employed by the Akan speakers in Kumasi, Ghana. The researcher hypothesises that the intonation patterns Ghanaian speakers of English use varied from those of the L_1 speakers of English such as

Britons and Americans. It is further hypothesised that the intonation patterns of Ghanaian speakers of English are influenced by their L_1 i.e. Akan for the purpose of this study. In finding out the validity or otherwise of these claims, the researcher studies the intonation patterns of Akan and Ghanaian English. Also, the intonation patterns of Ghanaian English and those of Akan, American and British English are compared. To achieve this objective, the researcher selects declarative and interrogative statements with intransitive, transitive and ditransitive verbs. The stress patterns are rotated among the initial and the final words of the statements in the data. Two males and one female participants having Akan as first language are selected from Kumasi, the Ashanti regional capital, Ghana. The data set is recorded and saved in wav. format. The sound files are run on PRAAT and operated to get rid of unwanted points in the speech contours of the statements recorded. Ending intonation patterns are kept in the form of images and later branded in accordance with the ToBI theory of intonation. Speech patterns of Akan and Ghanaian English produced by Akan speakers are then paralleled. The frequency of the patterns are created and tabulated. The outcomes of earlier studies relating to American and British speakers' use of intonation patterns are used as a tool for comparing intonation patterns of Ghanaian English and those of the native varieties of English. In the end, I map the speech patterns of Ghanaian English on that of Akan, American and British English. The outcomes show that the pitch contour of declarative statements in Akan and Ghanaian English is similar. It similarly indicates that there is a vivid variation in the American, British and Ghanaian English speakers' use of speech contours for declarative statements. Identical is the outcome for yes/no and wh-interrogatives since the influence of Akan on the intonation aptterns of English in Ghana is obvious. The discovery shows that the Akan speakers of English in Ghana transfer the first language's speech contours to English which is a second language to them. The study again establishes that the speech contours employed by Akan speakers of Ghanaian English are poles apart from those

of the Americans and Britons. The study highlights the importance for teachers of English in Ghana to incorporate an exhaustive discussion of speech patterns in teaching and learning to highlight the diversity between Ghanaian, American and the British speakers' use of speech contours in English.

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CHAPTER ONE

GENERAL INTRODUCTION

1. 0. Introduction

This chapter provides the background to the study. It begins with an overview of English as a global language and how the English language was introduced to Ghanaians. The overview enables one to understand the nature of English in Ghana better. The research problem, the purpose of the research; the objectives and the research questions are also stated in this chapter. These are followed by the significance and justification of the study.

1.1. Background of the Study

1.1.1. English as a World Language

English language has been and is still on the move since it arrived from northern Europe into England in the 5th Century (Appartaim, 2009). It has been christened "English as a world language", "English as a global language" or simply "World English", (McArthur, 1999). This is the reason, according to Kachru (1992: 375), "the term 'English' does not capture the sociolinguistic reality, the term 'Englishes' does". It is a result of plurality that the term 'World Englishes' was used as an 'umbrella label' to capture all the diversities of English universally and the varied methodologies used in describing them (Kachru, 1997, Bolton, 2004). Krachru (1997), furthermore, sheds light on the fact that the term 'Englishes' is not by any means intended to exhibit any divisiveness in the English speaking communities globally, but recognize the distinction in forms and functions of the language used in varied regional and geographical background.

This assertion, according to Ngula (2009), has attracted numerous opponents and earned staunch supporters. Ngula mentions Prator (1968), Hocking (1974, Quirk (1985, 1990), Honey (1997) as scholars who believe Non – native Englishes are essentially

manifestation of deficient and inadequate acquisition of the native form, and are therefore illegitimate varieties that cannot claim a standard of their own and that only native speakers can claim ownership of English. According to these scholars, he continues, a common standard in the use of English must be upheld in both Inner Circle countries and Outer Circle countries. He particularly cites Quirk (1985:5) as having maintained that tolerance for variation in language use was educationally damaging in Inner Circle countries and that "the relatively narrow range of purposes for which the non – native needs to use English…..is arguably well catered for by a single monochrome standard form that looks as good on paper as it sounds in speech." Simply put, for Quirk, a common standard (supplied by the Inner Circle countries, especially the two well – documented standard varieties: British English and American English) is required in context of English usage. This clearly indicates that Quirk is in favour of the notion that non-native Englishes must kowtow to the norms and standards of native speakers who are owners and custodians of the Language.

On the other hand, scholars such as Boadi (1971), Mazrui (1975), Crystal (1997), Kachru (1986, 1992, 1996, 1997), Owusu Ansah (1991, 1992, 1994), Ferguson (1992) Widdowson (1994), Pakir (1997) Bamgbose (1997, 1998), Chisanga & Kamwangamalu (1997), Crystal (2003) and Anchimbe (2007) strongly argue for the ownership to be opened to all who use English, be they natives or non-natives. For instance, Boadi (1971) asserts that English is no more seen as a sole property of the English (America, Australia and Britain) but as an international linguistic asset. It is a language which has gained the standing of being spoken throughout the world and it is the most well-known. It is the medium of communication in some countries as a first language – L_1 (Britain, Canada and America); in some countries as a second language – ESL (Ghana, Nigeria, Uganda) and still, in some countries as a foreign language – EFL (China, Japan, Germany) (Appartaim, 2009). Crystal (1997) also comments that in a large number of countries, English has achieved a kind of

special status compared to other international languages such as French, Chinese and Dutch. Many countries such as Brazil, Japan, Germany, China, Holland and Spain prefer English to be taught in their schools as a foreign language. Mazrui (1975) acknowledges the fame English language has acquired as a world language and posits that by 1966 seventy percent (70%) of the world's mail was written in English while sixty-six percent (66%) of the world's broadcast were in English.

Kachru (1992: 1) makes use of the term 'other tongue' in referring to the use of English as an L_2. He maintains that 'other tongue' is not an innocent term because "it is a multifaceted concept with a long history and different manifestations in various regions of the world." It has been used, for instance, as a powerful tool for religious fanaticism, cultural subjugation and colonization (Ngula, 2009). In spite of the difficulties English in second language environments has suffered, it has stood the test of time. Currently, English is spoken in almost all the countries of the world. The remarkable point about this trend of English is that "the native speakers of this language seem to have lost the exclusive prerogative to control its standardization; in fact, if the current statistics are anything to go by, they rather become a minority" (Kachru, 1986: 30). Therefore, it is this sociolinguistic fact that tells why users of English in the Outer Circle particularly feels strongly that they are in the position to, like native speakers, claim ownership of English.

According to Ferguson (1992: xvi), L_1 speakers possess English since they have "control' of it; that is, they are able 'to determine its future structure and use based on their belief about the language". Beyond that, Ferguson is of the conviction that the control of English has been passed onto the L_2 users as well, remarking that "the passing of control is increasingly evident". For Widdowson (1994: 384), to own a language (in this case English) means ability "to make it your possession, bend it to your world, assert yourself through it rather than simply submit to the dictates of the form". It is crystal clear that Widdowson's

view typifies the very nature of non-native English countries including Ghana. Non-native speakers of English "put their preferences to bear on the language and so *nativise* it to fit their immediate environment – thereby bridging the gap created by foreignness of the language to these regions…" (Anchimbe, 2007: 152). By so doing, they claim ownership of English.

Recognizing this notion resulted in the formation and recognition of regional diversities of English such as Nigerian English, Ghanaian, Zimbabwean, South African and Ugandan Englishes etc. Yano (2006) posits that with modifications, the worldwide usage of English has led to the rise various Englishes which are poles apart from the British and American Standards of English. He indicates that the innovative drift in English was established by

> …adopting and adapting to local languages and cultures in its process of inevitable localization and internalization. English, or should I say Englishes, has adopted concepts and forms of indigenous languages and incorporating local cultures and traditions in order to accommodate local needs and for the sake of identities. (p. 3)

Kandiah (1998) cites colonization as a factor that led to the advancement of new inter and intra-national diversities of English language. These variations of English vary from one another phonologically, syntactically and discoursewise (Jenkins, 2003). Kamwangamalu (2010) enumerates the levels in the development of a local type of English stirring from the basis of a type and the advancement from exonormative stabilisation to nativization and then to the formation of endonormative standards. Yano (2006) labels the occurrence as de-Anglo-Americanization of English language.

Looking at arguments put forward by various scholars regarding English language being a world language, this study is in favour of the fact that English has now become a universal language and hence agrees with scholars such as Boadi (1971), Mazrui (1975),

Crystal (1997), Kachru (1986, 1992, 1996, 1997), Owusu Ansah (1991, 1992, 1994), Ferguson (1992) Widdowson (1994), Pakir (1997) Bamgbose (1997, 1998), Chisanga & Kamwangamalu (1997), Crystal (2003) and Yano (2006), Anchimbe (2007).

The universal standing of English today is ascribed to two factors which are the spreading out of British colonial power particularly towards the close of the 19th Century and the rise of the United States of America being an economic superpower of the 20th Century (Crystal, 1997 as cited by Appartaim, 2009). The spread of settlement areas had to do with the movement of a sizable number of English people to areas such as America and the Caribbean. This major and significant movement, says Crystal, marked the defining moment of the spread of English and the world. Spencer (1971) describes this as "a direct father-to-son inheritance of the settler-dominated communities in which English was carried overseas from the mother countries and implanted by native speakers" (p. 3). Atechi (2006:124) also describes America as having the largest native English-speaking population in the world.

The exploitation areas which included West, South East Asia and Africa were not re-populated with British settlers as was the case in the settlement areas. English was adopted for administrative purposes while the population continued to use their native languages which resulted in a multi-lingualistic situation. The British, in the South East Asia, colonized such countries as Malaysia, Hong Kong, India and Singapore. In East Africa countries like Tanzania, Uganda, Kenya and Malawi were colonized. In West Africa, Ghana, Gambia, Nigeria and Sierra Leone among colonized others by the British. As a result of their contact with Britain, these countries, adopted English language as either their official or second language.

1.1.2. Introduction of English in Ghana

Ghana's contact with the English dates as far back as the second half of the 15th century, when the first English ships sailed to the Guinean coast and traded in gold dust and spices (Sey, 1973 quoted in Appartaim, 2009). English is, thus, a colonial legacy. Residents (*Cudjoes*) of Cape Coast who were part of the Fante Empire were the first people to learn the English language, and later taught other people in the then Gold Coast. Mfantsipim, Cape Coast, was the first English school to be established in Gold Coast (now Ghana). This status (of their interest in learning English) endeared the Fantes to the British. Cudjoe Cabosheer, an old man and the chief of Cape Coast at the time, spoke the English language so well that it amazed the whites who could not hide their surprise and admiration for this man (Thompson, 1937 and quoted in Sackey, 1997 cited by Appartaim, 2009). The colonial government, upon realizing the interest expressed in the English language, institutionalized its use through Christian missionaries. The English Church mission trained local priests to use English in their sermons (and consequently in their daily lives). Sir Charles McCarthy (1822-1824) insisted that English was more properly taught in government schools. He ordered for textbooks for use in the schools and also made sure that English culture was inculcated in the local population (Sackey, 1997). Various funds earmarked for the schools were tied to the teaching of English, for a greater part of the colonial period. The teaching and learning of English was promoted without regard for the indigenous languages. The fate of the local languages was not helped by the rapid growth in facilities and numbers of school attendants at both the primary and secondary school levels. Schools which were built include Achimota College established in 1924 and the University of Ghana put up in 1947 (Sackey, 1997).

Notwithstanding, some administrators such as Governor Guggisberg (1919-1927), saw the essence in giving the colonized people an education in their first language and, consequently, came out with policies to that effect. However, many educated elites in Gold Coast saw their local languages as inferior and preferred the use of English as the language of instruction since they thought teaching in the local languages was a denial of access to quality education. These Gold Coasters had the belief that one's ability to communicate in English enhanced one's chance to gain entry to a high-status life and into the government service. Apparently, this mind-set of getting access to good education through English has not reformed much over the years. English language was therefore uplifted above the local languages from that time to date.

This elevation has had its effects on the study of the local languages in the present day. Currently, in the Junior High and Senior High schools, there is a general lackadaisical attitude towards the study of the local languages and students would not want to be caught speaking in their language (Appartaim, 2009). She (Appartaim) bemoans that the school authorities also compound this difficulty with the emphasis on the use of English to the extent that one sees on various classroom doors and at vantage places such signs as 'Speak English always' and 'Please, speak English'. In a nation of different ethnic groups and languages, English serves as a bridge linking speakers of diverse languages. Ansah (2008), says that of these languages, Akan accounts for over 60% of the total population (both native and non-native) and Ewe, Ga, Nzema, Dagaare, Gonja, Gurenne, Kasem and Dagbani account for about another 30%. This means that each of the remaining languages is spoken as a first language by only a handful of people (Dolphyne, 2006).

English became and still is the means of communication for government business, the legislature, judiciary, the military, administration and the mass media. The use of English was encouraged for economic and political benefits (Sackey, 1997). Lawyers and judges make use

of the English language in court in contrast to the local councils' use of local languages. The military also use the English language at the administrative level and the difference in status between a general officer and a police officer was based largely on the general officer's familiarity with the English language "and was publicly symbolized by his wearing a different uniform and earning higher wages or salary" (Sackey, 1997, p. 134). With the media, the earliest newspapers, some of which were owned by Africans, were printed in English. Between 1900 and 1957, eleven newspapers agencies had been established and all of them were published in the English. This was due to the fact that the extreme diversity of the local languages hampered the readership of any of the varied newspapers and that it was only in the 19th century that serious attempts were made to reduce the local languages to writing (which therefore deprived the newspapers' early practical application as information media). English language was thus used as the language of communication and of formal education. As the language of formal education, English had to be studied in schools. It was not only used between people who did not share the same linguistic background but also between people who shared a common language. However, how English was taught in school did not provide the students a good background to learning the speech or oral aspect since concentration was on the written mode. As a result, various kinds of Englishes have been used in the country ranging from those that come closest to standard British English to those in the plains of Pidgin English (Appartaim, 2009).

In modern times scholars have been hesitant in accepting that the legitimate area of linguistic study is the "emergence of varieties of English that are identified with and specific to particular countries from among the former British colonies" (Kirk-Greene, 1971, p. 126). Kirk-Greene firms that "it has been claimed that 'nowadays more sophistication is creeping in', with educated West African varieties of English being deliberately adopted as models for particular teaching circumstances in Ghana and Nigeria, 'on grounds of public interest

(Strevens, 1965)" (p. 126). In essence, Ghana and other West African countries have found it necessary to use the variety they know best and trust in their daily activities. Obeng (1997) accepts the fact that Ghana has become such an unwavering consumer of the English that investigation into a Ghanaian variety of English has engaged the attention of researchers since the early 1970s.

1.1.3. The Akan Language in Ghana

Akan, according to Nkansa-Kyerematen (2004), is a branch of the Kwa branch of the Niger-Congo family and it is the biggest ethnic group in Ghana. Akan as a language is spoken by about 8.3 million people in Ghana and some eastern parts of the Ivory Coast (Lewis 2009). Akan comprises numerous vernaculars of which some are more communally comprehensible than others (Schachter & Fromkin 1968). The dialects of Akan vary at the level of segments likewise tones (Abakah, 2005b; Abakah & Koranteng 2007 and others). Asante Twi is one of the three major dialects, and "Akan is growing in its influence as a potential national language" of Ghana (Abakah 2000: 3). The data discussed here in this study are grounded on the Asante Twi parlance, and the study uses Akan as a cover term through the study. The tone system of Akan has been well researched into (Stewart 1965; Schachter & Fromkin 1968; Clements 1983; Dolphyne 2006; Abakah 2010a; Paster 2010, Kügler 2016). Also, the relations between tone and morpho-syntactic structure (Abakah 2010b; Abakah & Koranteng 2007; Paster 2010; Genzel 2013), the interaction of tone and segmental aspects (Marfo 2004; Manyah 2006, 2014), in addition to the interaction of tone and information structure (Genzel 2013) have been well researched on. A plethora of researches have got to do with tonal interactions, particularly downstepping (Clements 1979; Stewart 1993) a study of intonation by Genzel (2013) and outspread the suggestion to the ensuing simple intonational grammar for Akan. Firstly, a low intonation phrase boundary tone (L%) indicates polar interrogations. Particularly, the intonation in polar interrogations

has been said to show sentence-ending low pitch, broadening of the sentence-ending vowel and an intensity rise on the concluding vowel (Saah 1988; Saah & Dundaa 2012; Genzel 2013; Genzel & Kügler 2016). Secondly, an intonation phrase is allied with a beginning high and ending low pitch register tone (h and l, respectively) (Genzel 2013), which in addition to a phonetic application algorithm à la Liberman & Pierrehumbert (1984) account for the overall downward style in pitch in all Aka sentence types. This broad downtrend in pitch, seen in most West African tone dialects made Welmers (1959) to categorise languages like Akan as terraced-level tone languages.

1.2. Statement of the Problem

The spread of English has ushered in a fascinating area of research of the English language in the last two decades (Appartaim, 2009). This is the case due to the fact that the spread has led to the rise of several varieties of the language all over the world, including the Ghanaian variety and, therefore, the need for it to be researched into. Like other West African varieties, Ghanaian English has developed over time and is acknowledged by many of the scholars: Dolphyne (1994), Owusu-Ansah (1992, 1994, and 1997) and Adjaye (1987, 2005) as an acceptable variety of English. Nevertheless, there is a vast division among scholars as to whether there is a Ghanaian variety of English with its own features and a lot of research at the syntactic, semantic and phonological levels has been done in support and against this variety.

The spread of English Language has brought about the quest to research into the semantic, syntactic and phonological levels of the language in Ghana in the last three decades. At the phonological level, many of the research have focused on pronunciation. Such works include Sey's (1973) exploration of Ghanaian English; Adjaye's (1987) discussion on Ghanaian pronunciation and accentuation, Bobda's (2000) discussion of the distinctiveness of

Ghanaian English pronunciation and Appartaim's (2009) study on prominence and rhythm in Ghanaian English speech.

I hardly came across a comparative study on the intonation patterns of a Ghanaian language and Ghanaian English in all my readings relative to the phonology of Ghanaian English. It is in the light of this that this research studies the intonation pattern of Akan and its impact on English in Ghana that makes it a different variety of English from the other world Englishes.

1.3. Research Questions

The study targets finding answers to the following questions:

1. What are the intonation patterns of Akan declarative and interrogative sentences?
2. What are the intonation patterns of English declarative and interrogative sentences spoken by Akan L_1 speakers?
3. Are the intonation patterns of Ghanaian English speakers similar or different from the intonation patterns of British and American speakers of English?

1.4. Research Objectives

The study investigates the intonation patterns of declarative and interrogative sentences in Akan and their impact on the intonation patterns of declaratives and interrogatives in English spoken by Ghanaian Akan speakers. It again plans to investigate the variance/resemblance between the speech patterns used by the speakers of British and American English and indeginous Akan speakers of Ghanaian English as L_2.

1.5. Purpose of the Study

In a comparative study Gogovi (1991) conducted on university students on Illorin and Cape Coast campuses, he discovers that "both Ghanaian and Nigerian students learn English to communicate with their African and Asian brothers and sisters rather than with Americans and the British," (p. 12). Notwithstanding, speakers of English in the higher circles indicate that their target is the standard British English. There is now a growing desire to study the phonetic aspects of the second language (L2) speech (Hincks 2003), however the existing studies mainly focus on the segmental features. The motivation behind this research is, therefore, to look at the impact of the patterns of Akan intonation on Ghanaian English.

1.6. Significance of the Study

This study is done under the tenets of World Englishes. It investigates intonation patterns of Ghanaian English. It explores the difference in the intonation patterns of Ghanaian English and the British and American speakers of English. The outcomes of this study may be used to research into intonation as one of the factors amounting to communication failure between British and American speakers and Akan speaking English users in Ghana.

Although the existence of a Ghanaian variety of English has long been acknowledged, and several, if not many, articles have been written on different aspects of it (Gyasi 1990; Owusu-Ansah 1994), I hardly came across a comparative study on the intonation patterns of a Ghanaian language and Ghanaian English; and this is my contribution to the research on Ghanaian English.

In addition, this study would educational consequences as well, as it could afford the teachers of English a healthier understanding into the nature of systematic intonational variation that differentiates Ghanaian English from British and American diversities of English. It would also help afford a parameter to the language teachers of mature learners

who target native like competence. It could serve as a direction to language teachers in strategizing suitable teaching procedures and approaches that accommodate and bring to light the shades of Ghanaian English.

Also, this research is of great importance since it helps firm up the assertion that Ghanaian English is a distinct diversity and not just a marginally transformed or inappropriate form of British or American English as a number of cynics see it. There it could help build tolerance among teachers, learners and language users of the nativized variety of English language spoken in their locality.

Finally, the current study would be of great importance to both students of linguistics and sociolinguistics who are interested in finding out the impact of the Akan intonation pattern on Ghanaian English. That is, this study has an imminent effect too as it could result in other studies relating to the acquisition of speech patterns by Ghanaian English language learners. Additionally, it could serve as a tool in designing a longitudinal research to trace the pattern of intonation acquisition amongst learners and the matured language learners.

1.7. Delimitations of the Study

This research of intonation is related to the analysis of stress patterns and intonation patterns. Nevertheless, owing to restraints of time and resources, research would be limited to the analysis of speech patterns in organized stress situations. For this research, sentence stress has been limited to two positions: first and the last word of the sentence. Therefore, the discussion in this research basically moves around the study of speech patterns even though stress would also play an important role in defining the outcomes of this study.

The research is restricted to the analysis of the use of pitch contours in a laboratory atmosphere. Therefore, the data to be gathered would be in artificial situations. My choosing of respondents would be limited as I would use participants who speak Asante Twi which is

one of the Akan dialects spoken in Ghana as a mother tongue. Moreover, I would limit my study to only declarative and interrogative sentences in Akan and English languages.

1.8. Rationale of the Study

This research has a significant educational consequence as it could equip language teachers to have some knowledge on the speech patterns of Ghanaian language speakers. It could as well offer the Ghanaian student an understanding of complex and challenging intonation patterns and help teachers to uncover areas that could generate communication barriers. Also, the study would help authenticate the assertion that Ghanaian English is a distinct variety and there is the need for it to be further explored.

1.9. Synopsis of the Study

The first chapter of the research begins with an introduction giving the background of the study, the statement of the problem and justification of the study, among others. The second chapter discusses the theoretical framework as well as a review of works related to the current research. Chapter three explains the methodology of the study. In this chapter, the design for the collection of the data, and how the data are analyzed are discussed. Chapter four analyses the data gathered. Chapter five follows this section with the summary, implications, recommendations and conclusion of the thesis.

1.10. Conclusion

This chapter looks at the background to the study, the statement of the problem, research questions, significance and justification of the study. The next chapter reviews literature related to this work as well as the theoretical framework.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Introduction

This chapter is made up of two main sections: Literature review and theoretical framework. In the literature review section, I define terms that are related to the study. These include stress, rhythm and intonation. The roles performed by intonation in language is also discussed. The other section involves explanation of the theory that guides the analysis of data. This furthers on to the opinions relative to Ghanaian English and the useful scholarships made in the arena.

2.1 Definition of Terms

This study explores the suprasegmental features of the English language. The term suprasegmental refers to those properties of a sentence which are not properties of any single segment. The following are usually considered suprasegmental properties: stress, rhythm, and tone/intonation. Generally, there is lack of clarity between stress and prominence in the available literature. In this research, therefore, stress is reserved for the phonological correlates while prominence is reserved for the phonetic correlates. These are discussed below:

2.1.1 Stress

Despite the fact that stress has been widely studied for a long time, there exist many areas of disparity or lack of understanding. It is a term that is conceived of as strong stress and weak stress. It can be explained as prominence with which one part of a word or of a longer sentence makes a distinction from other parts (O'Connor, 1999). Matthews (2007)

terms stress as a "phonological feature by which a syllable is heard as more prominent than others" (p. 383). It is the effect on speech sounds of greater muscular effort and the building up of greater amount of air pressure by the speaker in uttering sounds than in uttering isolated letters.

Stress is closely linked with loudness or amplitude, on one hand, and articulatory force, on the other, but other factors are involved – notable among which are duration and pitch. Pitch appears to be the most significant factor when stress is final in a phrase (or when a word is articulated in seclusion); stress is then associated with, or realized by pitch prominence and often with pitch movement (Wells, 1990).

When one speaks of stress, one refers to the sound, ordinarily perceived as greater loudness by the listener, with which one part of the word or longer sentence is distinguished from the other parts. Thus, according to Tarr (1994), it can be said that stress is the relative degree of force used by a speaker on the various syllables he or she is voicing. It must be stressed that since the work is about sentences much emphasis would not be laid on word stress but on sentence stress.

In accordance with Kingdon (1959 as cited by Appartiam, 2009), the primary stress (the strong segment also known as the high level tone mark) is acknowledged. This represents a static tone generally pitched at or near the top of the speaker's normal voice range by putting in front of the syllable carrying stress, a raised vertical stroke, for example:

un 'comfortable at a 'sitting

in'different in the 'meadow (Appartaim, 2009)

An extremely heavy stress can be shown by a double vertical. A heavy stress can be used to mark sharp contrasts to indicate relative stress in phrases without recourse to showing intonation. A secondary stress or lower level stress or low level tone mark (terms used by Greenbaum & Quirk, 1991) which represents a static tone usually pitched at or near the

bottom of the speaker's normal voice range, indicating a partially strong syllable, can be marked by a lower vertical stroke as in:

It is abso'lutely **in˷credible** (Appartaim, 2009)

Mostly sentences have two types of words. These are content words and structure words, also termed function words, (Quirk and Greenbaum, 1973). Content words are the basic words of a sentence. They are the central words that carry the meaning or sense. On the other hand, structure words are words which give grammatical meaning in sentences. They are usually the small and simple words that make the sentence grammatically accurate. They afford the sentence its correct form or "structure". If the structure words were to be taken away from a sentence, one might still make meaning of the sentence but if the content words were to be removed from a sentence, one would not. There are certain principles guiding sentence stress in English. These are:

- content words are stressed
- structure words are not stressed
- the time between strong syllables is always the same (Quirk and Greenbaum, 1973)

The following examples can help to identify which words are content words and which are structure words:

Content words

Lexical verbs	write, talk, shout
Nouns	ring, computer, New York
Adjectives	interesting, big, noteworthy
Adverbs	interestingly, officially, not at all
"To be" as a main verb	is, are, was, were

Structure words

Pronouns	she, it, he, I, we, they
Prepositions	in, near, on, to
Articles	a, an, the
Determiners	any, some, few, many
Conjunctions	and, but, because
Auxiliary verbs	do, be, have, can, must

The above principles are for what is termed "neutral" or normal stress. However, there are exceptions. It would be inaccurate to think of closed-class words as lacking content. Sometimes a word can contain a strong syllable that would usually be only a structure word. For instance, the preposition 'inside' contrasts with 'outside' in the sentence like:

'He went INSIDE the auditorium and she went OUT OF the auditorium

The car is for HER. I never said it was for HIM

In instances where these function words do invite stress, they have peculiar pronunciations.

It is not unusual to highlight the variation between a word uttered in isolation, where convention and semantic integration tend to produce a fixed stress and rhythm which the individual speaker cannot say, and connected speech, where the position of stress is dependent upon the speaker's word and the meaning they wish to put across. In other words, there is some flexibility of stress in a sentence and it depends, to a great extent, on the individual speakers. English speakers have the possibility of placing stress freely in units larger than the word by means of contrastive stress which is capable of highlighting any word in a sentence. They can vary the accentuation to emphasize any word. In a natural discourse, Dalton &Seidihofer (1994) posit that "word-class is not a reliable indicator of prominence.

When speaking very quickly, people sometimes de-stress some content words because stressed syllables take more time to say" (p. 54). This is particularly striking in the case of some closed-class words which, when weak, make use of the schwa vowel or other forms of phonological reduction (O'Connor, 1999). Under contrastive stress, they assume the form that they have as isolated dictionary items:

some [səm]	[sʌm]
not [n̩t] [n̩]	[nɒt]
he [hə] [ə]	[hi]
have [əv] [v] [a]	[hæv]
of [əv]	[ɒv]

It is worth noting that certain words that are distinct from each other in their strong forms may become homophones in their weak forms. Such instances that can be cited include: [n] in

> Mathew *n̩* Mark mast know how iz doing. (Mathew and Mark must know how he's doing)
>
> I could *n̩* say which *a* ðəmz frəm ðə city. (I couldn't say which of them's from the city.) (adapted from Greenbaum using the latest edition of The Concise Oxford Dictionary, 1996)

which can represent *and* and *not,* and 'a' which can represent the indefinite article *a* and *of.* Both *of* and *have* have the weak forms 'a' and 'əv', a union that can lead to the misspelling of *have* as *of* in combinations such as

He could have arrived on time.

What's he like? is ambiguous, depending on what strong form corresponds to the [s] of *What's: What is he like?* or *What does he like?* In the same way, *She's paid today* corresponds to either *She is paid today* or *She has paid today* (Greenbaum, 1996).

Contrastive stress uses pitch prominence. It is observed, however, that contrastive stress is not restricted to sequences longer than the word. The usual accentuation within the word can also be distorted at the speaker's behest if they have to make a contrastive point and to provide a unique rhythm (which would be looked at next).

2.1.2 Rhythm

It is characteristic of English to have syllables that are strong and many others weak (Roach, 2002). Rhythm embodies the patterning of strong and weak syllables that normally occurs in connected speech. A syllable is a rhythmic unit of speech. It makes the speech flow easier for the mind to process. It is made up of one or more segments (which are building blocks of syllables). It is a unit of group for a sequence of speech sounds. It can affect the rhythm of a language, its prosody and its stress pattern. A syllable may have a strong or weak stress. Strong syllables are allied with strong stress whereas weak syllables are linked with weak stress. The strong syllable has as its basic one of the vowel phonemes except a schwa while a weak syllable can have the schwa as its main vowel. It is witnessed that the vowel in the weak syllable is apt to be shorter, of lower intensity and different in quality (Roach, 2002). For instance, in the word 'boarder' [bɔ:də] the second syllable, is weak, shorter and less loud than the first and contains a vowel that cannot appear in strong syllables. The vowel schwa [ə] is connected with syllables but it does not mean that all weak syllables have schwa. Example, in a word like 'monkey' [mʌŋki], the initial syllable which is strong contains what is normally known as a short vowel and which is occasionally substituted with the schwa when it appears in weak syllables, whereas the second syllable also has a short vowel which has not been reduced to a schwa.

Rhythm also includes pitch changes, including those connected with nuclear tones in tone units (Greenbaum, 1996). In a regular speech there are degrees of stress, varying jumps

or drops in pitch, and varying durations of pitch movements in the tones. Dauer (1993) expounds that "when we speak naturally, words are parts of phrases and longer sentences. What we hear is a sequence of syllables in time, like notes in music. The time relationships among syllables make up the rhythm of language." (p. 83). Basically, rhythm is timing patterns among syllables. However, the timing patterns differ among languages.

Rhythm emanates from the Latin word *rhythmus*, and from the Greek word *rhuthmos* meaning *flowing*. It is a musical quality created by the repetition of strong and weak syllables. Rhythm occurs in all forms of language, written and spoken, but is principally important in poetry. It can be explained as the patterned, regular alternations of contrasting elements of sound or speech. Greenbaum (1996) points out that in connected speech, the fluctuation of strong and weak syllables often expresses a rhythm, with strong syllables providing the beat. An illustration is as follows:

> E'leven 'hundred 'people in 'fifty con'stituencies were 'asked 'how they'd 'vote. (Greenbaum, 1996)

In this instance, there is an almost regular pattern of weak syllables followed by strong syllables. The evident exception is the set of three weak syllables consisting of the two syllables of *constituencies* that follow the first syllable of that word and the weak syllable *were*.

Some linguists have suggested that the world's languages be categorized into two rhythm classes. In other words, there are two types of meter in the world's languages consisting of *stress-timing* and *syllable-timing*. *Stress-timing*, as defined by Low & Grabe (1995), is the near-equal interval between prominent syllables while s*yllable-timing* is the equal syllable durations. English, Dutch, and German are said to be stress- timed languages

whereas the latter include French, Spanish and many local languages in Ghana, including Akan, Ewe, Ga and others.

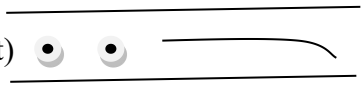
The most central prominence is mostly carried by a tone (a distinctive movement of pitch) that starts on a strong syllable—the nuclear syllable or nucleus—and may continue over several syllables. A tone unit is a segment of speech that has a nuclear tone – intonation.

2.1.3 Intonation

During ordinary speech, the pitch of voice is perceived to be in continual variation and this in English (Laver, 1994) sets up the basis of intonation – pitch melody. Beckman & Pierrehumbert (1986) explain intonation as, "all aspects of the perceived pitch pattern that the speaker intends for the hearer to use in understanding a sentence, or that the hearer does use whether intentionally controlled by the speaker or not" (p. 103). It is a contrastive variation in pitch level of a sentence. These pitch patterns of speech have been labeled by O'Connor & Arnold (1973) as *significant*, *systematic*, and *language-specific*. In traditional analyses of segmental structure, phonology has been seen as to have gotten to do with those differences which a given language exploits to convey lexical identity, and therefore to portray variation in the meaning of a sentence. Likewise, two sentences which vary solely in intonational structure can differ in meaning. Also, just as the segmental inventories of languages consist of a restricted number of phonemes, the number of distinctive pitch patterns is limited. The third feature is language-specificity. Phonemic inventories vary across languages, and so do the inventories of possible pitch patterns. Two intonation systems juxtaposed here are the Akan and English languages.

Not all rises and falls in pitch that occur in the course of an English phrase can be attributed to stress and rhythm. The same set of segments and word stresses can occur with a number of pitch patterns.

Consider the difference between the following sentences:

He's leaving. (statement) 

He's leaving? (Question) 

The rising intonation in one language to ask a question may be differently used in another language to make a statement. This can sometimes bring about confusion as a speaker from a different environment might misinterpret what a speaker from a different setting is saying.

The rise and fall of pitch throughout is known as its intonation contour. English contains a number of intonation patterns which add conventionalized interpretations to a sentence: statement, question, sarcasm, surprise, disbelief, teasing.

An essential characteristic of English intonation is the use of an intonational accent (and extra stress) to mark the focus of a sentence. Usually this focus accent falls on the last major class item of the sentence, however it could occur earlier so as to emphasize one of the earlier grammatical item or to compare it with something else. The strong syllable is termed as the nuclear syllable. The nuclear syllable carries the main point the speaker wants to put across. The following sentences would better explain the point.

Table 1.1 Nuclear focus

Nuclear focus	**Focus**
1. Can he borrow this for a	He only wants the book for a month, not a

MONTH?	year.
2. Can he borrow this BOOK for a month?	Not this videotape
3. Can he borrow THIS book for a month?	This book, not the other one.
4. Can he BORROW this book for a month?	He is only borrowing it, he is not taking it outright.
5. Can HE borrow this book for a month?	Do you trust him, in contrast to someone else?

It can be realized that all the questions in the table have the same meaning but the information focus changes in each one of them. In speaking, the nuclear is said louder than the rest of the sentence and has a characteristic change of pitch.

The meaning of intonation contours is fixed as with any other aspect of language. That is the relationship between intonation contours and their meaning is a matter of agreement just like the connection between a word form and what it refers to. Various languages can use different conventions, resulting in a potential for cross-cultural misunderstandings.

Many languages mark contrastive emphasis, like English using an intonational accent and additional stress. These languages include Russian and Arabic. Many other languages, including Ghanaian languages, such as Akan, Ga, and Ewe and Chinese, make use of only syntactic devices for contrastive emphasis, for instance, moving the emphasized phrase to the beginning of the sentence. Instead of

I need water to drink. (as opposed to a beer)

the Akan would say:

Nsuo na me hia. (It is water I need)

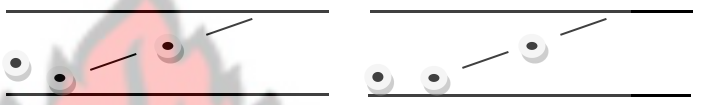
Listeners who speak the second type of language would not necessarily construe extra pitch and volume as marking emphasis. However, those who do not speak the second type of language would not necessarily interpret a different word order as marking emphasis (as in contrast to assuming that the speaker doesn't know basic grammar).

Questions

The normal intonation contours for questions in English use are:

final rising pitch or initial and final rising pitch for a Yes/No question. For instance:

Are you performing tonight?



final falling pitch or initial rising and final falling pitch for a Wh-question

When are you arriving?

The use of different pattern characteristically adds something extra to the question. For instance, falling intonation on a Yes/No question can be interpreted as suddenness. Rising intonation on a Wh-question can suggest surprise or that one did not hear the answer the first time and is asking to have it repeated. It may also indicate direction. This is idea of trying to suggest to someone how they should answer the question posed.

These patterns too can vary across languages. Even small variances can be important: reading one language with the intonation pattern suitable to the other can give rise to completely unintentional effects. In the Akan language, almost every syllable is strong equally. If an Akan speaker with a minimal knowledge in English is reading a sentence in English language, he or she might tend to use the intonation pattern from their language, thus emphasizing what might not call for emphasis.

Intonation, as explained by Brown, Currie & Kenworthy (1980), is said to articulate affective meaning and, therefore, it is important to distinguish between affective meaning that may originate from a particular pattern and the meaning of the lexical items chosen to

illustrate the effect of the different intonation pattern. Halliday (1963) poses examples of the affective meaning of the lexical items as:

Tone 3: non-committal —//3six/foot// 3 I don't know//

Tone 5: committed —//I certainly/do//

However, Brown, Currie & Kenworthy (1980) argue that it is impossible to appraise the claims made for intonation if the lexis alone implies the dissimilarity drawn.

2.1.3.1 Functions of Intonation

Roles intonation play in language is an extensively studied. This phenomenon has been researched into with the aid of laboratory phonology and perception based researches. In using different intonation patterns, the speaker portrays linguistic and paralinguistic information (Ladd, 1996). The grammatical (linguistic) information pitch carries comprises the sentence structure and the forms of sentences and information the speaker sends. It enables one to establish whether the speaker is making a request or an interrogation (Wagner, 2008). It as well enables one to know the nature of speech acts and the codes the speaker formulates while the paralinguistic code 'shows information about one's sex, age, and mental condition' (Ladd, 1996, p.1). Nevertheless, Wagner (2008) disagrees with Ladd's classification of intonation functions. Wagner states three roles of intonation such as: linguistic, paralinguistic and extralinguistic. He posits that the linguistic function spells out the nature of the linguistic code; paralinguistic function bears information about the mental condition of the speaker whereas extralinguistic function explains the demographic characteristics of the speaker such as their sex, age etc.

Lopez-Folgado (1991) categorizes the roles played by intonation into three groups: the demarcative, the grammatical and the pragmatic roles. The demarcative role contains paralinguistic information; the grammatical function conveys linguistic information and the

pragmatic function is allied with the semantic component of a sentence for instance how some intonation patterns are linked with some speech acts.

The two methods to investigate roles played by intonation in speech are itemized as covariance and configuration approach (Ladd, 1996; Mozziconacci, 2002). The configuration approach separates the linguistic and paralinguistic functions of intonation. While the covariance method insists that the two roles could be considered collectively and the "treatment of linguistic and paralinguistic issues may be done paralleled" (Mozziconacci, p. 6). Additional opinion in agreement with the merger of the two theories as indication advocates that none of both models could be absolutely excluded or established. Mozziconacci insists that covariance method could be used to look at the paralinguistic and extralinguistic roles of intonation whereas the configuration method could be beneficial to studying the linguistic roles.

In language, intonation patterns perform a plethora of roles. Roach (2002) divides the roles into four groupings: structural, accentual, discourse and attitudinal function. Trujillo (2007) too accepts the grouping whereas Sethi & Dhamija (2004) likewise say the linguistic function and posit that, just as tense and mood, intonation forms part of the linguistic structure. Sethi and Dhamija state the linguistic, attitudinal and discourse roles of intonation. In contrast, Ladefoged (2001) discusses the mental and the linguistic roles of intonation. Hirst (2005) augments this list of roles and explains that intonation regulates the lexical identity of sentence, brings up the impression of prominence and finality/non finality in addition to the discourse and pragmatic structure of a sentence. Boyce and Menn (1979), as well, accepts the idea that intonation patterns like falling boundary tone carries an idea of finality while the rising pitch illustrates that the speaker is yet to finish. The sentence focus sustained through intonation patterns also aids highlighting the variance between new and given information.

Therefore, intonation is closely associated with all the linguistic, paralinguistic and extralinguistic characteristics that make communication a possibility.

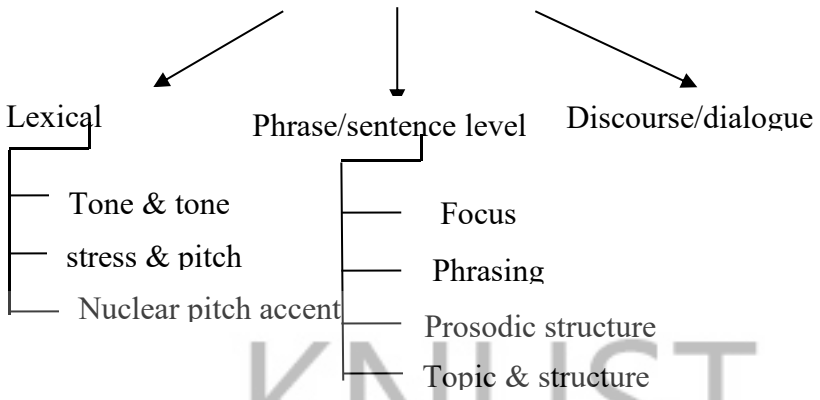
Ranalli (2002) discusses a thorough list of intonation roles Crystal propounds. He itemizes six roles of intonation: "emotional, grammatical, informational, textual, psychological and indexical." (p. 2). He again adds the conversation-management role of intonation that is got to do with the speech conventions of pause, turn taking and floor keeping etc. Founded on his research on intonation roles, Ranalli proposes his personal grouping and lists four roles of intonation as:

- **Linguistic form-based:** i.e. grammatical (the intonation of Wh- or Yes/No questions) or lexical (intonation on modifiers like indeed or surely);
- **Attitudinal or Interpersonal:** e.g. showing happiness, interested, polite, exhibiting disbelief;
- **Accentual:** especially in contrasts, e.g. emphasizing, correcting;
- **Conversation management-related:** requesting someone to repeat a sentence, disagreeing strongly. (p. 5)

Wagner (2008) explains these stages of intonation roles and categorises intonation roles into three levels:

Figure 1.1. Wagner's categorization of Intonation Functions

Intonation Functions



Source: *"A comprehensive model of intonation for application in speech synthesis"* by Agnieszka Wagner, 2008, Poland: Adam Mickiewicz University.

Various intonation patterns perform these functions. Falling tone is said to be the most neutral tone (Cruttenden, 2008; Trujillo, 2007) and a speaker in English mostly uses it for declarative sentences and simple statements. The other type of sentences could as well be determined by discerning the tone of a sentecce. Scholars such as; Cruttenden, (2008); Ladefoged, (2001); (Roach, 2002) and Trujillo, (2007) posit that the sentences as follows are produced by given tones: wh- questions generally terminate in a falling tone while yes-no interrogatives are defined by a rising contour. Likewise, commands and exclamatory sentences are differentiated with a rising- falling contour; requests employs rising contour and pleading contour conveys falling-rising tone. In enumerating items a speaker uses a rising contour at every item in the list and concludes the sentence with a falling contour signifying that the list ends there (Ladefoged, 2001). Besides, it is said that subordinate clauses in a sentence ending with a rising tone indicates that the sentence is not yet complete. Cruttenden (2008) asserts that tag interrogatives could take either falling or rising contours depending on the speaker's attitude. The use of rising contour shows that the speaker leaves room for divergence while a falling contour calls for agreement.

As earlier discussed, intonation is not restricted to providing grammatical information. It likewise affords extra attitudinal information that may not be portrayed by the grammatical

structure of a sentence (Sethi & Dhamija, 2004). Mental state such as joy, politeness, surprise, rudeness, boredom, anger, sadness and even neutrality are shown by changing and manipulating the intonation patterns of a sentence. A falling contour is typically allied with sincerity, politeness and boredom (Cruttenden, 2008; Roach, 2002). Cruttenden (2008ghedber) claims falling tone is related with an idea of finality. Consequently, the extent of finality in a sentence is directly relative to the extent of fall in the intonation pattern. Equally, a speaker uses the rising tone in making complaints and requests. Falling-rising contour shows reproach, concern and reservation whereas the rising-falling tone conveys surprise, enthusiasm, sarcasm, suspicion, arrogance or that the speaker is enthused about a situation (Cruttenden, 2004; Ladefoged, 2001; Roach, 2008; Sethi & Dhamija). Similarly, level tone bears a state of humour (Cruttenden, 2008) while high key tone is used to show surprise and strong agreement or disagreement (Skandera & Burleigh). Sethi & Dhamija assert that take-off tone is used to convey negatively-charged emotions such as "Cursing, grumbling and blasphemy" (p. 124). It is asserted that level tone is limited to those circumstances where a monotonic style is suitable e.g. church and court of law. Therefore, a number of emotive roles could be performed just by manipulating the intonation patterns of a sentence.

2.1.4. Other Related Literature to the Study

There are a plethora of studies that are related to intonation which the study at this point reviews. The first of such scholarly works is that of Bollinger (1958). In his article, Bollinger makes a conscious effort to overturn the claim that stress and pitch are

phonemically independent. He agrees with scholars who posit that stress relies on pitch, however, he is not in agreement with the claim that for pitch to serve as a signal to stress, pitch have got to necessarily rise. According to him, it is not pitch rise but pitch prominence which is of importance to what is noticed as stress. Therefore, the principal associate of stress is pitch movement and, when pitch is lacking, there is nothing in the speech signal that shows where stress is located. He takes this step further by proposing the theory of 'pitch-accent' in English which explains various forms of accent in relation to pitch prominence of varied kinds. Therefore, the pitch accent of a sentence is characterized by different pitch features ('corners') which could show stress in different ways. He discovers three of such pitch accents: Accent A, where there is a fall in pitch either within or right away coming after the accented syllable; Accent B, which entails a rise in pitch, either before or after an accented syllable and Accent C, which he terms 'kind of anti-accent A', where the accented syllable skips down to. In this case, accent is described completely in terms of pitch. His discoveries are that what is by and large perceived as stress is in actual fact pitch prominence; that intensity is seen as a minute factor both qualitatively and quantitatively and that pitch prominence is basic yet it is not essentially upward but may take other directions. His article is indeed of essence to this study as it helps to shed more light on what the theory of pitch is. Nevertheless, the investigator disagrees with Bollinger regards the 'minute' nature of intensity.

Dauer's (1983) study also comes to light at this point. In his study, he makes a conscious effort to distinguish between languages that are termed as stress-timed and those that are classified as syllable timed. He compares data from constant text in English, Thai, Spanish, Italian and Greek and indicates that inter-stress intervals in English which is a stress-timed language a no more isochronous than inter-stress intervals in Spanish which is a syllable-timed or any other language which he investigates into. He believes that it is not out of place for stress to appear recurrently in languages and that the variation between stress-

timed languages and syllable-timed languages is syllable structure, vowel reduction and phonetic consciousness of stress and its impact on the linguistic system. He furthers on by arguing that there is the possibility for rhythmic combinations to occur even in purported syllable-timed languages since "it is precisely the language structure with all language specific segmental variation that is responsible for perceived differences in language rhythm" (p. 59). This study appears to be in tune with Dauer's study as it compares the intonation patterns of (Ghanaian) English which is stress-timed and Akan, a syllable-timed language.

Heuven's (1994) article is one work that is reviewed in relation to this study. This article is an introduction and a tutorial book which gives a broader viewpoint on researches that deal with Indonesian use of phonetic research methods. He differentiates between segmental phonetics and prosody. He posits that "segmental phonetics studies the properties of sentences so far as they can be understood from the properties of individual segments (vowels and consonants) in their linear sequence" (p. 1). Simply put, segmental phonetics looks at the pattern of individual vowels and consonants which include articulatory features such as place, manner of articulation and voicing. Prosody, on the other hand, has got to do with "all the properties of speech that cannot be understood directly from the linear sequence of segments" (p. 2). To a large extent, prosody plays the role of a companion or the melody to speech. He discourses that linguistic structure of speech melody is a series of discrete pitches which could assume only a restricted number of values: high, mid-high, mid-low and low. He then discusses stress and accent in relation to their linguistic structure and progresses to talk about the phonetic associates of prosodic prominence. He asserts that prosodic prominence contains dual linguistic illustrations: a tonal representation of a high and low sequences and temporal representation. The first representation shows the focus domain (+ focus), where the vocal cords vibrate a little faster in producing vowels than a voiced consonant and this accounts for a syllable having a trivial rise-fall pitch movement. The temporal representation

has got to do with a hierarchical structure of metrically strong or weak syllables whose associates are not permanent. Strong syllables are longer than weak ones and even a polysyllabic word is produced in a less focus domain (-focus), it does not carry a long pitch but a strong syllable in the same (-focus) domain does. The study conducted by van Heuven is of significance to this study as it helps to clarify the prosodic phonetics which this study deals with.

Also, Nahalani and Lin (1998) conduct a study on the intonation contours used by Singaporean radio newsreaders and attempt to develop a system of analysis particularly of use for the study of intonation at the discourse level. The research is premised on the framework proposed by Perrhumbert (1980) which discusses breaking of the passages down in tone units and using keys to indicate prominence as high or low (which are shown by H and L). The data were recordings of radio news read in English in a nativised environment. Among the results are that, tone units are exploited by the newsreaders for the core purpose dividing an extended discourse into manageable information units for listeners and that plays a significant function in the chain of tone units to show a movement from one unit to another. Also, opening units in a chain are shown by high key and the ending by low key. Nahalani and Lin's article is of great importance to this study as it conforms to the Tone Break Indices (ToBI) which the researcher uses to analyze the intonation patterns of the two languages (Akan and Ghanaian English). Furthermore, the study deals with recorded news items likewise the researcher also gathers his data by recording sentences.

Hart, Collier and Cohen (1990) also conducted a study on one of the prosodic features of speech, intonation. This makes their study of relevance to the researcher who also compares the intonation patterns of Akan and Ghanaian English. In their study, they define intonation as the collection of pitch variations in speech which is caused by the periodic variation of the vocal cords (p.2). This study examines how intonation is entrenched in the

speech signal and how relevant information is extracted from the signal in automatic ways. According to them, intonation shows itself phonetically at three levels of description namely production, acoustics and perception. With pitch being the principal cue to intonation, they pay much attention to the perception of pitch dealing with psychoacoustic insights in the auditory impressions of pitch, pitch distance and pitch change in terms of total and differential thresholds. The primary tool for their operations are the stylisation of an original fundamental frequency (F0) curve and the evaluation of the perceptual effects. They shed light on how pitch movement is used in the construction of worldwide pitch pattern. They discovered, among others, that pitch movement is at the same time a perceptual and an acoustic unit and that variation in pitch movement from one sentence to the next associates with changing paralinguistic factors like the emotion state of the speaker. As mentioned earlier, this study is very vital to the current study as it helps to analyse the intonation patterns of both Akan and Ghanaian English.

A study conducted by Gut and Milde (2002) on the prosody and language typology of Nigerian English is also significant to this study. Like the researcher, Gut and Milde analyse the prosody of Nigerian English and compare it to the prosody of British English and three West African tone languages. They analysed read and spontaneous speech acoustically with the ESPS/waves+ and discovered that there were major variations in speech rhythm of Nigerian English and the other West African languages likewise the native speaker's variety. They also discovered that Nigerian English syllable structure is alike to a tone language more than an intonation language such as British English. The study conducted by Gut and Milde is very similar to this study in that it also compares the intonation patterns of Ghanaian English and that of Britain and America. What is intriguing is that both studies employ ToBI to analyse the data.

Lastly, Udofot's (2003) study is also worth mentioning in this section. He studies the disposition of stress of Nigerian speakers of English and the general nature of Nigerian English rhythm. He uses sixty Nigerians of different socio-economic, ethno-linguistic and educational background and a native British English speaker as his participants for the research. He classified his participants as speaking three varieties of Nigerian English which are characterised by their disposition to stress and speech rhythm: the Non-standard, the standard and the complex varieties which are individually dissimilar but cooperatively alike although poles apart from the Standard British English (which he terms as the control) represented by speech of the indigenous speaker. The data, a read passage and freely uttered speech, were analysed metrically and statistically using, among others a customized edition of the Metrical Theory and the Analysis of Variance (ANOVA). The data firmed the existence of three varieties and that there was a likelihood to stress more syllables in words than the native speaker did. He relates this to the impact of L_1 of the Nigerians which are syllable-timed. In a sense, his study is similar to this study as both studies do a comparison between native languages (both being African tone languages), non-native varieties of English (Nigerian and Ghanaian Englishes) and a native variety of English (British). The difference between the two studies is that Udofot's study concentrates on duration of syllables of Nigerian speech while this study concentrates on the intonation patterns of Akan, Ghanaian, American and British Englishes.

2.2. Nativisation of English

Nativisation of English across linguistic backgrounds has been a much debated topic even after, several years of independence. A number of critics and scholars have expressed their views on the nativisation process in Ghana which has led to a new variety of English—

distinct in form and content. It has certainly helped in asserting Ghana's identity in world literature. English language has been redefined by the Ghanaian English scholars and used in typical Ghanaian socio-cultural context.

The word nativisation has been termed differently as acculturization (Stanlaw, 1987) Indigenization (Richards, 1982) or hybridization of a language in a non-traditional socio cultural background. The term is used to define the variance of varieties of language from an original source (Kachru 1982). In the framework of English, the term nativisation refers to the alterations which English has seen as a result of its contact with languages in various cultural and geographical background in the outer circle of English. The process of nativisation in English accounts for aberrations in the new varieties of English bringing to light different types of linguistic and sociolinguistic concerns.

Nativization can be defined as a situation where a language acquires native speakers. This is when essentially an L_2 used by adults becomes the native language of their children. Nativisation has been of particular interest to linguists. The process of nativisation is related to the transmission from native language as well as to a new cultural background and communicative necessities (Saghal 1991: 300). As a result of of profound social permeation and the extended variety of roles of English in different sociolinguistic situations, there are several varieties of localized registers and genres for articulating local, social, cultural and religious identities (Kachru 1997:69).

In addition, reasons such as lack of a native group, insufficient teaching and acquisitional limitations (e.g. nonexistence of exposure and facilities, learning under compulsion) lead to the progression of nativisation (Saghal 1991:300). Researchers like Boadi (1971), Owusu Ansah (1991, 1992, 1994) and Dolphyne (1994) have all resolved that

the Ghanaian multiplicities of English are being nativised by attaining innovative uniqueness in new socio-cultural discourse. They have arisen as independent indigenous varieties having their own set of instructions that make it impossible to describe them merely as blunders of incomplete Englishes (Kandiah 1998: 275). Ghanaian English (GHE) has advanced to a more unique level than in other jurisdictions where English is used as a second language (Crystal 2003: 258).

GHE has evolved distinctive features at the phonological, lexical, grammatical and even at discourse level. At the beginning, these inventions were prohibited by perfectionists, but they are now becoming progressively recognised: English is no more seen as a foreign language; it is part of the Ghanaian traditional uniqueness. A famous African writer, Chinua Achebe, of the modern times presents the issue of the nativization in the following expressions:

> the English language would be able to carry the weight of my African experience. But it would have to be new English, still in full communion with its ancestral home but altered to suit its new surroundings. (The Guardian, 2010).

Restructuring a language to converse diverse traditional experiences cannot be achieved on a silver platter nor is it an instantaneous encounter. In fact it calls for a lot of comprehension and study.

According to Kachru (1986:31), English in the bid of attaining international status calls for a "multiple ownership" and the intercontinental characteristics that it has acquired are demonstrated in the form of varied features in each fresh diversity. These characteristics exist in linguistic optimal displayed by peculiarities of lexis, syntax, or fashion judged by

values, religion, race, nationality, history, politics and a number of other socio-economic conditions.

The intercontinental standing of English does not permit it to be attached to any single tradition. This inspires Smith to posit that:

> language and culture may be inextricably tied together but no one language is inextricably tied to any one culture and no one needs to become like native English speakers in order to use English well. (Smith, 1983:10)

The relevant query of whether English be moulded to acclimatise and fine-tune to traditions whose requirements are and have been used by other languages. There is no two ways that history has provided a clear answer to this query as follows:

> English has been shaped and moulded to whatever environment it has been transported to: as a first language in the United States, Canada, Australia, New Zealand, South Africa; as a second language in the Philippines, Malaysia, Singapore, Kenya, Nigeria, Ghana, India, and in other Commonwealth countries; as a foreign language in almost every other country in the world. (Crystal 2003:22).

An investigation of the construction and structure of after colonial English language variations and scholarly works would disclose the degree of concessions and freedoms in the course of nativizing the language. In examining the scholarly works enhanced by tradition, history and knowledge of postcolonial societies, a user gets to know the exercise inventions with the aim of capturing and exhibiting the accurate import and actuality of such cultures. Therefore, the idea of nativisation does not include only "deviation" (Kachru, 1992: 305) in aspects of vocabulary, collocation, idiomatic expressions, syntax, morphology and

rhetorical patterns, but also in the enactment of alterations and investigations with foreign and cultural literary forms such as drama, novel, short story and poetry. Kachru (1992:302) clarifies that "deviation" could be contextualized in the Ghanaian English sociolinguistic background where English functions; its connotation should consequently be actualised with orientation to the "use" and "usage" suitable to the traditional environment. The facts that govern the transfer towards aberration necessitate the user to have a point of independence "where necessary, by adjusting the interior landscape of words in order to explore and mediate the permutations of another culture and environment" (Kachru, 1997:127).

2.3 Pierrehumbert's Theory of Intonation

A very significant model of intonation offered by Pierrehumbert in her Ph.D. thesis could be positioned under the umbrella of the AM theory. The model is grounded on the notion that all pitch movements could be considered at two levels: High and Low. These points could be joined to yield bitonal statements such as L+H*, L*+H etc. Fundamentally pitch movements in this model could be categorised into two varieties of tones: pitch accent and boundary accent (Ladd, 1996; Queen, 2001). Ladd (1996, p. 46) explains pitch accent as 'a local feature of an intonation pattern – usually but not invariably a pitch change and often involving a local maximum or minimum'. Also, he expounds that pitch accents are generally acknowledged because of their orientation with the stressed syllables. Nevertheless, this is not a worldwide pattern as there are languages like Italian and French which do not pursue this trend.

The pitch accents consist of two levels i.e. H(igh) and L(ow). Both of these pitch accents are marked with a (*) mark (Hirst, 2005; Ladd, 1996). The boundary accent is categorised into two tones-phrase accent and boundary tone. The phrase accent, later known

as phrase tone (Ladd, 1996), is indicated with a (-) symbol joined with a H or L tone while the boundary tone is marked with the aid of '%' diacritic mark joined to the primary H and L tones (Hirst, 2005). Therefore, the boundary tones are categorised into intermediary boundary and final boundary. These two boundary categories execute diverse intonational roles in a sentence. The variation between a pitch accent and an intermediary boundary accent is indicated with the aid of stress alignment. A pitch accent constantly aligns with a stressed syllable which governs the intonational pattern. The pitch accent in a bitonal sentence is indicated in similar way. The starred tone aligns with stress while the succeeding tone (e.g. L*+H, L+H*) aligns with the syllables following the starred tone syllable (Ladd, 1996). This produces a complete account of potential pitch patterns available to the speaker. These pitch movements tally to a large degree with the cataloguing of British theory of intonation. Ladd displays the resemblances in the form of a table:

Table 2.1. Ladd's Inventory of British-Style Pitch Movements and Their Corresponding Tones in Pierrehumbert's Model of Intonation

Pierrehumbert	**British-style**
H* L L%	Fall
H* L H%	Fall-rise
H* H L%	Stylised high rise
H* H H%	High rise
L* L L%	Low fall
L* L H%	Low rise (narrow pitch range)

L* H L%	Stylised low rise
L* H H%	Low rise
L+H* L L%	Rise-fall
L+H* L H%	Rise-fall-rise
L+H* H L%	Stylised high rise (without low head)
L+H* H H%	High rise (with low head)
L*+H L L%	Rise-fall (emphatic)
L*+H L H%	Rise-fall-rise (emphatic)
L*+H H L%	Stylised low rise
L*+H H H%	Low rise
H+L* L L%	Low fall (with high head)
H+L* L H%	Low fall-rise (with high head)
H+L* H L%	Stylised high rise (low rise?)
H+L* H H%	Low rise (high range)
H*+L H L%	Stylised fall-rise (‘calling contour‘)
H*+L H H%	Fall-rise (high range)

Source: From ‘*Intonational Phonology’* by Robert Ladd, 1996, Cambridge University Press.

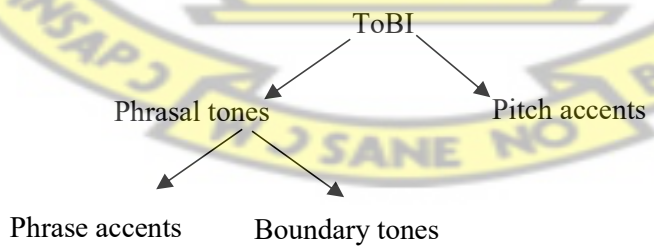
A very imperative feature to be discussed here is the downstepping fashion. Garding (1993) has discussed two ostensible motives for this universal fashion: physiological and phonological. Pierrehumbert, according to Ladd (1996), rejects the physiological concept of downstep which maintains that it is an outcome of biomechanical activity. Pierrehumbert explains the phonological feature of downstep as a sequence of pitch commands governed by the speaker to express linguistic and paralinguistic information. In the initial variety of her model, she specified this occurrence with the assistance of H+L* tone. Later in the ToBI

theory, the model is additionally explained and downstep is denoted with the use of diacritic '!'.

Wagner (2008) discusses to a noticeable quality of Pierrehumbert's concept which he refers to as the 'strict layer hypothesis' (p. 27). According to the theory, the intonational organizations are non-recursive and follow a particular order. Wagner, nevertheless, explains Ladd's (1996) Compound Prosodic Domain which accelerates the idea of representation by permitting the element of recursiveness.

During the 1990s, Pierrehumbert's model of intonation was marginally reviewed and expressed into a theory for speech synthesis (Wagner, 2008). This theory is known as Tone and Break Indices (ToBI) (Ladd, 1996; Ladefoged, 2001). This theory has been categorised into two units:

Figure 2.9. The Organisation of ToBI Theory of Intonation



Source: *"A course in phonetics"* by Peter Ladefoged, 2001, Wadsworth Pub Co.

Ladefoged (2001) discourses the theory thoroughly. He labels it as an assembly of high and low target pitches. These pitches are used in pre-nuclear and nuclear syllables,

phrase accents (tone after the nuclear syllable) and at tone boundaries (at the end of a phrase). There are a maximum of six tones at pitch accent level: H*, L*, L+H*, L*+H, H !H*, and !H*. Equally there are two potential phrase accents existing that is L- and H-. This theory establishes that English makes use of two tone boundaries represented as H% and L% (Hirst, 2005; Queen, 2010). These tones are written on the tone tier (above segment tier) of a sentence. Ladd (1996) highlights the essence of boundary tones to determine the paralinguistic communication.

Additionally, the theory discourses English intonation with the assistance of boundary index stretching from one to four. Strictly amalgamated words in a tone unit are specified the index of one and the boundary index at the close of a sentence is constantly four (Ladd, 1996; Ladefoged, 2001). Wagner (2008:63) elaborates the broad system of break indices:

1. describes the boundary between words which form clitic groups
2. marks the boundary between prosodic words
3. is used to describe the boundary between two words which have some features of a phrase boundary but does not constitute a phrase boundary
4. indicates intermediate phrase boundary
5. is used for labelling of intonational phrase boundaries

The index carries a difficulty when one uses it to analyse a speech. Ladd brings up the matter of allocating index tones to intermediate pauses. He insists that there might not be any clues for the intermediate phrase boundary. In situation as this, he asks, 'must one allot it the value of 3 as suggested by Pierrehumbert even if there is no visible break to indicate the boundary?' However, the difficulty, was settled by allotting the break index 2 to signify the manifestation or lack of signals to intermediate boundary break. Also, Wagner (2008)

suggests that the vowel length and stress at the last syllable could be signals for boundary at phrase and sentence level. Another way out to this complication has been given by Grice, Reyelt, Benzmuller, Meyer & Batliner (1996) who made use of the ToBI to research into intonation in German language. They use the boundary index only when there are irregularities in the break index such as long pauses and breaks in the intermediate phrase. Some scholars mistakenly view ToBI as an equal of IPA in the arena of intonation. Perhaps, this delusion came about as a result of developers of this model wanting to come up with a fairly worldwide theory of intonation to advance speech synthesis systems. Nevertheless, the home page of the web site devoted to ToBI unambiguously maintains that ToBI must not be misconstrued as the equal of IPA. However, with minor alteration, the theory has been used to research into the intonation system of other languages such as German (Grice, Baumann & Jagdfeld, 2009; Grice, Baumann and Jagfeld, 1996; Wagner, 2008); Korean (Jun & Oh, 2000); French and Japanese. Nonetheless Hirst (2005) cautions against the unselective use of ToBI to describe the intonation pattern of every language. He comes to an agreement with Pierrehumbert who opines that the broad inventory of a language should be looked into afore applying ToBI as the theory is only a cataloguing system for speech data base and not a thorough inventory of all likely pitch patterns existing in a language.

2.4. Ghanaian English

Many scholars have done much study on the term 'Ghanaian English'. Most writers do consent and make use of it simply as a descriptive term of a certain variation of English. However, there are some scholars who do not accept this term. Most people pose a question as: "is there a variety of English that can be legitimately described as distinctly Ghanaian?" (Gyasi 1990). There is no two ways that English spoken in Ghana is not accepted

theoretically as an authentic variability, in reality, however, a variety of English could be branded as Ghanaian.

Dako (2003) defines Ghanaian English as "a mode of speaking English that is recognized as of the geographic territory Ghana and can therefore be identified as Ghanaian". A large number of Ghanaians who speak English home or abroad could be recognised as such easily. This indicates that no matter how hard Ghanaians, who acquire English in Ghana, struggle to use the regular British pronunciation or any other, their phonation betray them as Ghanaians.

Gyasi (1990) also posits that "there is nothing like 'Ghanaian English' if we base our judgement on the occurrence of such errors as *equipments; voice out our views; I am going to come*". Remarkably, it could be likewise agreed that there exist a Ghanaian English when the debate is grounded on the accent features that could be associated with Ghanaians. It could as well be those phonation features which Ghanaian English has in common with some other English intonations principally English as Second Language (ESL) varieties.

Looking at the arguments so far, it is probable to tell if a speaker on electronic is Ghanaian by merely listening to his or her pronunciation (Dolphyne 1994). A Ghanaian speaking English could effortlessly be recognized as such on indigenous and international radio networks like the BBC or the VOA. The assertion that there exist a Ghanaian accent of English is sincere and authentic and this is accepted by researchers as far as spoken English goes. It is this kind of accent that is known as Ghanaian English. The opinion that the most effective test to recognise a speaker is pronunciation (Görlach 1991) is acceptable since it is quite obvious that 'Ghanaianness' is conveyed mainly in spoken English than any other area of English usage (Huber 2008).

According to Ahulu (1994) the term 'Ghanaian English' originated from publications by Brown and Scragg (1948) and Sey (1973). The presence of this term in the past indicates that the conception with its inventories has been in existence for a number of years. There is a claim that speakers of English in the previous British colonies adjusted the language in order for it to be adequate enough to serve indigenous reasons (Widdowson 1994). At this point, British and American English standards are no longer useful to the speakers in these nations. The existence of indigenous standards of English accent, to a large extent, is immaterial to us if we could make use of the language contentedly to conform to our cultural needs and environment. One could therefore come to an agreement that it is unsuitable to refer to English in Ghana as a second language (ESL), the appropriate term according to Quarcoo (1994) is a 'Ghanaian artifact'.

According to Ofori, Duah and Mintah (2014) some Ghanaian students make statements in casual speech that Ghanaians are the native speakers of Ghanaian English. They explain further that this could be accurate when we examine how spoken English has been fashioned to fit indigenous demands made on it. Moreover, Brumfit (1995) argues that "the ownership of English rests with the people who use it, whoever they are, however multilingual they are, however monolingual they are" and that substantiations from studies show that to a large extent languages are revised by their speakers. Therefore, it is acceptable fore scholars such as Quarcoo (1994) to make reference to English in Ghana as an asset of Ghanaians. Hence, a declaration such as "we should not, therefore, elevate bastardization into the status of legitimacy and call it 'Ghanaian English'" (Gyasi 1990) needs to be reviewed. Therefore, one may not be far from right to make reference to the English spoken in Ghana as Ghanaian English.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter discusses the methodology used for this study. It brings to light the variety of research for the study, participants and the data collection and instrument employed for the research. Here, the data set of Aka sentences used are presented.

3.1. Nature of Study

The researcher adopts the exploratory and comparative research type to discover the use of pitch contours that Akans in Ghana in speaking English language as their second language (L_2). The study envisions to establish the nature of different intonation patterns employed by Akan speakers of Ghanaian English. It also seeks to look into how these pitch contours varied from those of the American and British English speakers.

3.2. Participants

The informants for this study are speakers who have Akan (Asante-Twi) as their mother tongue (L1). The informants selected for this study are three out of which two are males and one, a female. They are all graduate teachers and eloquent speakers of Akan (Asante-Twi) in their everyday life. Nevertheless, they use English in a limited academic situation: in the classroom teaching and learning. All the participants live and work in Kumasi, the capital of the Ashanti region, Ghana. In fact, all of them had their basic, secondary and University education in Kumasi.

3.3 Sampling Technique

Basically, simple random and purposive samplings is used in selecting participants for the study. Purposive sampling is used in selecting the native speakers of Akan. Thus the benefit of using purposive sampling helps to make population highly representative, simplified the data interpretation and analysis of the results. In all, 3 (three) native speakers out of which 2 (two) are males and 1(one) female are selected. Second purposive sampling is used as the target population was not randomly distributed in the area and those that are intentionally picked exhibit most of the characteristics of interest to the study. Also, they are

subjects with the vast knowledge and experience in the area of study. Bryman, (2008) noted that purposive sampling means that the sites and units of analysis are chosen purposively so that the researcher can gather information from people within the field of investigation and conduct observations of sites that are relevant for the field of investigation.

Using simple random sampling in selecting native speakers of Akan, the list of participant involved are arranged in a convenient order with a serial numbers assigned to each participant. The serial numbers assigned to each participant is written on pieces of paper to correspond to the number assigned each of them. The pieces of papers with the numbers are written on them which is put in a bowl and shuffled, after which the pieces of papers are drawn one after the other. Before each draw the pieces of paper is well shuffled. This process is carried out until the total number of pieces of paper added up to the number of participants needed, which is 3 (three).

3.3. Data Collection & Instrumentation

After a careful collection of structures and the corresponding sentences, the researcher develops data set for the study. To study the intonation pattern in both Akan and English language, two types of sentence structures i.e. declarative and interrogative (both yes/no and wh-questions) are elected. These structures are studied in transitive, intransitive and ditransitive sentences. The stress pattern is measured by making sure that all words in the English data set were monosyllabic. There is not so much challenge in this endeavour as both Akan and English contained monosyllabic nouns and verbs. All the sentences are further distributed on the basis of stress which fall on the initial and the final word of each sentence. Table 3.1 below presents the data set for the analysis of Akan pitch contours for declarative sentences:

Table 3.1. Data Set for the Study of Akan Declarative Syntactic Structures

Serial Number	Syntactic Structure	Sentences
1	SV	Nana didi
		Nana sa
		Nana twerɛ
2	SVO	Nana di aduane
		Nana sa asa fɛɛfɛ
		Nana twerɛ nwoma
3	SVOO	Nana ma Osei aduane
		Nana to Osei nwom
		Nana ka Osei asɛm

The same sentences are employed for yes/no questions by having question mark at the end of each sentence. However, for wh-questions the ensuing data set was employed:

Table 3.1. Data Set for the Study of Akan wh-question Syntactic Structures

Serial Number	Syntactic Structure	Sentences
1	SV	Hwan na ɔdidi?
		Hwan na ɔsa?
		Hwan na ɔtwerɛ?

2	SVO	Hwan na ɔdii aduane?
		Hwan na ɔsa asa fɛɛfɛ?
		Hwan na ɔtwerɛ nwoma?
3	SVOO	Hwan na ɔma Osei aduane?
		Hwan na ɔto Osei nwom?
		Hwan na ɔka Osei asɛm?

The same datasets are interpreted into English for the exploration of English intonation pattern. The English dataset for declarative structures is presented in Table 3.3 below:

Table 3.3. Data set for analysis of English declarative sentences

Serial Number	Syntactic Structure	Sentences
1	SV	Nana eats
		Nana dances

		Nana writes
2	SVO	Nana eats food
		Nana dances a beautiful dance
		Nana writes a book
3	SVOO	Nana gives Osei food
		Nana sings Osei a song
		Nana tells Osei a word

With the yes/no interrogations in English, the alike data set as presented in Table 3.3 are employed with merely adding a question mark at the close of every sentence. With the wh-questions in English, the data set presented in Table 3.4 are employed.

Serial Number	Syntactic Structure	Sentences
1	SV	Who eats?
		Who dances?
		Who writes?

2	SVO	Who eats food?
		Who dances a beautiful dance?
		Who writes a book?
3	SVOO	Who gives Osei food?
		Who sings Osei a song?
		Who tells Osei a word?

One thing worth mentioning is the similarity in the sentence structure of Akan and English language. Both English and Akan follow the SVO syntactic structure which makes the comparison of intonation patterns of both languages not a difficulty. The difference is that whereas in English determiners come become nouns, Akan has determiners coming after the noun. This variation did not create so much difficulty as it does not feature in the data set to be used.

A sentence in discourse plays a significant part in the study of speech. Brazil's Context Intonation model (as cited in Pickering, 2004) and the successive studies conducted by Cauldwell and Hewings (1996); Ranalli (2002) and Thompson (1995) attest to the essence of discourse to establish the pitch pattern of a sentence. The utmost effective data for speech investigation could be attained in a naturalistic environment. Nevertheless, there exist a plethora of factors that impede the readiness of naturalistic spoken data. First of all, there are recording limitations and the difficulty of monitoring noise in the outdoor environment. The second factor has to do with the investigator's dilemma about getting informed approval of the speakers to record their speech. Normally if the respondents are in the known that each word they say is being recorded, they become nervous and the activity becomes less natural while recording their speech without making them could be unacceptable ethically (Cohen,

Manion, & Morrison, 2007; Mozziconacci, 2002). To remedy this situation, the researcher could have spent enough time with the respondents in order to be a part of their environment. Nevertheless, as a result of time limitations in this research, it was impossible to commence the familiarization process. Also, there is no fully developed and authentic corpus of Akan, therefore that probability was not considered.

Curtailing the difficulties cited above, a numbers of acoustic phonetic studies have been built on story narration (Queen, 2010), conversations or elicited speech (Levis, 1999), or enacted speech. However, there exists other choices such as making use of laboratory speech or reading lists. Xu (2010) explains laboratory speech as:

"…speech that is recorded in the laboratory, usually in the form of pre-composed scripts to be read aloud. However, the term lab speech is often used to refer to a stereotyped speech such as:

Say *hid* again.

Say *heed* again.

Say *hood* again.

where the italicized words are the ones under scrutiny." (p. 329)

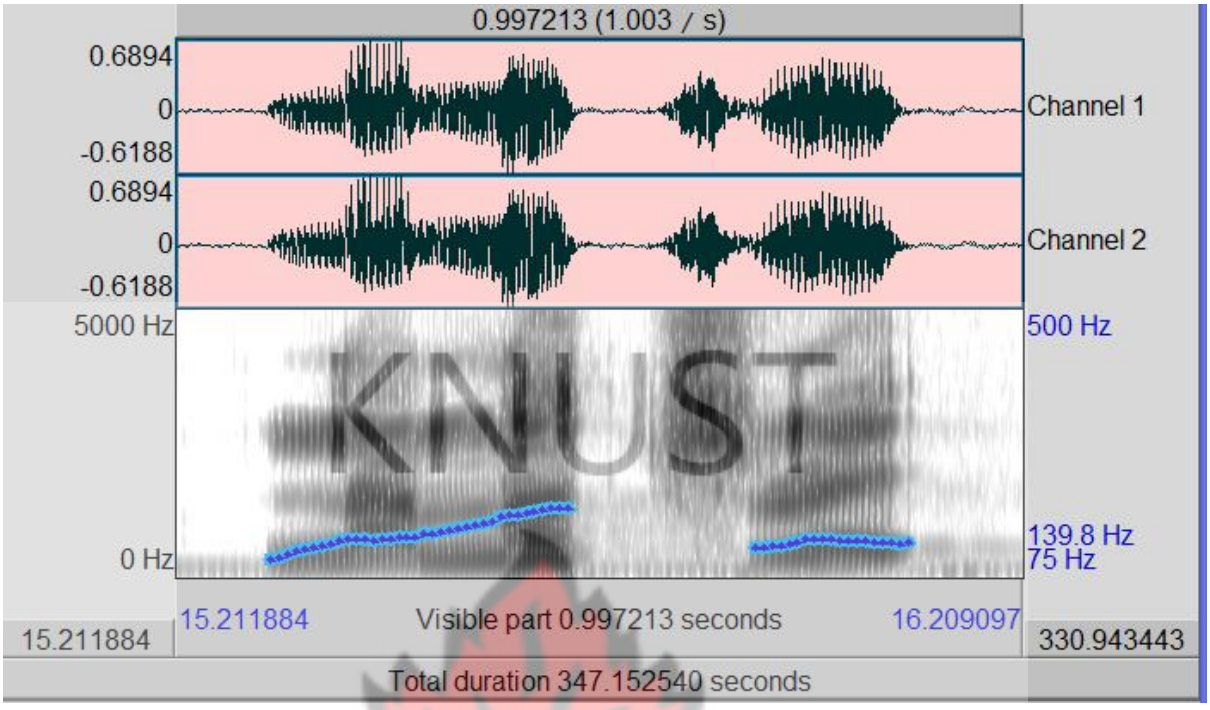
In this research, the researcher makes use of isolated syntactic structures with controlled stress at the initial word in one set of recordings and at the final word in the second set of recordings. The target structures are written on flash cards. The cards are rearranged after every recording so as to prevent monotonous tones. After each recording, the participants were given short breaks and some water to relax their vocal cords. Prior to the recording, participants are made to acquaint themselves with the text on flash cards so as to

limit the probability of error during recording process. These sentences were uttered at a self-selected conversational speech rate by the participants. DAW (Digital Audio Workstation) was used in executing the production is Steinberg Cubase 5. Both Recordings and mixing were done in Cubase 5. The audio sample rate of the project was set to 44100 kHz with Bit Depth of 16 Bit. A preset of the data was created in a group form for the vocals with Compressor, equalizer, DeEsser and a gate. Therefore, a total of 1026 sentences were recorded and analysed for this investigation. To make room for intra speaker disparity, three repetitions of each structure are also collected.

3.4. Data Analysis

Through PRAAT the data recorded are analysed. The researcher processes the data by manipulating the intonation pattern and stylizing it. The aim of the formalised patterns was studied to eradicate unnecessary pitch points. The ending patterns are kept in the form of speech pictures. An instance of the pitch contours after removal of unwanted points is shown in figure 3.1

Figure 3.1. Intonation Pattern of (Nana twerɛ)



These speech images are examined to decide their pitch contours. The patterns are branded based on ToBI (Tone Break Indices) theory of intonation. Mozziconacci (2002) emphasises the need of employing theories to investigate pitch contours as they are of the essence of making the search of intonation patterns extra systematic and trustworthy. In addition, Silverman, Beckman, Pitrelli, Wightman, Price and Hirschberg (1992) encourage the employment of ToBI for studying pitch contours in a language as a result of its four pertinent characteristics i.e. dependability, exposure, learnability, and its connexion to present-day methods of intonation. They posit that the intra-transcriber acceptance in the use of ToBI offers it a high rate of dependability. The background and the important characteristics of ToBI have been discoursed throughly in the previous chapter.

The next sections discuss the outcomes of diverse ToBI founded studies of American and British English. The outcomes equip the researcher to determine the extent of resemblance and variances between American, British and Ghanaian English.

3.5. Pitch Patterns in American English

A plethora of American scholars such as Hedberg, Sosa and Fadden (2004), Hedberg, Sosa, Gorgulu, and Mameni (2010), Hirschberg (2004), Pierrehumbert and Hirschberg (1990) and Safarova and Swerts (2004) have studied extensively the intonation and intonation patterns used in American English. The focus of these researchers have been on the various aspects of intonation made up of focus, old versus new information, the beliefs and intentions of the people involved in communication (speaker and listener), the influence of dialectal variations on pitch patterns, focus and the nature of speech acts etc. Significant among these scholars are Hirschberg (2004), Pierrehumbert and Hirschberg (1990) who thoroughly discuss how the reason behind a speaker's speech and his assumptions about the listener's understanding and opinions impact the intonation pattern of various syntactic structures. Therefore, in their discussion of the pitch contours of declaratives or interrogatives in American English, they qualify their assertions by stating the syntactic and semantic background of each structure. Thus, the analyses of the pitch contours employed in American English must not be generalised basic assertions relating to intonation patterns.

3.5.1. Declarative statements

In discussing the intonation pattern of the American English declaratives, Pierrehumbert and Hirschberg (1990) maintain that the structure has the intonation as H L- L%/H%. They explain that the H% is employed when the speaker desires to convey new information whereas the L% is employed when the speaker is of the opinion that the listener is already in the known of what is being put across. They, nevertheless, insist that the typical pitch contour of an English declarative structure is H* L- L%. Hirschberg (2004) who is an ardent supporter of this assertion explains that though there are additional patterns used in making declarative sentences in English, they are more debatable and less possible.

Table 3.6. Intonation Patterns Used by American Speakers of English for Making Declarative Statements

Sentence Structure	Intonation Patterns
Declarative Sentence	H* L- L%

3.5.2. Yes/no interrogatives

Hedberg, Sosa and Fadden (2004) assert that the pitch contours employed for affirmative yes/no interrogatives in American English is L* H- H% since it constitutes 85% of their data. Hirschberg (2004) and Pierrehumbert and Hirschberg (1990) are likewise in support of the assertion.

Table 3.7. Intonation Patterns Used by American Speakers of English for Producing Yes/no interrogatives

Sentence Structure	Intonation Patterns
Yes/no Interrogatives	L* H- H%

3.5.3. Wh-interrogatives

According to Hirschberg (2004) and Pierrehumbert and Hirschberg (1990), the standard pitch contours employed in producing American English wh-interrogatives is H* L-

L%. In a related development, a study conducted by Hedberg, Sosa and Fadden's (2004), however, discovered that a number of patterns could be employed in this circumstance e.g. H* LL%; !H* L- L%; L* L- L%. Each of these patterns appears with different occurrences in the data however they have been used repeatedly enough to be realised as noticeable patterns.

Table 3.8. Intonation Patterns Used by American Speakers of English for Producing Wh- interrogatives

Sentence Structure	Intonation Patterns	Percentages
Wh-interrogatives	L* L – L%	25%
	!H* L – L%	24%
	H* L- L%	24%

3.6. Intonation Patterns in British English

Like the American scholars, a number of Briton researchers have also thoroughly conducted a plethora of studies on the intonation patterns of British English. These researchers include Fletcher, Grabe, and Warren (2004), Grabe and Post (2002), Mayo, Aylett and Ladd (1997), Ortega (2002) and Zheng, Dyke, Berryman and Morgan (2011). Among these scholarly works, the current study selects the outcomes of the IViE project (Grabe & Post) since it is conducted to discover the intonational differences in as many as nine British vicinities. These localities included London, Cambridge, Belfast, Dublin, Bradford, Leeds and Newcastle. Nevertheless, to achieve the aim of the study which is to compare the intonations patterns of American, British and Ghanaian English, the study uses the intonation patterns of English spoken by Londoners since London is noted for using the Received Pronunciation (RP).

The next sections look at the discussion of declarative, yes/no questions and wh-interrogatives used in British English spoken around London. It is worth noting that the IViE pitch labelling conventions are grounded on ToBI, however, there are minor dissimilarities. For instance, there is the absence of the diacritic mark (-) in the phrase accent tone and the lack of a boundary tone is symbolized with '%'symbol unaided by an L or an H. Thus, the intonation patterns discussed in the next section would be studied having these conventions in mind.

3.6.1. Declarative Sentences

Grabe and Post (2002) posit that the English speakers in London make us of a number of intonation patterns for English declarative sentences. However, the predominantly used intonation pattern is the H* L %. In fact this has the highest pattern used in the production of declarative sentences with 96.1% of the data.

Table 3.9. Intonation Patterns Used by British Speakers of English for Producing Declarative Sentences

Sentence Structure	Intonation Patterns
Declarative Sentence	H*L%

3.6.2. Yes/No Interrogatives

Here, Grabe and Post (2002) assert that English speakers in London make of a large number of patterns for yes/no interrogatives. Most speakers use the L* H %; making it the most frequently used pattern with 39.3% of the data. Nevertheless, the occurrence of H* L % is also of importance with 28.1% data coverage. It is significant to note that, here, there appears no boundary tone in both patterns.

Table 3.10. Intonation Patterns Used by British Speakers of English for Producing Yes/No Interrogatives

Sentence Structure	Intonation Pattern	Frequency (%)
Yes/No Interrogatives	L* H %	39.3
	H* L %	28.1

3.6.3. Wh-Questions

The analysis done by Grabe and Post's (2002) on British English intonation of wh-interrogatives reveals that the London speakers of English's inclination for H* L % pitch contour that covers 55.7% of the data.

Table 3.11. Intonation Patterns Used by British Speakers of English for Making Wh-interrogatives

Sentence Structure	Intonation Patterns
Wh-interrogatives	H*L%

3.7. Data Interpretation and Presentation

The outcome of the study is evaluated and tabulated. The tables are analysed to establish the regularity of different intonation contours the speakers use. The impact of Akan speech patterns on Ghanaian English is as well studied. The outcomes enable the researcher to study the amount of dissimilarity/resemblance in the intonation patterns of Akan and Ghanaian English spoken by Akans in Ghana. Equally, the intonation patterns of English in Ghana are matched with those of the American and British English speakers. The outcomes of the study are presented in the next chapter.

CHAPTER FOUR

ANALYSIS OF RESEARCH OUTCOMES

4.0. Introduction

This chapter discusses the result of the analysis of the study. The initial part of this chapter puts forward the intonation contours in Akan. The next part deals with the outcomes of the analysis of contours the Akan speakers of Ghanaian English use in producing declarative and interrogative sentences.

4.1 Akan Intonation Patterns

4.1.1. Initial Word Stress

The outcome of the analysis indicates that the dominantly used pattern is L H L- L% with 70% of the data. Nevertheless, the low boundary tone is the most significant in all the three patterns in this context.

Table 4.1. Sum up of Intonation Contour Used for Making Akan Intransitive Declarative Statements with Initial Word Stress

Intonation Contour	Frequency	Percentage (%)
L H L- L%	19	70
L L- L%	6	22
L H H- L%	2	7

4.1.1.1.2. Transitive Statements

Table 4.2 specifies the range of intonation contours for making Akan declarative statements. It shows that L H L- L% pattern is the dominantly used contour since it covers 56% of the data. The rest of the patterns could be distributed into those ending with low phrase accent and boundary tones covering 37% of the data and those terminating with either high phrase accent or boundary pitch (L H H- L%, L H H- H%) with only 4% of the data each.

Table 4.2. Sum up of Intonation Contours Used for Making Akan Transitive Declarative Statements with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
LH H- L%	1	4
L H L- L%	15	56
L L- L%	3	11
L L L- L%	1	4
H L- L%	2	7.
L H- H%	1	4
H L L- L%	3	11
L H L H L - L%	1	4

4.1.1.1.3. Ditransitive Statements

The outcomes of the analysis of Akan ditransitive declarative statements are fairly akin to the outcomes cited in the earlier section. The utmost frequent contour is L H L- L% which consists of 70% of the data. The other negligible patterns are varied but the common

contour among them is the use of low boundary tone. Table 4.3 sums up all the patterns employed by the speakers.

Table 4.3. Sum up of Intonation Contours Employed for Making Akan Ditransitive Declarative Statements with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
H L H- L%	2	7
L H L L- L%	3	11
L H L- L%	19	70
L H L H- L%	2	7

4.1.1.2. Yes/no Interrogatives

4.1.1.2.1. Intransitive Statements

The outcomes of the data exploration of the intonation contours for making Akan intransitive yes/no interrogatives indicate the use of various patterns by the speakers. The pattern L H HH% is dominantly used with 44% of the data. The next is the L H L- L% pattern having 22% of the data. The rest of the patterns could be categorised into those terminating with low boundary tones (H L H- L%, L H- L%, L H H- L%) covering 11% of the data while the patterns terminating with high boundary tone having 11% of the data. Table 4.4 summarises these outcomes.

Table 4.4. Sum up of Intonation Contours Employed for Making Akan Intransitive Yes/no Interrogatives with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H H- H%	12	44
L H L H- H%	1	4
L H L- L%	6	22
H L H- L%	1	4
L H- L%	1	4
L H L- H%	3	11
L H H- L%	1	4
H L H- H%	1	4
L H H L- H%	1	4

4.1.1.2.2. Transitive Statements

Table 4.5 shows that the speech contours used for making Akan transitive yes/no interrogatives were similar to the outcomes cited in the earlier section. L H H- H% is the most frequent contour with 41% of the data. 30% of the data is covered by the L H L-L% patterns. The rest of the patterns have low boundary tones with the exception of L H L- H% which has 11% of the data.

Table 4.5. Sum up of Intonation Contours Used for Making Akan Transitive Yes/no Interrogatives with Initial Word Stress

Intonation Contour	Frequency	Percentage (%)
L H H- H%	11	41
L H L- L%	8	30
L H H- L%	1	4
L H- L%	2	7
L H L- H%	3	11
L L- L%	1	4
L H H L- L%	1	4

4.1.1.2.3. Ditransitive Statements

Table 4.6 summarises the occurrence rate of speech contours used for producing Akan ditransitive yes/no interrogatives with stress on the initial word. It shows that the dominantly used contour is the L H H- H% pattern which covers 52% of the data. Additionally, L H H- H% pattern is also noteworthy as it covers 30% of the data. The rest of the patterns have high boundary tones with the exception of L H L H L H- L% which covers 7% of the data.

Table 4.6. Sum up of Intonation Contour for Generating Akan Ditransitive Yes/no Interrogatives with Initial Word Stress

Intonation Contour	Frequency	Percentage (%)
L H H- H%	8	30
L H L- L%	14	52
L H L H L H- L%	2	7
L H L- H%	1	4
L H L H L H- H%	1	4
L H L H- H%	1	4

4.1.1.3. Wh-interrogatives

4.1.1.3.1. Intransitive Statements

The analysis of the data indicates that the noticeable contour for Akan intransitive wh-interrogative s was H L- L% which comprised 63% of the data. The L H L- L% contour comprised 19% of the data. The rest of the patterns end with a high boundary tone except L H L- L% which covered 18% of the data.

Table 4.7. Sum up of Intonation Contours Used for Making Intransitive Wh-interrogatives with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
H L- L%	17	63
H H L- L%	2	7
L H L- L%	5	19
L H- H%	1	4
L H L- H%	1	4
H H L- H%	1	4

4.1.1.3.2. Transitive Statements

The exploration shows that all three speakers prefer both the H L- L% and L H L- L% patterns to generate Akan transitive wh- interrogatives with 44% and 41% respectively. With the remaining patterns, those terminating with a high boundary tone (H L- H%, L H L- H%) covers 7% of the data and those terminating with low boundary tones (H L L- L%, L H L H- L%) cover 7% of the data.

Table 4.8. Sum up of Intonation Contour Used for Making Akan Transitive Wh-Interrogatives with Initial Word Stress

Intonation Contour	Frequency	Percentage (%)
L H L- L%	12	44
H L- L%	11	41
H L L- L%	1	4
L H L H- L%	1	4
H L- H%	1	4
L H L- H%	1	4

4.1.1.3.3. Ditransitive sentences

The analysis shows that the dominantly used pattern for making Akan ditransitive wh-interrogatives is L H L- L%. This pattern covers 33% of the data. Nevertheless, the H L- L% pattern is also significant as it covers 26% of the data. With the rest of the patterns, two could be considered as those having high boundary tones (H L- H%, H H L H- H%) which make up 4% of the data each. The remaining patterns carried low boundary tones and comprise 34% of the data.

Table 4.9. Sum up of Intonation Contour Used for Making Akan Ditransitive Wh-Interrogatives with Initial Word Stress

Intonation Contour	Frequency	Percentage (%)
H L- L%	7	26
H L L- L%	2	7
H L- H%	1	4
L H L- L%	9	33
L H L L- L%	1	4
H L H- L%	1	4
H L H L H- L%	1	4
L H L H- L%	1	4
H H L H- H%	1	4
L H L H L- L%	1	4
H L H L- L%	1	4
H H L- L%	1	4

4.1.2. Final Word Stress

4.1.2.1. Declaratives

1.2.1.1. Intransitive Statements

Table 4.10 specifies the regularity of the usage of various speech contours for making Akan intransitive declarative statements when the stress aligns with the final word of the

statement. The exploration indicates that 56% of the data is covered by the L H L- L% pattern while 15% of the data comprised of the L H L- H% pattern. The rest of the patterns have approximately 4% of the data each.

Table 4.10. Sum up of Intonation Contours for Making Akan Intransitive Declarative Statements with Final Word Stress

Intonation Contour	Frequency	Percentage (%)
L H L- L%	15	56
H L H H- L%	1	4
L H L- H%	4	15
L L- H%	1	4
L H- L%	1	4
H L- L%	1	4
H L H L- L%	1	4
L H H- L%	1	4
L L- L%	1	4
H L L- L%	1	4

4.1.2.1.2. Transitive Statements

The examination of the data shows that the dominantly used pattern for making Akan transitive declarative statements with stress aligning with the final word is L H L- L%. This pattern covers 41% of the data while L H L L- L% and L L- L% covering 14% each. In this circumstance, the use of low boundary tone in all the intonation contours is substantial.

Table 4.11. Sum up of Intonation Contours Used for Making Akan Transitive Declarative Statements with Final Word Stress

Intonation Contour	Frequency	Percentage (%)
L H L- L%	11	41
L H L H- L%	2	7
L H L L- L%	4	14
L L- L%	4	14
H L- L%	3	11
H L H L- L%	2	7
L H- L%	1	4

4.1.2.1.3. Ditransitive Statements

The examination of the data indicates a significant usage of L H L- L% pattern which covers 41% of the data. The H L- L% and L L- L% patterns have 15% of the data each. While the L H L L- L% and H L H- L% patterns cover 7% of the data each. With the rest of the patterns covering approximately 4% of the data.

Table 4.12. Sum up of Intonation Contour Used for Making Akan Ditransitive Declarative Statements with Final Word Stress

Intonation Contour	Frequency	Percentage (%)
L H L L- L%	2	7
L H L- L%	11	41
H L- L%	4	15
L L- L%	4	15
H L H- H%	1	4
H L L- H%	1	4
H L H L- L%	1	4
H L H- L%	2	7
L H- L%	1	4

4.1.2.2. Yes/no interrogatives

4.1.2.2.1. Intransitive sentences

The Sum up of the generation of Akan intransitive yes/no interrogatives having stress align with the final word indicates that the most noticeable pattern is L H L- H% (67%). Nevertheless, the L L- H% (22%) pattern also occupies a major point in the pool of patterns whereas the remaining patterns occupy approximately 4% each as indicated in table 4.13.

Table 4.13. Sum up of Intonation Contours Used for Making Akan Intransitive Yes/No Interrogatives with Final Word Stress

Intonation Contour	Frequency	Percentage (%)
L H L- H%	18	67
L H L H- H%	1	4
L H H L- H%	1	4
L L- H%	6	22
L H H- H%	1	4

4.1.2.2.2. Transitive Statements

Table 4.14 summaries the total outcomes of the production of Akan transitive yes/no interrogatives with stress aligning with the final word. The table indicates that the most frequent contour is L H L- H% covering 74% of the data. Also the L L- H% pattern having 19% of the data is significantly used as well by the speakers.

Table 4.14. Sum up of Intonation Contours Used for Making Akan Transitive Yes/No Interrogatives with Final Word Stress

Intonation Contour	Frequency	Percentage (%)
L H L- H%	20	74.0
L L- H%	5	18.6
L H- H%	1	3.7
L H L H L- H%	1	3.7

4.1.2.2.3. Ditransitive sentences

The analysis of the data at this point brings to light the fact that all three speakers prefer L H L- H% pattern in producing Akan ditransitive yes/no interrogatives. This pattern covers as much as 59% of the data. The L L- H% pattern is also significant covering 22% of the data. The L H L H L- H% pattern is used considerably covering 11% while the L H L H L- L% pattern covers 7% of the data.

Table 4.15. Sum up of Intonation Contours Used for Making Akan Ditransitive Yes/No Interrogatives with Final Word Stress

Intonation Contour	Frequency	Percentage (%)
L H L- H%	16	59
L L- H%	6	22
L H L H L- L%	2	7
L H L H L- H%	3	11

4.1.2.3. Wh-interrogatives

4.1.2.3.1. Intransitive Statements

The sum up of the total use of intonation contour to make Akan intransitive wh-interrogatives shows all three speakers have preference for the L H L- L% (41%) pattern. The next significant pattern is H L- L% with 19% of the data. This is followed by H L H- L% and H L L- H% patterns covering 11% of the data. The remaining patterns all put together make up 29% of the data.

Table 4.16. Sum up of Intonation Contours Used for Making Akan Intransitive Wh-Interrogatives with Final Word Stress

Intonation Contour	Frequency	Percentage (%)
H L- L%	5	19
H L H- L%	3	11
L H L- H%	1	4
H L L- L%	1	4
H L L- H%	3	11
L H L- L%	11	41
L H H- H%	2	7
H L- H%	1	4

4.1.2.3.2. Transitive Statements

The analysis of data here indicates that the three speakers used varying patterns to generate Akan transitive wh-interrogatives when the stress falls on the final word of the statement. The dominantly used pattern here is L H L- L% (37%) however H L-L% (22%)

follows closely in relation rate of occurrence. Whereas the H L L- L% (15%) pattern is also prominently employed by all three speakers.

Table 4.17. Sum up of Intonation Contour for Making Akan Transitive Wh-Interrogatives with Final Word Stress

Intonation Contour	Frequency	Percentage (%)
H L- L%	6	22
L H L- L%	10	37
H L L- L%	4	15
L H L L- L%	3	11
H L H- L%	3	11
L H L- H%	1	4

4.1.2.3.3. Ditransitive Statement

Table 4.18 shows there is no major pattern for making Akan ditransitive wh-interrogatives when stress falls on the final word. The H L- L% pattern has the most rate of occurrence (26%) however the L H L - L% pattern comes next in terms of rate of occurence (19%). Again, the H L – H% is as well significant having 15%.

Table 4.18. : Sum up of Intonation Contour Used for Making Akan Ditransitive Wh-Interrogatives with Final Word Stress

Intonation Contour	Frequency	Percentage (%)
H L- L%	7	26
H L L- L%	2	7
H L H L- L%	3	11
H L L- H%	2	7
L H L- L%	5	19
L H L L- H%	1	4
L L- L%	1	4
L H L L- L%	1	4
H L- H%	4	15
L H L- H%	2	7

4.2. Individual Variations in the Use of Speech Contours in Akan

4.2.1. Declaratives

Table 4.19 Sums up the use of contours by specific participants The L H L- L% pattern is the dominantly used pattern in this circumstance. The second participant uses the L L- L% pattern frequently however this pattern is unavailable in the first participant's data whereas the third participant uses it very occasionally.

Table 4.19. Individual Use of Intonation Contours for Making Akan Declarative Statements

Intonation Contour	First Speaker	Second Speaker	Third Speaker
L H L- L%	73.5%	50.1%	48.3%
L H H- L%	2.3%		5.2%
H L H- L%	1.7%		
L H L L- L%	1.9%		3.6%
L H L H- L%	9.1%	3.6%	
H L H H- L%	3.8%		7.5%
H L- L%	1.9%		
L L - L%	5.4%	9.3%	11.2%
L L L- L%		25.8%	7.3%
L H L- H%		1.9%	
L L- H%		5.4%	
H L H- H%		1.7%	
L H L H L- L%		1.9%	1.7%
L H- L%			7.5%
H L H L- L%			3.8%
H L L- H%			1.7%

4.2.2. Yes/no interrogatives

There exist a number of differences in the individual usage of speech contours for Akan yes/no interrogatives among the three speakers. The first and second speakers favour the use of L H L- L% pattern in this perspective while the third speaker uses L H L- H% pattern for this type. Besides, the third speaker uses the broadest range of patterns relative to the other two speakers. Table 4.20 indicates this vividly.

Table 4.20. Individual Usage of Intonation Contours for Making Akan Yes/no Interrogatives

Intonation Contour	First Speaker	Second Speaker	Third Speaker
L H H- H%	46.1%	5.4%	5.4%
L H L H- H%	3.6%		1.9%
L H L- L%	47.1%	40.8%	11.2%
L H H L- H%	2.8%		1.7%
H L H- L%		1.9%	
L H H- L%		1.7%	1.9%
L H L- H%		14.6%	51.7%
L L- H%		33.4%	
L H- H%		1.9%	
L H- L%			3.6%
H L H- H%			1.9%
L L- L%			1.6%
L H H L- L%			1.9%
L H L H L H- L%			1.9%
L H L H L H- H%			1.7%
L H L H L- H%			9.1%
L H L H L- L%			1.9%

4.2.3. Wh-questions

Table 4.21 shows the usage of speech contours for generating Akan wh-interrogatives. There is no two ways that first and the third speakers favour the usage of H L- L% pattern. However, the second speaker uses the L H L- L% pattern most often. The amount of inter-speaker difference is very high in this situation. We see all the three speakers use a wide diversity of speech contours. However, the rate of the occurrence of those patterns is too little to be noteworthy.

Table 4.21. Individual Usage of Intonation Contours for Making Akan Wh-Interrogatives

Intonation Contour	First Speaker	Second Speaker	Third Speaker
H L- L%	53.6%	16.5%	24.1%
H H L- L%	1.9%		5.4%
L H L- L%	9.3%	64.9%	18.0%
H L L- L%	16.5%	3.6%	1.9%
H L- H%	1.7%		14.7%
H L H- L%	5.6%		7.5%
L H L- H%	1..6%		9.3%
H L L- H%	5.7%	1.9%	
L H L L- L%	1.7%	9.3%	
H L H L- L%	1.9%		3.7%
L H- H%		1.6%	
L L- L%		1.9%	
H H L- H%			1.9%
L H L H- L%			3.6%
H L H L H- L%			1.7%
H H L H- H%			1.9%
L H L H L- L%			1.9%
L H H- H%			3.6%

4.3. Summary of Speech Contour of Akan Declarative Statements

4.3.1. Initial word stress

The sum up of the total use of Akan declarative transitive, intransitive and ditransitive statements when stress falls on the initial word of the statement shows that the dominantly used pattern is L H L-L%. Therefore we can assert that it is the standard pattern for making **Akan declarative statements.**

Table 4.22. Sum up of Total Speech Contours Used for Making Akan Declarative Statements with Initial Word Stress

Intonation Contours	Percentage (%)
L H L- L%	66
L H H- L%	5
L H H- H%	2
L H L L- L%	3
L H L H- L%	4
L L- L%	1
H L L- L%	1
L L L- L%	2
H L- L%	3
L H L H L- L%	1

4.3.2. Last word stress

The sum up of the speech contours for making Akan declarative statements with stress aligning with the final word of the statement shows that the speakers have inclination for L H L- L% pattern.

Table 4.23. Sum up of the Total Intonation Contours Used for Making Akan Declarative Statements with Final Word Stress

Intonation Contours	Percentage (%)
L H L- L%	51
H L H H- L%	3
L H L H- L%	3
L H L L- L%	6
H L- L%	6
L H L- H%	6
L L- H%	1
L L- L%	9
L H L L- L%	1
H L H- H%	1
L H- L%	2
H L L- L%	2
L H H- L%	1
H L H L- L%	4

4.4. Sum up of Intonation Contours of Akan Yes/No Interrogatives

4.4.1. First word stress

The sum up of the speech contours for making Akan yes/no interrogatives when stress falls on the initial word of the statement shows the absence of any fixed pattern which may be credited to these statements. Likewise we could realise in table 4.24, the L H H- H% pattern is most frequent with 39% of the data however the L H L- L% pattern also follows closely with 30%.

Table 4.24. Sum up of Intonation Contours Used for Making Akan Yes/no Interrogatives with Initial Word Stress

Intonation Pattern	Percentage (%)
L H H- H%	39
L H L H- H%	1
L H L- L%	30
H L H- L%	2
L H H- L%	5
L H- L%	2
H L H- H%	2
L H L- H%	10
L H H L- H%	1
L L- L%	1
L H H L- L%	2
L H L H L H- L%	1
L H L H L H- H%	1

4.4.2. Last word stress

However, the outcomes of the analysis of Akan yes/no interrogatives with stress aligning with the final word of the statement shows a visibly striking fondness for the L H L- H% pattern (66%). The next noticeable pattern is L L- H% (23%). The rest of the patterns occur too seldom to be substantial.

Table 4.25. Sum up of Intonation Contours Used for Making Akan Yes/no Interrogatives with Final Word Stress

Intonation Patterns	Percentage (%)
L H L- H%	66
L H L H- H%	1
L H H L- H%	1
L L- H%	23
L H- H%	1
L H H- H%	2
L H L H L- H%	5
L H L H L- L%	1

4.5. Summary of Intonation Contours for Akan Wh-Interrogatives

4.5.1. Initial word stress

The examination of the speech contours used for producing wh- intransitive, intransitive and ditransitive interrogatives when stress falls on the initial word of the statement shows that all three speakers prefer to use the H L- L% pattern (42). However, the L H L- L% pattern is also substantial (30).

Table 4.26. Sum up of Intonation Contours Used for Producing Akan Wh-Interrogatives with Initial Word Stress

Intonation Patterns	Percentage (%)
H L- L%	42
H H L- L%	4
L H L- L%	30
H L L- L%	4
H L- H%	5
L H- H%	1
L H L L- L%	1
L H L- H%	1
H H L- H%	2
L H L H- L%	1
H L H L H- L%	2
H H L H- H%	1
L H L H L- L%	1
H L H L- L%	1
H L H- L%	2

4.5.2. Final word stress

The analysis of Akan wh-interrogatives with stress aligning with the last word shows that the dominantly used pattern is L H L- L% (32%). However, the H L- L% pattern is likewise used substantially (24%). The rest of the patterns, though several and diverse, are used very seldom.

Table 4.27. Sum up of Intonation Contours for Making Akan Wh-Interrogatives with Final Word Stress

Intonation Contours	Percentage (%)
H L- L%	24
H L H- L%	5
L H L- H%	6
H L L- L%	11
H L L- H%	4
L H L- L%	32
L H L L- L%	6
H L H L- L%	1
L H L L- H%	1
L L- L%	1
L H H- H%	3
H L- H%	6

4.6. Intonation Patterns of Ghanaian English Spoken by Akan Speakers

4.6.1. Initial Word Stress

4.6.1.1. Declaratives

4.6.1.1.1. Intransitive Statements

The sum up in table 4.28 shows that all the three speakers prefer using L H L- L% pattern (92%) for producing English transitive declarative statements when the stress aligns with the initial word of the statement.

Table 4.28. Sum up of Intonation Contours Generating English Intransitive Declarative Statements with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	25	92
L L- L%	1	4
H L L- H%	1	4

4.6.1.1.2. Transitive statements

The sum up of the use of English transitive declarative statements shows that all speakers are interested in using the H L- L% pattern (84%) in this context.

Table 4.29. Sum up of Intonation Contours for Generating GHE Transitive Declarative Statements with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	23	84
L H L L- L%	1	4
L H L- H%	1	4
H L L- L%	1	4
L L- H%	1	4

4.6.1.1.3. Ditransitive Statements

The sum up of the analysis of English ditransitive declarative statements affirms that the dominantly used pattern in this perspective is L H L- L% (88%).

Table 4.30. Sum up of Intonation Contours for Generating English Ditransitive Declarative Statements with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	24	88
L H L L- L%	1	4
L H L H- L%	1	4
H L H- L%	1	4

4.6.1.2.Yes/no-Interrogatives

4.6.1.2.1. Intransitive Statements

Table 4.31 sums up the usage of intonation contours for making English intransitive yes/no interrogatives. The dominantly used pattern in this context is L H H- H% (66%). The next prominent pattern is L H L- L% (33%).

Table 4.31. Sum up of Intonation Contours for Making GHE Intransitive Yes/no Interrogatives with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	7	26
H L H- H%	1	4
L H L H- H%	1	4
L H H- H%	18	66

4.6.1.2.2. Transitive sentences

The sum up in table 4.34 also establishes the dominance of L H H- H% pattern in terms of rate of occurrence (85%) for producing English transitive yes/no questions when stress falls on the initial word of the statement.

Table 4.32. Sum up of Intonation Contours for Generating GHE Transitive Yes/no Interrogative with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	4	15
L H H- H%	23	85

4.6.1.2.3. Ditransitive Statements

The sum up of the analysis of English ditransitive yes/no interrogatives with stress aligning with the initial word of the statement confirms that the dominantly used intonation

contour is L H L- L% (67%). However, the occurrence of L H L L- L% pattern (19%) is also substantial.

Table 4.33. Sum up of Intonation Contour for Making GHE Ditransitive Yes/no Interrogatives with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	18	67
L H L L- L%	5	19
L L- L%	2	7
L H H- H%	2	7

4.6.1.3.Wh-interrogatives

4.6.1.3.1. Intransitive statements

The sum up of the use of intonation contours for producing English intransitive wh-interrogatives establishes that all three speakers dominantly use L H L- L% pattern (93%).

Table 4.34. Sum up of Intonation Contours for Generating English Intransitive Wh-Interrogatives with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	25	93
H L- L%	2	7

4.7.1.3.2. Transitive Statements

Table 4.35 summarises the usage of intonation contours for generating English transitive wh-interrogatives. It shows that the dominantly used intonation contour here is L H L- L% (89%).

Table 4.35.: Sum up of Intonation Contours for Making GHE Transitive Wh-Interrogatives with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	24	89
H L H L- L%	2	7
H L L- L%	1	4

4.7.1.3.3. Ditransitive sentences

The sum up of English ditransitive wh-interrogatives shows that the L H L- L% pattern (81%) is used more frequently by all three speakers. Nevertheless, the H L H L- L% (18%) also has substantial data coverage.

Table 4.37. Sum up of Intonation Contours for Making GHE Ditransitive Wh-Interrogative with Initial Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	22	81
H L H L- L%	4	15
H L- L%	1	4

4.7.2. Final Word Stress

4.7.2.1. Declaratives

4.7.2.1.1. Intransitive Statements

The sum up on the usage of speech contours to make **GHE** intransitive declarative statements with stress falling on the final word of the statement here does not yield any absolute outcomes. The dominantly used pattern is H L- L% (26%) however H L- L% pattern is close behind (22%) trailed by L H H- L% (15%).

Table 4.37. Sum up of Intonation Contours for Generating GHE Intransitive Declarative Sentences with Final Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	6	22
L H- L%	2	7
L L- H%	2	7
L L- L%	3	11
L H- H%	2	7
H L H- H%	1	4
H L- L%	7	26
L H H- L%	4	15

4.7.2.1.2. Transitive sentences

Table 4.38 sums up the outcomes of the analysis of speech contours for producing English transitive declarative statements. However the outcomes are indefinite since the speakers use a number of patterns in this circumstance. The dominantly used pattern is L H L- L% covering 33% of the data with L H H- L% pattern being the next frequently used with19% of the data. The rest of the patterns are used too irregularly to be described significant.

Table 4.38. Sum up of Intonation Contours for Generating GHE Transitive Declarative Sentences with Final Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	9	33
L H H- L%	5	19
L H L H- L%	2	7
L L- H%	1	4
L H- L%	1	4
L H L- H%	1	4
H L H- H%	1	4
H L H- L%	2	7
L L- L%	1	4
H L- L%	2	7
L H H L- L%	1	4
H L H L- L%	2	7

4.7.2.1.3. Ditransitive Statements

The sum up in table 4.39 shows the absence of proof to define any absolute pattern for generating English ditransitive declarative statements when stress falls on the final word of the statement. Though the H L- L% pattern is used dominantly with 37% of the data, the H H- L% pattern follows with 22% of the data. The L H L- L% was close by (11%) whereas L H H L- L% pattern (7%) is also substantial.

Table 4.41. Sum up of Intonation Patterns for Making GHE Ditransitive Declarative Sentences with Final Word Stress

Intonation Contours	Frequency	Percentage (%)
H L- L%	10	37
L L- L%	2	7
L H L- L%	3	11
H H- L%	6	22
L H L H- L%	1	4
L H H- L%	1	4
H L H- L%	1	4
L H H L- L%	2	7
H L H L- L%	1	4

4.7.2.2. Yes/no interrogatives

4.7.2.2.1. Intransitive statements

Table 4.42 summarises the outcomes of the analysis of **GHE** intransitive yes/no interrogatives with stress aligning with the final word of the statement. The L H H- H% pattern is dominantly used (67%). The L H- H% pattern is the next frequently used pattern with 22% data coverage.

Table 4.40. Sum up of Intonation Contours for Generating GHE Intransitive Yes/no Interrogatives with Final Word Stress

Intonation Contours	Frequency	Percentage (%)
L H H- H%	18	67
L H- H%	6	22
L H L- L%	1	4
L H L H- H%	2	7

4.7.2.2.2. Transitive sentences

The sum up of the analysis of pitch contours for making **GHE** transitive yes/no interrogatives indicates that L L H- H% pattern (37%) is dominantly used by the speakers. L H H- H% pattern is the next with (36%) followed by L H L H- H% (22%).

Table 4.41. Sum up of Intonation Contours for Generating English Transitive Yes/no Interrogatives with Final Word Stress

Intonation Contours	Frequency	Percentage (%)
L H H L- L%	1	4
L H H- H%	7	26
L L H- H%	10	37
L H L- L%	3	11
L H L H- H%	6	22

4.7.2.2.3. Ditransitive sentences

Table 4.42 sums up the use of speech contours for making English ditransitive yes/no interrogatives. The dominantly used pattern is L H H- H% (48%). But, the occurrence of L L H- H% (37%) and L H L H- H% (15%) is also noteworthy.

Table 4.42. Sum up of Intonation Contours for Generating GHE Ditransitive Yes/no Interrogatives with Final Word Stress

Intonation Contours	Frequency	Percentage (%)
L H H- H%	13	48
L H L H- H%	4	15
L L H- H%	10	37

4.7.2.3. Wh- Interrogatives

4.7.2.3.1. Intransitive sentences

The sum up of the use of intonation contour used for generating **GHE** intransitive wh-interrogatives indicates an irregular use of patterns here. The L H LL% (37%) pattern is the dominantly used by the speakers. However, the rate of occurrence of L H L H- H% (22%) is also noteworthy. But, it is followed by the L H- H% (15%) and L L- L% (11%) patterns which are also used expressively.

Table 4.43. Sum up of Intonation Contours for Generating GHE Intransitive Wh-Interrogatives with Final Word Stress

Intonation Contours	Frequency	Percentage (%)
L H L- L%	10	37
L L- L%	3	11
H L H L- L%	1	4
L H- H%	4	15
L H L H- H%	6	22
H L H- H%	1	4

4.7.2.3.2. Transitive statements

Table 4.44 indicates prominent use of two patterns. L H L- L% and L H- H% are used with the same rate of occurrence (33%). The L H L H- H% contour was also used quite frequently (15%) followed by H L H- H% (11%). The rest of the patterns are insignificant.

Table 4.44. Sum up of Intonation Contours for Generating GHE Transitive Wh- Interrogatives with Final Word Stress

Intonation Contours	Frequency	Percentage (%)
L H- H%	9	33
L H L- L%	9	33
H L H- H%	3	11
L H L H- H%	4	15
L L H L- L%	1	4
H L L H- H%	1	4

4.7.2.3.3. Ditransitive Statements

The sum up of speech patterns for generating **GHE** ditransitive wh-interrogatives do not yield any absolute outcomes about any specific pattern used by the speakers here. The L H- H% and the L H L- L% (33%) patterns share same rate of occurrence whereas the L H L H- H% (15%) pattern follows closely. The next pattern is H L H- H% with 11% of the data used.

Table 4.45. Sum up of Intonation Contours for Generating GHE Ditransitive Wh-Interrogatives with Final Word Stress

Intonation Contours	Frequency	Percentage (%)
L H- H%	9	33
L H L- L%	9	33
H L H- H%	3	11
L H L H- H%	4	15
L L H L- L%	1	4
H L L H- H%	1	4

4.8. Individual Variations in the Use of Intonation Contours in Ghanaian English

4.8.1. Declaratives

Table 4.46 shows that all the three speakers favour the use the L H L- L% patterns for generating Ghanaian English declarative statements. The first speaker uses the widest variety of intonation contours in here.

Table 4.46. Individual Use of Intonation Contours for Generating English Declarative Statements

Intonation Contour	First Speaker	Second Speaker	Third Speaker
L H L- L%	59.1%	51.6%	51.7%
L H L L- L%	5.6%		
L H H- L%	16.7%	1.9%	3.8%
L H L H- L%	3.6%	3.6%	14.7%
H L- L%	11.0%	3.8%	9.3%
L L- L%	1.9%		
H L L- H%	1.9%	5.8%	
L H L- H%	3.6%	16.3%	
H L L- L%	3.6%		
L L- H%	7.6%		
L H- L%	3.6%	1.8%	
L H- H%	5.6%	2.3%	
H L H- H%	3.8%		
H H- L%	9.1%		
L H L H- L%		3.4%	1.9%
H L H- L%		5.2%	7.5%
L H H L- L%		4.1%	7.5%
H L H L- L%			3.6%

4.8.2. Yes/no Interrogatives

The analysis of the use of speech contours for generating yes/no interrogatives in Ghanaian English indicates that the speakers use a number of patterns. The first and the third speakers use L H H- H% pattern dominantly while the three participants' preference for L H L- L% pattern is also noteworthy.

Table 4.47. Individual Use of Intonation Contours for Generating GHE Yes/no Interrogatives

Intonation Contour	First Speaker	SecondSpeaker	Third Speaker
L H L- L%	39.0%	39.0%	27.8%
H L H- H%	1.6%		
L H L H- H%	5.6%		23.9%
L H L L- L%	7.2%	5.3%	
L H H- H%	44.5%	14.7%	40.0%
L H H L- L%		1.9%	
L L- L%			
L H- H%		5.4%	9.0%
L L H- H%		33.4%	

4.8.3. Wh-interrogatives

Table 4.48 shows that the first two speakers preferred L H L- L% pattern whereas the third speaker uses L H L H- H% pattern dominantly. The amount of inter-speaker difference is very great here and the third speaker shows the most diversity in the use of speech contours for making English wh-interrogatives.

Table 4.58. Individual Use of Intonation Contours for Making GHE Wh- Interrogatives

Intonation Contour	First Speaker	Second Speaker	Third Speaker
L H L- L%	92.5%	51.7%	31.3%
L L- L%	1.9%	5.6%	11.2%
H L H L- L%	1.9%		
L H- H%	1.9%	31.3%	3.8%
H L H- H%	1.8%		1.7%
H L- L%		11.2%	5.4%
H L L- L%			3.8%
L H L H- H%			35.2%
L L H L- L%			3.6%
H L L H- H%			3.7%

4.9. Sum up of General Intonation Contours for Making GHE Declarative Statements

4.9.1. Initial word stress

Table 4.51 demonstrates the ratio of the general use of many intonation contours for English declarative statement when stress falls on the initial word of the statements. As the table clearly indicates, the dominantly used intonation contour here is L H LL% (90). Therefore, we posit that this is the pattern for generating declarative statements by Akan speakers of English in Ghana.

Table 4.49. Sum up of General Intonation Contours for Making GHE Declarative Statements with Initial Word Stress

Intonation Contours	Percentage (%)
L H L- L%	90
L H L L- L%	1
L L- L%	1
H L L- H%	1
L L- H%	1
H L L- L%	2
L H L H- L%	1
H L H- L%	1
L H H- L%	2

4.9.2. Last word stress

Nevertheless, the outcome of the analysis of general use of **GHE** declarative statement, with stress aligning with the final word of the statement, is seen as less definite. As table 4.47 indicates, a selection of intonation contours are used here and this makes it challenging to choose a default pattern for declarative statements employed by Akan speakers of English in Ghana.

Table 4.50. Sum up of Overall Intonation Contours for Generating GHE Declarative Statements with Final Word Stress

Intonation Contours	Percentage (%)
L H H- L%	21
L H L- L%	21
L H L H- L%	8
L H- L%	2
L L- H%	4
L H- H%	8
H L H- H%	5
L H L- H%	4
L H H- H%	2
L L- L%	6
H L- L%	9
H H- L%	5
L H H L- L%	3
H L H L- L%	1
H L H- L%	1

4.10. Sum up of General Intonation Contours for Generating GHE Yes/No Interrogatives

4.10.1. Initial word stress

Table 4.51shows that the dominantly employed intonation contours for English yes/no interrogatives Akan speakers produce in Ghanaian is L H L- L% (71%).

Table 4.51. Sum up of General Intonation Contours Used for Generating GHE Yes/no Interrogatives with Initial Word Stress

Intonation Contours	Percentage (%)
L H L- L	71
H L H- H%	1
L H L H- H%	1
L H L L- L%	6
L H H- H%	19
L L- L%	1

4.10.2. Final word stress

But, the sum up of **GHE** yes/no interrogatives when stress aligns with the final word of the statement does not give room for a claim of an absolute preferred pattern of the speakers. As the table demonstrates, a selection of patterns are employed by the speakers in this context, the most dominant of them is L H H- H%.

Table 4.52. Sum up of General Intonation Contours for Generating GHE Yes/no Interrogatives with Final Word Stress

Intonation Contours	Percentage (%)
L H H- H%	41
L H H L- L%	1
L H L H- H%	18
L H- H%	12
L L H- H%	25
L H L- L%	4

4.11. Sum up of Overall Intonation Contours for Generating GHE Wh-Interrogatives

4.11.1. Initial word stress

The analysis of the use of intonation patterns for generating English wh-questions with stress falling on the first word of the statement shows an obvious supremacy of the L H L- L% pattern (86%). Therefore, we cannot be wrong to assert that it is the standard pattern Akan speakers in Ghana use in generating wh-interrogative statements.

Table 4.53. Sum up of General Intonation Contours for Generating GHE Wh-Interrogatives with Initial Word Stress

Intonation Contours	Percentage (%)
L H L- L%	86
H L- L%	4
H L H L- L%	10
H L L- L%	1

4.11.2. Last word stress

Here as well, the sum up of the usage of intonation contours for English wh-interrogatives with stress falling on the final word of the statement does not give an absolute outcome. The L H LL%, L H- H% and L H L H- H% closely followed each other in relative to rate of use. Also, there were other contours too which were not used very often however they were a part of the participants' collection of intonation contours to be used here.

Table 4.54. Sum up of General Intonation Contours for Making GHE Wh-Interrogatives with Final Word Stress

Intonation Contours	Percentage (%)
L L- L%	6
L H L- L%	29
L H H- H%	1
H L H L- L%	2
L H- H%	25
H L H- H%	7
L H L H- H%	26
L L H- H%	1
H L L H- H%	1

The next chapter discusses the implication of these results.

CHAPTER FIVE

DISCUSSIONS, IMPLICATIONS, RECOMMENDATIONS AND CONCLUSION

5.1 The Intonation Pattern of Akan

5.1.1. Declarative statement

This study has looked at the intonation patterns of Akan declarative sentences with two stress contours: initial word and the final word stress. The outcomes of the Akan data with initial word stress gives vivid outcomes with L H L- L% being the most recurrently used intonation pattern for making declarative sentences in this perspective. 97.9% declarative sentences made use of L boundary tone and 81.2% of the participants used L tone in phrase accent. Thus, L- and L% are the commonly used boundary tones for making Akan declarative statements. Also, only 3% sentences used H pitch accent, 12% statement employed only L pitch accent while 85% sentences made use of both L and H pitch accents. This indicates that the (L) (H) L- L% is the most commonly used intonation contour for Akan declarative sentences with stress falling on the initial word. The parentheses here show that the arrangement of L and H pitch accents could vary in various sentences.

The outcomes of the data having stress on the final word of the sentence are also carrying stress on the initial word. It is worth noting at this point that it is not common to stress the final word in a sentence. A speaker stressing a final word in a sentence usually show astonishment, disbelief or requiring agreement from the listener. Nonetheless, due to the analysis the researcher has included this stress pattern in the study. The outcomes show that when stress is placed on the final word in an Akan declarative sentence, the L H L- L% intonation pattern is most used. Only 7% sentences used H boundary tone and 15% sentences made use of H phrase accent. Therefore, L is the mainly used pattern for both phrase accent and the final boundary tone. Also, 15% sentences used merely low pitch accent whereas only

6% sentences used only H pitch accent in a sentence. Thus, there is no two ways that (L) (H) L- L% is the principally used pattern for producing Akan declarative syntactical structures when it is the final word that carries the stress in a sentence. These outcomes agree with a study conducted by Dolphyne (2006) which asserts that 96% of the respondents used the L H L pattern for Akan declarative sentences. The L H L and L H L- L% patterns are not generally dissimilar and the initial could be seen as a shorter recognition of the final pattern.

Table 5.1 indicates the highly used pattern for Akan declarative statements.

Table 5.1. Intonation Contour Used by Akan Speakers for Making Declarative Sentences

Category	Intonation Contour
Akan Declarative Sentences	L H L- L%

5.1.2. Yes/no interrogatives

The exploration shows that the intonation contour used for making Akan yes/no interrogatives is no different. In the sentence with the final stressed word, 55% of the sentences used the H boundary tone and phrase accent. This fraction is not so reliable as the residual 45% of the sentences having used L phrase accent and boundary tones.

However, 5% sentences made use of merely L pitch accent. Thus it indicates that (L) (H) [L-] [H-] [L%] [H%] is the contour employed for producing Akan yes/no interrogatives. The Brackets show that either H or L tone might appear as a phrase accent or boundary tone in a yes/no interrogative while the parentheses show that the plan of L and H intonation contour might contrast in diverse sentences.

The outcome of the examination of the data when the final word in a sentence carries the stress is very coherent. Merely 2% sentence used L boundary tone while only 3% sentences used H phrase accent. Therefore, the principally used boundary tones in this framework are L- H%. For the pitch accent, 22% sentences used only L pitch accent. Hence the intonation contour for producing Akan yes/no interrogatives with final word carrying the stress is (L) (H) L- H%.

Similarly, the gist of the general usage of intonation contours for producing Akan yes/no interrogatives shows that L H L- H% as the most commonly used contour. This discovery is also seen in the outcomes of Boadi's (2007) study of intonation patterns of Akan yes/no questions. His research indicates that L H L- H% pattern consist of 72% of his data. Therefore, the typical pattern for Akan yes/no interrogatives is L H L- H%. This is exhibited in table 5.2.

Table 5.2. Intonation Contours Used by Akan Speakers for Making Yes/no interrogatives

Type	Intonation Contour	Percentage (%)
Akan Yes/no interrogatives	L H L- H%	38.4
	L H L- L%	15.2

5.1.3. Wh-interrogatives

The outcomes of the examination of Akan wh-interrogatives having stress fall on the initial word of the sentence shows that only 11% sentences made use of H boundary tone and 8% sentences used H phrase accent. Due to this, the researcher maintains that L- and L% are

the dominantly used boundary tones for Akan wh-interrogatives. Moreover, 40% sentences employed lone H pitch accent whereas the rest of the sentences employed both L and H pitch accents. So, the frequently used intonation contour in this perspective is (L) (H) L- L%.

The study of intonation contours Akan speakers use producing Akan wh-interrogatives when stress falls on the final word of the sentence shows that 20% sentences employed H boundary tone and only 10% sentences employed H phrase accent. While 30% sentence employed solely H pitch accent and 2% used solely L pitch accent. Therefore, the intonation contour for Akan wh-interrogatives having stress align with the final word is (L) (H) L- L%.

Table 5.3. Intonation Contours Akan Speakers for Making Wh-interrogatives

Type	Intonation Contour
Akan Wh-interrogatives	(L) H L- L%

5.2. Personal Variations in the Use of Intonation Contours in Akan among Participants

5.2.1. Declaratives

The study of the data employed in making Akan declarative sentences shows the speakers' inclination for the use of L H L- L% pattern. It is worth mentioning that the first and the third participants have more diversity in the use of intonation contours as compared with the third speaker. Therefore, we discover a great degree of inter-speaker differences. The second participant offers the broadest range of contours used for Akan declarative sentences. Notwithstanding, all the three participants' inclination for the L H L- L% pattern is obvious.

5.2.2. Yes/no Interrogatives

The study of the use of intonation contours for making Akan yes/no interrogatives has a variety of patterns. As it was seen in the earlier section, the first participant has smaller variety of intonation contours compared with the third participant. Both of them have been surpassed by the second participant who used a total of 15 varied intonation contours in this perspective. Moreover, there is a degree of similarity in the first and third participants' use of patterns as both have desired the L H L- L% contour while the second speaker's desired pattern varies in the use of boundary tone.

5.2.3. Wh-interrogatives

The study of wh-interrogatives shows vivid variation in all the three speakers' use of intonation contours in this perspective. Nevertheless, the first and third two participants' inclination of intonation contours is very obvious while the second participant' analysis shows unclear outcomes. Here, the speakers do not use single pattern expressively enough to indicate the speaker's preference for a particular intonation contour for making Akan wh-interrogatives. As observed in the earlier section, the second participant has most variety in the use of intonation contours. All in all, we find more consistency in the first and third speakers' preference of intonation patterns comparatively to the second speaker. The amount of inter-speaker difference is very significant in this perspective.

5.3 Intonation Contours in Ghanaian English

5.3.1. Declarative statements

In analysing the intonation patterns used for Ghanaian English data, the researcher discovers that only 1% sentences employed H boundary tone and 5% sentences have used H phrase accent. Moreover, merely 3% sentences used the L pitch accent. Therefore, the

intonation contour for declaratives in Ghanaian English when stress falls initial word of the sentence is (L) (H) L- L%.

The study of the corpus when stress aligns with the final word of the sentence shows that 23% sentences made use of H boundary tone while 46% sentences used L phrase accent. In addition, 24% sentences used solely L pitch accent and 17% sentences made use of only H pattern. Therefore, the intonation contour used for Ghanaian English declarative sentences with final word stress is (L) (H) [L-] [H-] [L%] [H%].

Notwithstanding, summing up the general intonation pattern used for declarative sentences in Ghanaian English, the study concludes that the L H L- L% pattern is the most frequently used as shown in table 5.4.

Table 5.4. Intonation Contour employed by Akan Speakers of Ghanaian English for Making Declarative sentences

Type	Intonation Contour
English Declarative Sentence	L H L- L%

5.3.2. Yes/no interrogatives

The examination of yes/no questions shows that H boundary tone and phrase accent each have occurred in 21% of the data. While merely 2% sentences used L pitch accent alone. Therefore, the intonation contour for yes/no interrogatives with stress aligning the initial word is (L) (H) L- L%.

Nevertheless, the study of data having final word stress shows that 28% sentences have been generated with H boundary tone and 19% sentences were said with H phrase accent. Besides, 35% statements employed H pitch accent only whereas only 2% sentences

used L pitch accent. Generally, almost all the participants used L H H – H% for producing yes/no interrogatives in Ghanaian English as shown in table 5.5.

Table 5.5. Intonation Contour Used by Akan Speakers of Ghanaian English for Making Yes/no Interrogatives

Type	Intonation Contour	Percentage (%)
Yes/no interrogatives	L H L- L%	37.2
	L H H- H%	29.4

5.3.3. Wh-interrogatives

The study of the data for wh-interrogatives demonstrates that all the sentences employed L boundary tone and phrase accent. And only 6% sentences have used a single H pitch accent. So the standard contour for wh-questions when stress falls on the initial word of the sentence is (L) (H) L- L%.

Nevertheless, the examination of wh-interrogatives having the final word stress demonstrates that boundary tone and phrase accent each used L contour in 38% of the data. And 32% sentences employed a single L pitch accent. Therefore, the intonation contour for making Ghanaian English wh-interrogatives is (L) (H) [H-] [L-] [H%] [L%].

However, the general usage of intonation contours for wh-interrogatives shows that L H L- L% is the most frequently used pattern as illustrated in table 5.6:

Table 5.6 Intonation Contour Used by Akan Speakers of Ghanaian English for Making Wh-Interrogatives

Type	Intonation Contour
English Wh-Interrogatives	L H L – H%

5.4. Personal Variations in the Use of Intonation Contours in English Language

5.4.1. Declaratives

All participants do have a high degree of resemblance in the use of intonation contours for the production of English declarative statement. In fact, three participants made the L H L- L% pattern most dominantly in this perspective. This shows a great sense of likeness between participants. Though we acknowledge that the second participant exhibited more difference in the use of intonation contours than the first and last participants.

5.4.2. Yes/no questions

The study of the personal usage of intonation contours for making English yes/no interrogatives shows across participant evenness in the use of intonation contours. The participants use two patterns i.e. L H L- L% and L H H- H%. Therefore, the degree of similarity among the speakers is quite high in this framework.

5.4.3. Wh-interrogatives

The exploration of the usage of intonation contours in this context indicates all three participants preferred using the L H L- L% contour. Even though, the second participant made use of the L H L H- H% more habitually than the hitherto cited intonation contour, the

variation of occurrence is significantly low and L H L- L% pattern still occurs frequently. Therefore, the degree of across participant variation is significantly low in this context.

5.5. Comparison between Akan, Ghanaian, American and British English

To realise the aim of this study of finding out the impact of the Akan intonation pattern on Ghanaian English, there is the need for us to compare intonation contours of these two languages and also match the patterns employed in Ghanaian English with those of American and British English so as to define the variance or likeness between the native and non-native patterns. Table 5.7 sums up the intonation contours used in Akan, American, British and Ghanaian English in various syntactical contexts.

Table 5.7. Assessment of Intonation Contours Employed in Akan, American, British and Ghanaian English

Sentence	Akan	American English	British English	Ghanaian English
Declarative	L H L- L%	H* L- L%	H* L %	L H L- L%
Yes/No Interrogatives	L H L- H% (38.4%)	L* H- H%	L* H % (38.9%)	L H L- L% (37.2%)
	L H H- H% (8.9%)			
	L H L- L% (15.4%)		H* L % (27.8%)	L H H- H% (29.6%)
Wh-interrogatives	(L) H L- L%	L* L- L% (27%)	H* L %	L H L- L%
		H* L- H% (23%)		
		!H* L- L% (23%)		

Table 5.7 demonstrates that the speakers used similar intonation contour for declarative sentences in Akan and Ghanaian English. The variation that exist between the native and non-native speakers' use of intonation contours is very clear. Therefore, the impact of Akan intonation contours on those of English spoken by Akans in Ghana is portrayed in table 5.7. It is of essence to bring to light that the patterns employed in British and American English have been used by the Ghanaian speakers of English, although their occurrence is very low. However, they form part of the Ghanaian English speakers' collection of intonation

contours. However, it is worth noting that instead of following the intonation patterns used by the British or the American speakers, Ghanaian speakers of English use the pattern dominant in Akan speakers.

Relative to the production of yes/no interrogatives, the impact of Akan is very obvious. The use of the L H L- L% pattern has been very significant in both Akan and Ghanaian English. There is a major variation between the intonation contours of British English and that of Ghanaian English. British English uses no boundary tones while in Ghanaian English both low and high boundary tones have been used. Again, the pattern employed in American English is also a part of the Ghanaian English speakers' catalogue of patterns, however the Ghanaian Akan English speakers preferred the pattern used in Akan for generating yes/no interrogatives. Therefore, the impact of Akan on the intonation contours of Ghanaian English appears very clear.

The outcomes of comparing the use of intonation contour in Akan and American, British and Ghanaian English employed for generating wh-interrogatives presents a really stimulating insight. The impact of Akan on the intonation contours used in Ghanaian English is very evident. The L H L- L% pattern is dominantly used in the two languages. The dissimilarity that exist between the native and non-native speakers' use of intonation contours is also clear. A remarkable fact is that Akan, like many West African languages, also makes use of the H L- L% pattern for wh-interrogatives. Therefore, this pattern is a fragment of Ghanaian Akan English speaker's pool of intonation patterns. The alike pattern is also used in British English. However, the Ghanaian English speaker selects the contrasting contour for generating wh-questions. This portrays that between the two existing patterns in Akan, the L H L- L% pattern is more primed paralleled with the other pattern. Though the Akan speaker intrinsically knows that other intonation contour could be employed for producing the same

syntactic structures, he elects the one pattern that is not similar to the intonation contours employed in both American and British English.

The similarity between the prosodic contours of Akan and Ghanaian English has also been echoed in Kugler's research (2016). It is maintained in this research that Ghanaian Akan and English language speakers' use of prosodic resources is dissimilar from those of the native speakers of English especially American speakers. This variance reflects in the outcomes of this research also which demonstrates that there is a least resemblance between the American and Ghanaian English speakers' use of intonation contours for producing various types of statements. The same is also of British English.

A thought-provoking feature at this point is the monotony of intonation contours used for producing declaratives and questions in Ghanaian English. The same L H L- L% pattern is used for all declarative, yes/no and wh-interrogatives. This occurrence is echoed in Hewing's (1995) investigation into Indonesian speakers' use of English intonation patterns. His research attests that non-native speakers of English employ more level tones than the native speakers. Besides, they tend to use falling tones where the native speakers use rising ones. This expounds Ghanaian English speakers' use of monotonous intonation contours and their use of falling tones in questions where the native speaker prefers using rising tones. The outcomes of Swerts and Zerbian's (2010) research into prosodic transferral in the use of English by Black South Africans support that the characteristics of L1 effect the use of L2 English varieties.

It is very important to point out that the outcomes of this study cannot be over generalised. The speakers in this study are in their native city of Kumasi, Ghana and have spoken and also studied, especially from the basic school to the Junior Secondary School, their native language, Akan. There are even some Akans that have migrated to non-Akan

speaking communities whose language might have been influenced by the native language of those communities. Also, there are other languages in Ghana that the speakers of those languages might have their English language so much influenced by their L1. The researcher would want to investigate into such languages in future.

5.5. Implications of the Study

In recent times, English has gained a lingua franca status globally. The importance of students of English language being equipped with the right skills to communicative effectively cannot be over emphasised. According to Stibbard (1996), teaching pronunciation could afford students of English language to achieve what he terms 'communicative empowerment'. He also emphasises the fact that intonation is an important feature of pronunciation and should be a central portion of English language curriculum. Intonation has long been overlooked in the English language teaching classes in second language situation. Celik (2001) maintains that the reason for this lack of consideration paid to intonation in the ELT curriculum is the curriculum planners' failure to appreciate the significance of intonation in communication. This study attempts help Ghanaian teachers of English to be equipped with the understanding of the intonation contours used Ghanaian speakers of English use. In addition, it would assist them to examine the amount of the transfer of Akan intonation contours to the intonation contour in English language. According to Demirezen (2009), if the non-native teachers become familiar with the intonation of the target language, errors in the language class could be curtailed drastically. Therefore, this study could empower the language teacher in Ghana to improve his teaching knowhow and boost his understanding of the L2 pitch contours and how these contours vary from those of the L1 speakers.

In addition, this study supports the recognition of varied intonation patterns of Ghanaian English in particular and the non-native diversities generally. Appartaim mentions Kachru (1983) as having presented four phases which the non-indigenous diversities of English undergo which are not localised. The first phase, she reports, is the non-identification of local variety and the mindful recognition of the L_1 speaker. That is there is a wide awake attempt to sound like or emulate the native speaker while deliberately repressing the local variety which is known. In the second phase, according to her, a wide dispersal of bilingualism in English is discovered which gradually results in the growth of varieties within a range. The consequence of this is that such a speaker's English is branded Ghanaianised, Nigerianised or Indianised. The usage, even though scanty, is broadly used for diverse functions. The third phase contains the local variety being gradually recognised and thereby resulting in a decline between the linguistic norm and linguistic performance. The last as mentioned by Kachru and reported by Appartaim, is categorised into two namely: attitudinal terms and teaching material. In the attitudinal term, the one does not establish a distinction between the linguistic norm and performance while the teaching material is contextualised in the indigenous socio-cultural environment. Looking at this, one begins to differentiate the wider and national usage of English and considers its global use as insignificant.

Nevertheless, there is a little difficulty relative to the acceptance of the local variety by the native speakers and even some locals such as the Seys and Ahulus who would disregard it by labelling it as a 'deviation' and 'error'. Again, they pass negative judgements that it would be a lowering of standard it a non-indigenous range is used for teaching and learning in schools and also the inter-comprehensibility would be missing if the diverse forms are chosen (Prator, 1968).

Bamgbose (1997:235) asserts that it is more challenging when the non-native believe they are receiving British Education and therefore are speaking British English. These group

of people assess theirs and others' English with the British benchmark but do not thrive to attain the ideal model no matter how hard they try.

Notwithstanding, the apostles of nativisation such as Owusu-Ansah (1997), Bamgbose (1997), Richards (1982) and Kachru (1976) hold different views from the native-speaker and the contenders to the British variety. Kachru (1997) opines that "the traditional difference between native and non-native is functionally uninsightful and linguistically doubtful, particularly when looking at the roles played by English in a multilingual society" (p.213). The intellectuals insist that instead of trying to suppress the local varieties, there must be a mindful effort at guiding them towards the path of standardisation as the indigenous varieties are attaining authenticity.

Another implication is that, as cited by Sackey (1997), the original purpose for building of schools was to educate human resources to assist the economic activities and later to propagate the gospel as well as to communicate with the native speakers. In fact, the idea of studying a language with the aim of communicating with the native speaker no longer really exist as claimed by Gogovi (1991). Hence, teachers of English in the local setting should be mindful with what they teach since even though English is of worldwide significance, it is still just one language amid a numerous in the learner's anthology and in that way the impact of the learner's mother tongue is to be looked forward to. In this context, it would not be realistic to insist on an absolute native-like competency coupled with the register and domain styles in the Ghanaian educational system as this insistence would as well challenge the dynamics of multilingualism and the use of varieties of English worldwide. Kachru (1997) is of the belief that the methods to studying world Englishes therefore, "have to be interdisciplinary and intergrative approaches and capture identities of different Englishes and to examine critically the implications of such identities in cross-cultural communication and creativity" (p. 212).

Again, the planners of the educational curriculum in Ghana must be made aware of the recent development in order to adapt the curriculum to go well with the present state of affairs. They must be in the capacity to expose the learner and the teacher to the global as well nativised ranges. This is due to the fact that the learner would first and foremost make use of the language locally before going international. Thus, for the student to be considered knowledgeable, there is the essence to master the intonation patterns of both the Ghanaian English and that of the global world. For this to be realised, the soon-to-be- teachers should be taught intonation pattern of both Englishes. Appartaim (2009) recommends that the colleges of Education should incorporate courses such as Contrastive and Error Analysis, Stylistics and Sociolinguistics likewise Multilingualism in their curriculum to help student teachers in their understanding of the bilingual and multilingual nature of the current society.

Looking at the argument put forward so far, one may not be far from right to assert that there is more to be done relative to the local varieties of English. This is in terms of providing sufficient and detailed description and codification. It is for this reason that the study has been done to add to the plethora of studies describing the educated Ghanaian English particularly relative to the intonation patterns employed by Ghanaian.

This research would have implications for coming scholars who would desire to conduct a study in the area of intonation contours in Ghanaian English. This study is focused on only intonation contours of Akan and Ghanaian English. The other qualities of intonation i.e. stress and duration have not been investigated into here. Likewise, the intonation of complex sentences, the influence of focus, the dialectical difference, variations in native and non-native speakers' pitch range, declination in Ghana English are some of the fields that are yet to be explored.

This research could lead to several other studies. For instance, it could serve as a foundation for a longitudinal research of the acquisition of intonation contours by Ghanaian English speakers. It could be a tool to trace the procedure of development in the English language learner's acquisition of intonation contours and to trace the variation in the use of patterns amongst the beginners and the advanced English language learners. Also, it could be useful to lay the basis of a study to investigate the individual variances in the use of intonation contours by Ghanaian, British and American native speakers of English. It could enable scholars study the contour of inter and intra-speaker stability (consistency) in the use of intonation contours. Again, some scholars argue that the Ghanaian speaker of English uses a greater number of pitch accents as paralleled with the British and American speakers. The study of the causes this phenomenon could formulate a very thought-provoking research. Equally, the impact of grammatical structures and the amount of arguments in a statement on the use of intonation contours is thus far a new filed that can be investigated. Therefore, this study could serve as a maiden study which could result in several other fascinating discoveries.

5.6. Recommendations

The implications advanced so far raises the opportunity for further studies. The following recommendations hence must be looked at:

The work is time bound. That is, it is done in a limited time frame. As a result, the researcher selected only three Akan speakers from Kumasi in the Ashanti region to establish the intonation patterns of Akan and English language in Ghana. It is recommended that future studies involve more speakers in order to achieve a more accurate results.

Again, the study is limited to only the Akan language in Ghana within which there are about ten dialects out of which the study selected only Akan (Asante Twi) to compare its

intonation patterns and that of English in Ghana. The results could have been more appropriate if the data set had covered other native languages spoken in Ghana such as Ga, Nzema and Ewe. The researcher recommends that future studies cover the mentioned indigenous language to really establish the impact of these language on Ghanaian.

Lastly, the study was done with recorded sentences that were restricted. It would be interesting to conduct as study using a data in a natural environment. That is recording participants in their natural conversation without being restricted to only declarative and interrogative sentences.

5.7. Conclusion

The aim of this study has been to investigate the impact of Akan intonation on Ghanaian English. The study is based on a comparative approach that looks at the differences between the intonation patterns of Ghanaian, American and British English. The theories of nativisation and Pierrhumbert's theory of intonation are adopted as the frameworks for the study. Nativisation puts forward that the socio-linguistic and cultural background have resulted in the changes to the target language which in Ghana is English language. The Perrhumbert's theory of intonation helps to identify and analyse the intonation patterns of both Akan and Ghana English to uncover their similarities.

The data analyses indicate that there is similarity between the intonation pattern used in Akan and that of Ghanaian English spoken by the Akans in Ghana. It also brings to light the differences between the pitch contours of Ghanaian, American and British English. This makes the variety of English spoken in Ghana dissimilar from that of America and Britain. This is a result of the fact that the Ghanaian variety portrays all the qualities of non-native varieties in terms of its long conventions of usage and emotional attachment to language

which is not a native one (Kachru, 1992a). This insights Appartaim (2009) to maintain that 'based on the features identified, the Ghanaian variety is considered as an emerging endonorm'. She makes this claims based on the fact that Ghanaian English has its own internal standards which are restricted to Ghanaians alone.

The study is one of the plethora and various studies in nativisation and the attempt to codify Ghanaian English as a model in its own right. It firms the earlier scholarly works Owusu-Ansah, Huber, Boadi, Adjaye, Ngula and Appartaim among others that there exist a variety of English which must be acknowledged as legitimate non-native variety of English. Bamgbose (1997) posits that:

> ...unless and until there is adequate codification of usages in NNE's, legitimate variants that have even attained the status of indexical makers of certain varieties would continue to be labelled as 'errors' (p.206).

It is the fervent hope of the investigator that this study would serve as form of codification and the genesis for further study into the differences between the intonation pattern and other phonological features of Educated Ghanaian English and those of the native speakers of English such us American, Britain and even Canada.

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APPENDICES

APPENDIX 1

The detail of speech contours employed by speaker 1 for generating Aka sentences is presented here.

Initial Word Stress

Declaratives

Intonation pattern	Frequency
L H L- L%	22
L H L- L%	1
L H H- H%	1
H L H- L%	1
L H L L- L%	1
L H L H- L%	1

Yes/no interrogatives

Intonation pattern	Frequency
L H H- H%	25
L H L H- H%	1
L H L- L%	1

Wh-interrogatives

Intonation Patterns	Frequency
H L- L%	20
H H L- L%	2
L H L- L%	3
H L L- L%	1
H L- H%	1

Final Word Stress

Declaratives

Intonation Pattern	Frequency
L H L- L%	19
H L H H- L%	1
L H L H- L%	1
L H L L- L%	3
H L- L%	3

Yes/no interrogatives

Intonation Pattern	Frequency
L H L- H%	25
L H L H- H%	1
L H H L- H%	1

Wh-interrogatives

Intonation Pattern	Frequency
H L- L%	8
H L H- L%	4
L H L- H%	1
H L L- L%	7
H L L- H%	4
L H L- L%	1
L H L L- L%	1
H L H L- L%	1

APPENDIX B

The detail of speech contours employed by speaker 2 for generating Akan statements is presented here.

First Word Stress

Declaratives

Intonation Pattern	Frequency
L L- L%	7
L H L- L%	14
H L L- L%	3
L L L- L%	1
L H L L- L%	1

Yes/no interrogatives

Intonation Pattern	Frequency
L H H- H%	2
L H L- L%	23
H L H- L%	1
L H H- L%	1

Wh-interrogatives

Intonation Pattern	Frequency
L H L- L%	21
H L- L%	2
L H- H%	1
H L L- L%	1
H L L- L%	1
L H L L- L%	1

Final Word Stress

Declaratives

Intonation Pattern	**Frequency**
L H L- L%	15
L H L- H%	2
L L- H%	1
L L- L%	6
L H L L- L%	1
H L- L%	1
H L H- H%	1

Yes/no interrogatives

Intonation Pattern	Frequency
L L- H%	19
L H L- H%	1
L H L- H%	2
L H- H%	2
L H L- H%	3

Wh-interrogatives

Intonation Pattern	Frequency
L H L- L%	16
H L- L%	5
L H L L- L%	3
L H L L- H%	1
H L L- H%	1
L L- L%	1

APPENDIX C

The detail of speech contours employed by speaker 3 for generating Akan statements is presented here.

First Word Stress

Declaratives

Intonation Pattern	Frequency
L H H- L%	1
L H L- L%	19
L L- L%	1
H L- L%	1
L H L H L- L%	2
L H L H- L%	3

Yes/no interrogatives

Intonation Pattern	Frequency
L H- L%	2
H L H- H%	1
L H L- H%	9
L H L- L%	5
L H H- H%	2
L H H- L%	1
L H H L- H%	1
L L- L%	1
L H H L- L%	1
L H L H- H%	1
L H L H L H- L%	2
L H L H L H- H%	1

Wh-interrogatives

Intonation Pattern	Frequency
L H L- H%	2
H L- L%	9
H H L- L%	3
H H L- H%	1
L H L- L%	1
L H L H- L%	2
H L- H%	2
H L H- L%	2
H L L- L%	1
H L H L H- L%	1
H H L H- H%	1
L H L H L- L%	1
H L H L- L%	1

Final Word Stress

Declaratives

Intonation Pattern	**Frequency**
L H- L%	4
H L- L%	3
L H L- L%	10
H L H L- L%	2
L H H- L%	1
L L- L%	2
H L L- L%	1
L H L H- L%	1
H L L- H%	1
H L H- L%	2

Yes/no interrogatives

Intonation Pattern	Frequency
L H L- H%	22
L H H- H%	1
L H L H L- H%	3
L H L H L- L%	1

Wh-interrogatives

Intonation Pattern	Frequency
H L- L%	3
L H L- L%	10
L H H- H%	2
H L- H%	5
L H L- H%	4
H L H- L%	2
H L H L- L%	1

APPENDIX D

The detail of speech contours used by speaker 1 for generating English statements is presented here.

Initial Word Stress

Declaratives

Intonation Pattern	Frequency
L H L- L%	25
L H L L- L%	2

Yes/no interrogatives

Intonation pattern	Frequency
L H L- L%	23
H L H- H%	1
L H L H- H%	1
L H L L- L%	3

Wh-interrogatives

Intonation pattern	Frequency
L H L- L%	27

Final Word Stress

Declaratives

Intonation pattern	Frequency
L H H- L%	11
L H L- L%	7
L H L H- L%	3
H L- L%	5
L L- L%	1

Yes/no interrogatives

Intonation pattern	Frequency
L H H- H%	25
L H H L- L%	1
L H L H- H%	1

Wh-interrogatives

Intonation pattern	Frequency
L H L- L%	23
L L- L%	1
H L H L- L%	1
L H-H%	1
L H- L%	1

APPENDIX E

The detail of speech contours used by speaker 2 for generating English statements is presented here.

Initial Word Stress

Declaratives

Intonation pattern	Frequency
L H L- L%	22
L L- L%	1
H L L- H%	1
L H L- H%	1
H L L- L%	1
L L- H%	1

Yes/no interrogatives

Intonation pattern	Frequency
L H L- L%	22
H L H- H%	2
L H L H- H%	2
L H L L- L%	1

Wh-interrogatives

Intonation pattern	Frequency
L H L- L%	**27**

Final Word Stress

Declaratives

Intonation pattern	Frequency
L H- L%	2
L L- H%	2
L H L- L%	8
L L- L%	2
L H- H%	2
H L H- H%	2
L H L- H%	1
H L- L%	3
H H- L%	4
L H L H- L%	1

Yes/no interrogatives

Intonation pattern	Frequency
L H H- H%	5
L H- H%	2
L L H- H%	20

Wh- interrogatives

Intonation pattern	Frequency
L H L- L%	2
L L- L%	2
L H- H%	18
H L H- H%	5

APPENDIX F

The detail of speech contours used by speaker 3 for generating English statements is presented here.

Initial Word Stress

Declaratives

Intonation pattern	Frequency
L H L- L%	25
L H L H- L%	1
H L H- L%	1

Yes/no interrogatives

Intonation pattern	Frequency
L H H- H%	14
L H L- L%	13

Wh- interrogatives

Intonation pattern	Frequency
H L- L%	2
L H L- L%	17
H L H L- L%	5
H L L- L%	3

Final Word Stress

Declaratives

Intonation pattern	Frequency
H L- L%	9
L L- L%	4
L H L- L%	3
L H H- L%	3
H L H- L%	3
L H H L- L%	3
H L H L- L%	2

Yes/no interrogatives

Intonation pattern	Frequency
L H L- L%	4
L H H- H%	5
L H- H%	4
L H L H- H%	14

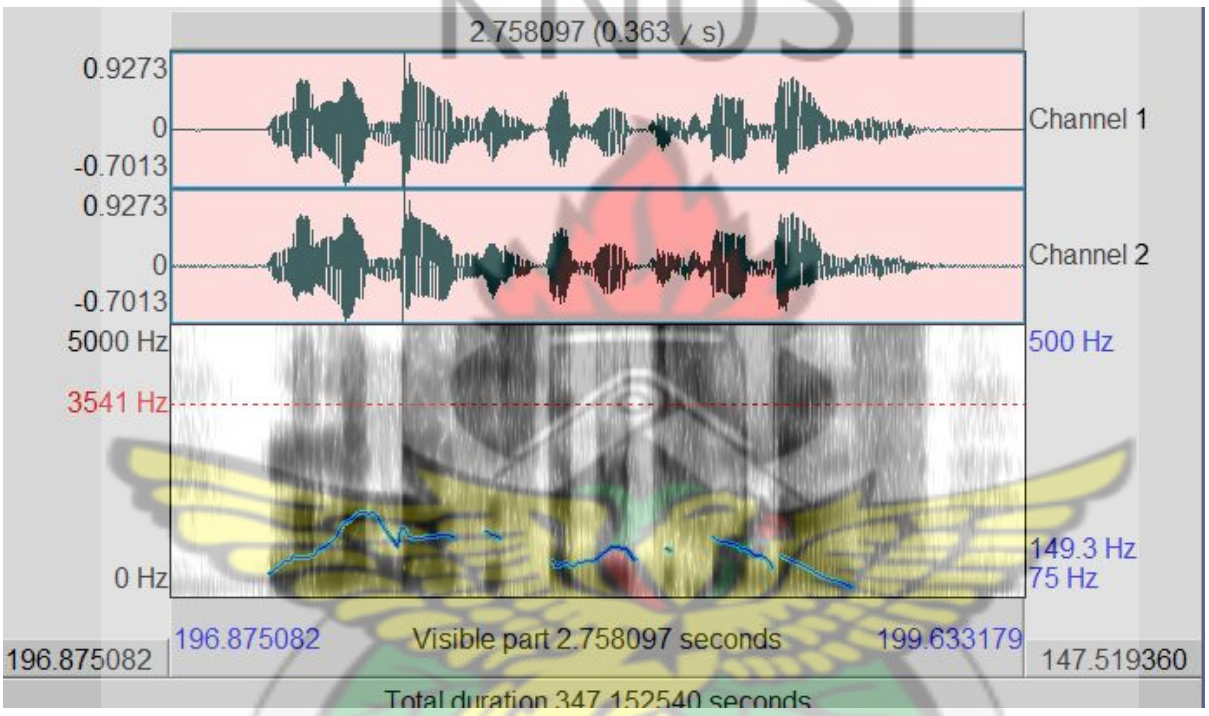
Wh- interrogatives

Intonation pattern	Frequency
L H L H- H%	20
L H L- L%	1
H L H- H%	1
L H- H%	1
L L H L- L%	2
H L L H- H%	2

APPENDIX G

Praat image for speaker 3

Intonation Pattern of (Nana dances a beautiful dance) for the third speaker



Intonation Pattern of (Nana sa asa fɛɛfɛ) for the third speaker