REPUBLIC OF TURKEY
ÇUKUROVA UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES
DEPARTMENT OF ENGLISH LANGUAGE TEACHING

CROSS-LINGUISTIC PATTERNS OF PAUSING: A CASE OF TURKISH, SWAHILI, HAUSA AND ARABIC SPEAKERS OF ENGLISH

Ömer EREN

PHD DISSERTATION

ADANA / 2018

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PHD DISSERTATION

ADANA / 2018

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- Tüm bilgi, belge, değerlendirme ve sonuçları bilimsel etik ve ahlak kurallarına uygun olarak sunduğumu,
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ÖZET

KARŞILAŞTIRMALI DİLBİLİMSEL DURAK ÖRÜNTÜLERİ: İNGİLİZCE KONUŞAN, TÜRKÇE, SWAHİLİ, HAUSA VE ARAPÇA ANA DİLLİ BİREYLER ARASINDA DURUM ÇALIŞMASI

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İkinci dil edinimi çalışmalarında genel olarak araştırmacılar yazılı bir metni ele alarak, bu metindeki örgüleri çoğunlukla dilbilgisel açıdan incelemektedirler. Ancak, bu tür inceleme, yazılı metin üzerinden konuşma yapan kişi ile yazılı metin arasında bir ayrılık oluşturmakta, metni esas konuşmacıdan uzaklaştırmaktadır. Bu bağlamda bürün çalışmaları konuşmacının performansı ile ilgili detaylı bilgi verebilmektedir. İngilizce dilindeki bürün çalışmaları içerisinde duraklarla ilgili zengin bir literatür mevcuttur. Ancak, bu çalışmalar arasında anadilin İngilizce konuşmaya etkileri bakımından yapılan çalışmalar sayıca çok azdır. Konuşma, çok farklı faktörlerin birbiriyle etkileşim içerisinde olduğu dinamik bir süreç olduğundan, bu kompleks ilişkiyi farklı koşullar içerisinde incelemek bir gerekliliktir. Konuşmanın dinamikleri, özellikle de bürünsel özellikler, bu farklılıklardan kaynaklanan bileşenlerin yapısına ilişkin önemli katkı sağlayabilir. Konuşma anında oluşan durak süreleri bu değişkenlerin etkilerini gösterebilir. Bu betimsel çalışmada araştırmacı Türkçe, Swahili, Hausa ve Arapça anadilli İngilizce konuşan 40 katılımcının yazılı ve sözlü konuşmalarındaki eş yapısal bağlaçlarda bulunan durak örgülerini incelemiştir. Yazılı konuşma için katılımcılara kısa bir öykü okutulmuş; sözlü konuşma için ise katılımcılarla yarı-yapılandırılmış görüşme yapılmıştır. Ses analiz programı, *Praat* kullanılarak yazılı ve sözlü konuşmada 4659 eş yapısal bağlaçtaki 9318 durak ölçülmüş ve bulgular Bağımlı Örneklem t-test'i ile analiz edilmiştir. Yazılı ve sözlü konuşma farklı stratejiler gerektirdiğinden, eş yapısal bağlaçların öncesinde ve sonrasındaki durak sürelerinin yazılı ve sözlü konuşmada farklılık gösterdiği bulunmuştur. Ayrıca, aynı ana dili konuşan bireylerin

durak örgüleri benzerlik gösterdiğinden, bu durumun karşılaştırmalı dilbilimsel bir etkinin göstergesi olabileceği belirtilmiştir. Bu çalışmada İngilizce konuşmayı etkileyen ana faktörlerin başında, anadil kaynaklı özelliklerin baskın olduğu gözlemlenmiştir. Tamamlayıcı çalışmaya ait bulgular, bürünsel özelliklerin sınıflarda çoğunlukla ihmal edildiğini gösterdiğinden, İngilizce dersleri müfredatına yönelik bir takım önerilerde bulunulmuştur.

Anahtar kelimeler: Durak, bürün, bağlaçlar, karşılaştırmalı dilbilim etkisi, Praat.

ABSTRACT

CROSS-LINGUISTIC PATTERNS OF PAUSING: A CASE OF TURKISH, SWAHILI, HAUSA AND ARABIC SPEAKERS OF ENGLISH

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Linguists usually investigate grammatical patterns on written outputs while carrying out studies on second language acquisition. However, this usually does not reflect the actual speech performance of the speaker, and thus creates a distance between the text and its producer. In this context, studies on prosodic features yield much information about the nature of actual performance. Although there is ample research on pauses in English, there are not many studies regarding this issue. Since speech is a dynamic process during which various factors interact with each other, it becomes a necessity to investigate this complex relationship within differing contexts. The dynamics of speech, prosodic features in particular, can significantly contribute to gain insights into the underlying mechanics resulting from contextual differences. Duration of pauses in a continuing speech can show the effects of these variables. In this descriptive study, the researcher investigated the *read* and *spontaneous speech* pausing patterns in coordinating conjunctions with 40 participants from Turkish, Swahili, Hausa, and Arabic speakers of English. For the *read speech*, the participants read out a short story, and for the *spontaneous speech*, semi-structured interviews were carried out. In total, 9318 pauses in 4659 coordinating conjunctions in *read* and *spontaneous speech* were measured through *Praat*, a speech recognition software, and findings obtained from the data were analysed by Paired Samples t-test. The results showed that pauses differed in favour of the preceding position in coordinating conjunctions in *read* and *spontaneous speech* of participants. However, differences were observed to be statistically significant since the speakers employed different strategies for pause durations in both cases. It was also observed that speakers from the same mother

tongues performed similar pausing patterns which could be an important indicator of a cross-linguistic influence. Characteristics of the speakers' mother tongues were found to be a significant factor for speakers' performance in English. Since findings of the follow-up phase of the research also revealed that prosodic features were mostly neglected in classrooms, the researcher recommended integration of these prosodic characteristics into the ELT curriculum.

Keywords: Pause, prosody, conjunctions, cross-linguistic influence, Praat.

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DEDICATION

This thesis is dedicated to my beloved mother, Hösne EREN, who has always believed in me and supported me in every difficult step of my life. Without her unconditional love and compassion, life would have been tasteless and difficult to cope with.

"Whatever is made beautiful is made for the beholder."

Rumi

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LIST OF ABBREVIATIONS

CA **:** Classical Arabic

CA **:** Contrastive Analysis

CLI **:** Cross-linguistc Influence

EFL **:** English as a Foreign Language

ELT **:** English Language Teaching

L1 **:** First Language

L2 **:** Second Language

MSA **:** Modern Standard Arabic

PF : Pause Following

PP : Pause Preceding

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CHAPTER I

INTRODUCTION

1.2. Introduction

In this chapter of the research, we introduce a background for our study, followed by the rationale for conducting such a research by declaring our aim addressing the stated problem. After that, we present our research questions and their significance along with possible contributions to gaps in the literature. Finally, we state our limitations and explain some key terms for the study.

1.2. Background of the Study

Speech is a very sophisticated activity that serves as a backbone for our communication. It helps us convey our experiences by dressing them in a somewhat tangible format. We speak because we want to tell those experiences to listeners. Naturally, this activity requires a mutual understanding on both sides. We need to express our thoughts in time series and the listeners have to decode our speech to make it meaningful. Comprehension of speech does not happen on a rigid line; on the contrary, both the speaker and the listener must show that they are following the conversation by their mimics and gestures. This turn taking is followed by silences to show that we are with the speaker on his/her speech. In this way, it becomes easier to process upcoming utterances for comprehension. The speaker also acts accordingly; he/she does not produce the speech in full sentences; rather, it is broken into chunks that help the listener grasp and keep up with the conversation.

Although speech is a serial activity consisting of stream of sounds which has highly controlled discrete elements with a distinct structure, it does not fill time continuously; especially, during *spontaneous speech*. This continuity is interrupted with temporary halts. When we speak, we produce silences, or pauses, to make our speech easier for the listener. These pauses can be hesitations which might indicate that the speaker is carrying out a process to continue the conversation. There can be long silences or gaps in our speech as well.

The need for expressing our thoughts becomes viable either in our oral speech or while reading out written texts. They both require different dynamics in which the former is mostly associated with cognitive tasks and the latter is linked to a relatively low performance when it is intended to read out prepared materials. Writing a text is incomplete without proper punctuations. The author wants the reader to continue the speech in a proper way by inserting full stops, commas, and so on. The reader organises the upcoming utterances accordingly by following those rules. However, in our *spontaneous speech*, it is not possible to talk about written signals to lead the conversation. Instead, we have prosodic features such as rhythm, intonation and pauses, which are not less important than the words we utter.

Studies on speech dynamics indicate that pauses constitute half of the time that we spend for our speech (Demircan, 1996). For that reason, prosodic features, pausing in particular, are viewed as the punctuation of speech. Pause is defined as periods of silence in the speech of a person, and commonly occurring feature of natural speech in which gaps and hesitations appear during the production of utterances (Richards et al., 1992; Oliveira, 2002). When a speaker utters a sentence like: *It was raining a lot last night so we didn't go out.* It is natural to expect pauses among words, and the speaker adjusts his/her speech to utter the sentence in a certain time. Especially, this is the case with native speakers of English. The length of pauses differs significantly depending on the upcoming utterances. Especially, when an independent clause is followed by a coordinating conjunction or a subordinating conjunction, native speakers of English tend to produce the pauses preceding and following those conjunctions in a quite similar pattern in *read* and *spontaneous speech*. Studies have shown that native speakers of English pause considerably longer preceding conjunctions and content words (Raupach, 1980; Kircher et al, 2004; Maclay & Osgood, 2015).

Then, we might ask this question: If native speakers of English perform pauses in their speech in a certain fashion to fit into the characteristics of their language, what would be the case for non-native speakers of English? Do they apply the same pattern when they speak English or is it possible to talk about already established patterns that arise out of the characteristics of their native language? Current research on pauses indicate that non-native speakers of English tend to perform a different pattern in terms of pause durations and these pauses differ by their nationality, region, gender, affective states and frequency of words (Maclay and Osgood, 1959; Mercer, 1976; Rochester, 1973; Bada, 2006; Kendall, 2009). Given that speakers employ longer or shorter pause

durations in their speech due to the dynamics of their mother tongues, it would be more important to investigate the issue from a cross-linguistic perspective; therefore, languages from different families should help us get a clearer picture about the nature of such languages.

Our speech in a foreign/second language shows characteristics derived from our mother tongues. These language-specific features are especially apparent in productive skills like speaking and writing. Our mother tongue shapes our worldview as well as our thought pattern, and our speech dynamics in a different language shows clues from our native language (Kaplan, 1966). Prosodic features constitute an important part of speech dynamics, and it is not very difficult to guess the accent of a non-native speaker of English if he/she has been educated to attain a native-like production during the critical period of their schooling (Guasti, 2002; Barrett, 2016). For that reason, lexical chunks, and naturally the pauses in a non-native speakers' speech may well affect and be affected by the target language of the speaker. Studies on Contrastive Analysis have focused on these aspects of language acquisition, which is placed in literate as *transfer*, and has been used by researchers as an umbrella term for many decades. Research on language transfer has traditionally focused on one aspect of the given languages. However, mobilisation of people, and therefore languages in an unprecedented phase have urged the researchers to broaden these studies and restructure them as *Cross-linguistics Influence* in order to approach research in a complex-dynamic process (Selinker, 1992; Kumaravadivelu, 2006; Jarvis & Pavlenko, 2008).

1.3. Statement of the Problem

Research on linguistics usually pays attention to written records of the spoken language, and linguists usually examine one aspect of the grammar in a text. This creates a distance between the production and its producer, and does not explain much about the nature speech performance. However, speech is a compelling process during which an interaction occurs between various components, and it becomes crucial to investigate this complex relationship within differing contexts.

Speech is a serial activity consisting of stream of sound which has highly controlled discrete elements with a distinct structure. This continuity is interrupted with temporary halts. The dynamics of speech, the prosodic features in particular, can contribute significantly to enlighten the underlying blueprint resulting from contextual

differences. Duration of pauses in a continuing speech can show the effects of these differences. Although pauses constitute a central element of speech production, studies on pauses have not received considerable attention in second language acquisition research.

There are many studies about duration of pauses in speech by native speakers of English, and these studies show that the duration of pauses differ between native and non-native speakers of English (Bada, 2006; Bada and Genç, 2008; Kendall, 2009; Kılıç, 2013). A cross-linguistic study can enrich the existing literature by focusing the effects of L1 on outputs of non-native speakers of English. In this aspect, integration of speech analysis software enables us to pinpoint and measure similarities and differences on a given task. By recording the speech sound, it is possible to get a visual reflection of vocal action time and silence time in a continuous speech stream.

1.4. Aim of the Study

The interlanguage theory states that learners have a language system which is different from their L1 and L2. This interlanguage is developed continuously over time (Selinker, 1992). The dynamics of L2 usage in various areas like syntax and semantics have been well-described, and prosodic features in phonology can also be described within the framework of this theory (Bada, 2006). Thus, it becomes essential if it is intended to gain an understanding of the generative processes involved in speech production.

Learners' productions both in written and spoken language reflect the effects of L1 on L2 output. As Kumaravadivelu (2006) states, this output is not a result of a linear processing. It is a much more complex system involving various contextual factors. For this reason, examining effects of L1 on speakers of English from a cross-linguistic perspective will help to get a clearer insight about the nature of interlanguage. It is also intended to compare this phenomenon from both L2 and L3 perspectives.

1.5. Research Questions

1- Does the length of a pause preceding coordinating conjunctions differ from a pause following these conjunctions in *read speech* of Turkish, Swahili, Hausa and Arabic speakers of English?

2- Does the length of a pause preceding coordinating conjunctions differ from a pause following these conjunctions in *spontaneous speech* of Turkish, Swahili, Hausa and Arabic speakers of English?
3- If there are differences, what can be the potential reasons?

1.6. Significance of the Study

Learners who are not native speakers of English, and those who have not been exposed to authentic language in their early stages may prefer to use their L1 linguistic rules in their L2 production. In this case, it is expected from a non-native speaker of English to employ the corresponding prosodic features in their L1, which may lead to an inappropriate L2 pattern. In this study, it is intended to investigate these patterns occurring in contexts where English is second, third or a foreign language.

Learning a new language, following the acquisition of the first, builds on prior linguistic performance. Cross-linguistic influence is currently investigated as an important phenomenon in second and third language acquisition, which is influenced by language specific contextual factors (Jarvis & Pavlenko, 2008). Cross-linguistic spoken language research becomes crucial if we want to learn the effects of various linguistic backgrounds on learners' productions. Otherwise, we tend to generalize the phenomena found in one language as normative for speakers of other languages.

The gains from the findings of this research may well be integrated into the language curriculum in which teaching of prosodic features can be finely tuned to include individual differences resulting from a previous linguistic environment.

1.7. Limitations

This research is limited with undergraduate and graduate students at public and private universities in Turkey, where the medium of instruction is English, and students follow compulsory English courses in their first and second years of studies apart from English preparation.

All students are non-native speakers of English, which they have learned in their formal or informal education. Thus, learners who are bilingual in English are excluded from the study.

1.8. Descriptions

Pause: A short period in which a sound is stopped before starting again.

Cross-linguistic Influence: Effect of the mother tongue (L1) on the target language or vice versa.

Liaison: Linking of sounds, especially pronunciation of the silent consonant when followed by a vowel

Juxtaposition: *Juxtaposition* refers to the absence of linking words in a sentence.

Asyndetic Coordination: A type of coordination in which there is no coordinating conjunction between the conjuncts.

Lingua Franca: A language that is accepted as common language among speakers whose mother tongues are different.

1.9. Summary

In this chapter, we began with presenting the theoretical background for our thesis. This was followed by stating the reasons for carrying out such a study. Following, we posed the questions to be investigated in the study. Later, we tried to explain the significance of such a research and its contribution to the field. Finally, we drew our limitations, and described some frequently occurring key terms throughout the thesis.

CHAPTER II

LITERATURE REVIEW

2.1. Introduction

In the previous chapter, we stated the rationale for carrying out our research. In this chapter, we present a detailed background about the subject matter to be researched. To begin with, we define what the term 'pause' means, and state its importance within the existing literature. This is followed by looking at the topic from a broader perspective to include contrasts between *read* and *spontaneous speech* and related studies both in Turkey and in the world. Then, the importance of Cross-linguistic Influence (Transfer) is explained as a basis for pause studies from a psychological perspective. In the final part, we present a detailed background about the languages in question by describing their phonological, morphological, and syntactic features along with their coordinating conjunctions.

2.2. Prosodic Features (Suprasegmentals)

Speech is a stream of sounds which can be separated into discrete elements. Sentences in a *read* or *spontaneous speech* are broken into lexical chunks by readers or speakers of a particular language. This property of divisible units, together with grammatical integration and sequential organization makes speech suitable for the study and measurement (Goldman-Eisler, 1968). Prosody refers to the acoustic structure, location of boundaries and distribution of tonal features. In linguistics, prosodic features are categorized as relating to intonation, stress, and juncture (Silverman et al., 1992). These features are not limited with sounds only. They extend to syllables or phrases.

Intonation refers to the melodic pattern of output of a speaker, and is mostly associated with variation in the pitch level in an utterance. When we produce sounds, the pitch in our voice may rise or fall. This is a natural consequence of speech since our utterances are not isolated in usual speech. In speech productions of native speakers of English, intonation usually falls at the end of statements and information questions like *when, why, how long* and *how*. On the other hand, intonation usually rises towards the end of yes/no questions and auxiliary verbs. Declarative statements can also be

converted to questions to express surprise and doubts. Besides rising and falling intonation, there is also sustained intonation pattern in which the pitch is stopped or continued. Sustained intonation implies incompleteness and it happens when speakers need time to think before continuing their conversation. This is usually accompanied by a slight pause to take turn during the conversation.

Stress refers to the loudness of syllables and in words with more than one syllable, it is more apparent in one syllable than others. Since English is a stress-timed language, both words and pauses are adjusted to fit them into the rhythm of the language. For that reason, pauses preceding or following content words and structure words differ significantly. Native speakers of English squeeze the structures words and produce content words loudly and more slowly.

Juncture means the transition from one sound to another in a speech stream. Junctures enable the heares to detect word or phrase boundaries. For example, distinguishing between *I scream* and *Ice cream* can be possible by junctures in the speech. Improper position of junctures may cause troubles for understanding. Therefore, English learners should be trained on junctures to facilitate understanding.

2.3. Defining Pauses

Speech stream does not fill time continuously, especially during the *spontaneous speech*. For that reason, prosodic features, pausing in particular, are viewed as the punctuation of speech. Pauses are defined as periods of silence in the speech of a person and commonly as occurring features of natural speech in which gaps and hesitations appear during the production of utterances (Richards et al., 1992; Oliveira, 2002). Therefore, a pause is a silence in a continuous speech. During a speech, if a person is silent because other person is speaking, we do not consider this silence as a pause. Additionally, hesitations and gaps, which are common feature of *spontaneous speech,* are not considered as pauses within the scope of our research. Then, we might also consider the difference between a silence and a pause. A silence is a “complete absence of sound; a period without any sound, complete quiet”, whereas a pause is described as “a short period in which a sound is stopped before starting again” (Cambridge Dictionary Online, 2017).

Experimental studies in *spontaneous speech* by Goldman-Eisler (1968) have built up a blueprint for the upcoming research on pauses. His studies have encouraged

researchers to enrich the literature. In his series of experimental studies, Goldman-Eisler determined the minimal cut-off point of 250 milliseconds to consider the silence as a pause. Those pauses can be classified as silent pauses and filled pauses. Whereas the former corresponds to cognitive difficulty of the task involved, the latter reflects the affective states such as anxiety and hesitation. Some pauses are considered as cognitive and others as syntactic. Cognitive pauses are observed in *spontaneous speech* and syntactic ones are observed in *read speech* (Goldman-Eisler, 1968; Bada, 2006; Kılıç, 2013).

2.3.1. Pauses in Read Speech

In written texts, we have punctuations which signal the boundaries between words and sentences. When we read these texts aloud, our pauses function as punctuations of our speech. Those pauses in *read speech* are named as syntactic pauses, and speakers tend to pause longer or shorter in order to align with the punctuations in written texts. Since punctuations help speakers see the boundaries in texts, they do not spend much time to organise their upcoming utterances. The cognitive load of planning and monitoring what to say next is diminished and speech becomes more fluent without any hesitations or conversational breaks.

Syntactic pauses or grammatical pauses can be found in several places during a speech; these can be punctuations that signal the end of a sentence like a full stop. They can be found preceding or following coordinating conjunctions such as ‘and, but, or, so’ or subordinating conjunctions like ‘when, while, because’. We can also find them before and after adverbial clauses like ‘when, how’ and ‘where’ (Goldman-Eisler, 1968).

Studies in *read speech* with native speakers of English indicated that native speakers pause longer in preceding conjunctions than in following positions, and these duration differences were found to be statistically significant (Bada, 2006; Kılıç, 2013). Surprisingly, non-native speakers of English also tended to follow the same pattern when they read aloud written texts regardless of their mother tongue(s). This probably resulted from the fact that cognitive aspects of speech did not take much place in their speech, and they followed or imitated native speakers of English.

2.3.2. Pauses in Spontaneous Speech

Communication is a cooperative activity, and requires comprehension in order to process the message. Both listeners and speakers engage in the speaking process to have a meaningful communication. Listeners need to keep track of the speech, and make connection between gaps while presenting our message. Speakers also need to involve in this process to make understanding easier for the listener, and that requires time to convey the elements of speech (Raupach, 1980).

While *read speech* is linear, and includes grammatical pauses, *spontaneous speech* has quite different dynamics that involve various factors interacting with each other. When we speak, we need to plan our upcoming utterances, and this creates shorter or longer pauses depending on the cognitive load that should be processed to continue the speech stream. Thus, our speech is not linear; there are a lot of breakups and hesitations. We cannot expect our *spontaneous speech* to be in the same fashion as *read speech*. Instead of long grammatical sentences, speakers utter lexical chunks which consist of five or six words.

Henderson et al (1966) examined *spontaneous speech*, and found that 55% of the pauses were grammatical, and 45% were non-grammatical. On the other hand, Demircan (1996) states that in a natural speech, half of the time that requires conveying a message consists of pauses. He claims that speakers place pauses in line with the semantic meaning in a sentence. For that reason, we cannot regard pauses as empty or useless elements in our speech (p. 162).

Since *spontaneous speech* has various dynamics that affect the course of the speech, pauses are also affected by various factors. Individual differences and social interaction create different pause lengths. Additionally, gender, ethnicity and familiarity with the oral tasks can influence the length and frequency of pauses (Goldman-Eisler, 1966; Spitzer et al, 1994; Kendall, 2009).

2.4. Research on Pauses

Researchers have paid attention to pause durations across languages all around the world, and studies usually focus on comparisons as well as contrasts between native and non-native speakers of English and other languages in question.

2.4.1. Pause Studies in the World

After Goldman-Eisler (1966) carried out several studies on the importance of pauses, especially in *spontaneous speech*, researchers all over the world began to analyse the silences in our speech. Whether they are syntactic or cognitive, researchers have been carrying out studies in order to have a clearer insight towards the nature of our speech and the factors that interact with our speech.

During the flow of speech, speakers need to retrieve words from their mental lexicon. This is not an easy task, and if the word to retrieve is not familiar, it will take long time to process the speech, and this will affect the duration of pauses. Maclay and Osgood (1959) studied the hesitations in *spontaneous speech*, and their experiments revealed that pauses occur more often before content words than before function words. These experiments were also supported by Mercer's (1976) studies on *spontaneous speech*. The researcher reassured that more and longer pauses occur before words of low frequency and low redundancy. In addition to the importance of the frequency of the word in *spontaneous speech*, there are also other variables that affect the duration of speech. Rochester (1973) carried out experiments on the importance of pauses in *spontaneous speech*. He found out that there are three variables that have impact on pauses. The researcher classified them as cognitive processing, social variables and affective variables.

In terms of social variables, Kendall (2009) conducted a case study about variations in speech and pauses with people from different ethnicities among American English speakers. His research showed that speech rate and pauses showed meaningful variation at the social level, and they are also restrained by cognitive processes. In particular, the researcher stated that speech rate and pauses were indicated to vary by region, ethnicity and gender. Findings of this research also correlated with a recent study by Lundholm Fors (2015), in which the researcher intended to describe the production of pauses, and examine their perception and their role in turn-taking. Findings of this research showed that function of the pauses differed, and these functions were bound to the contexts of the pauses. The duration of pauses correlated with pause type, and the speakers modified length of the pauses according to the person they interacted with. Naturally, the duration of pauses affected the flow of speech, and this indicated that pause lengths varied across speakers, pause types and conversations.

In another interesting study, Kircher et al (2004) investigated the cognitive load in pauses through associations in the left temporal cortex during speech. The researchers employed functional Magnetic Resonance Imaging (fMRI) in order to examine neural correlates. The participants were asked to describe the inkblots in minimum three minutes while they were being scanned. The researchers examined the activity with pauses within clauses and the pauses between grammatical junctions. Findings indicated that during continuous speech a greater activation was observed. Especially, the associations in left temporal activation were clear during pauses within clauses. However, no activity was observed during pauses at grammatical junctions. This study showed that pauses within clauses were linked with speech planning and lexical access.

2.4.2. Pause studies in Turkey

Pause studies in Turkey are relatively new and research comparing and contrasting pause performance of Turkish native speakers were investigated by Bada (2006). In this study, the researcher measured the pausing differences before and after *that* in the use of that clauses of both English native speakers and Turkish non-native speakers of English. Findings of this study suggested that while pausing before *that* was measured to be much longer than in the following position in the production of native speaker group, it was observed to be the opposite with Turkish group.

While this study examined the *read speech*, another research by Bada and Genç (2008) focused on the differences between pausing preceding and following 'to' in both *spontaneous* and *read speech* by native English speakers. Results of this research display a significant difference between *read* and *spontaneous speech*; while pausing before was observed to be significantly longer than the following position in *read speech*, it was found just the opposite in *spontaneous speech*.

On the other hand, Genç, Özkan and Bada (2010) carried out an interesting study by examining Obama's G-20 summit speech in terms of the difference between *read* and *spontaneous speech*. They investigated the pause before and after 'to' particle and the results showed that the pause in *read speech* was longer than that in *spontaneous speech*. Findings of this research correlate with a following study in which Genç, Mavaşoğlu and Bada (2011) examined the differences between pausing preceding and following the *que* particle both in *spontaneous* and *read speech* of native speakers of

French. Analysis of the data showed that pausing preceding *que* was significantly longer than the following position in *read speech*.

Kılıç (2013) conducted a quasi-experimental study on pauses preceding and following adverbial clause conjunctions in English. In this study, the researcher tried to compare and contrast *read speech* pauses between native speakers of English and Turkish speakers of English. Findings showed statistically significant differences between speakers; native speakers of English paused significantly longer preceding all conjunctions, whereas it was the opposite for Turkish speakers. Considering these differences, the researcher applied a treatment to Turkish speakers in order to raise awareness of native speaker forms. After the treatment, the speakers began using native speaker forms more frequently.

2.4.3. Pause Studies with Mentally Disordered Patients

Pauses in *spontaneous speech* reveal much more insights into the nature of the dynamics that govern speech. Studies by Maclay and Osgood (1959) indicate that speakers pause longer before content words than structure words. That is, when the upcoming word carries a meaning and has a higher frequency, it will be easier to recall it. Naturally, it will be much difficult to remember a less used word, and this will affect the duration of pauses. While studies on pauses are usually carried on with adults without observed health problem, there are also relatively fewer studies with mentally ill people. The researchers intended to examine the pause durations with mentally disordered people to observe the dynamics of *spontaneous speech*. Spitzer et al (1994) studied the distribution of pauses by focusing on contextual dependency among schizophrenic patients. Those patients usually had focusing problems, and they produced thought-disordered sentences that lacked coherence. In this study, the researchers had normal control subjects, schizophrenic patients without thought disorder, and those with thought disorder. Findings indicated that normal control subjects and the schizophrenic patients without thought disorder paused more frequently before nouns not suggested by the context and less frequently before nouns suggested by the context. The researchers did not find context dependency among thought-disordered schizophrenic patients. The cause of this difference was interpreted as less semantic associations in the brain responsible from the lexical access network.

On the other hand, Klatt (1980) conducted experimental studies on reading habits of patients with aphasia and the role of pauses as indicators of cognitive functioning. Aphasics have difficulty in reading long sentences and are disturbed after long sentences. Klatt found that in their first reading, aphasics made a general reading when a text was presented to them for the first time, and this required more cognitive planning for them. After they read the same text repeatedly, they did not produce frequent pauses since they already became familiar with the text, and did not rely on pauses as a cognitive strategy. These experiments showed that pauses are not errors; they are part of a strategy to cope with complexities and reflect planning. The reading of such patients shows the complexities of syntactic decisions and their strategies to cope with the problems. We have already known that different parts of speech require different amount of time to process for normal readers. Aphasics add more to this process by considering the complexity of the word, which make them lengthen pauses on purpose to avoid mistakes since they need to be sure of the correct utterance. The researcher concluded that the length and the frequency of the following word affect the preceding pause significantly.

2.5. Cross-linguistic Influence (Transfer)

We can describe cross-linguistic influence as the effect of mother tongue (L1) on the target language. Traditionally, the linguists have defined this term as *transfer*, and it has still being used widely. However, this term is criticised as being narrow to explain such huge phenomenon. The scholars have claimed that the term *transfer* is associated with behaviouristic cause-effect relationship in a linear fashion (Gas & Selinker, 1983; Kellerman & Sharwood Smith, 1986; Odlin, 1989). Researchers used to examine the characteristics of the target language and L1 as *Contrastive Analysis* (CA). This is a limited explanation and in today's world where huge mobility of people, and therefore languages urge us to examine this issue in a much more complex and dynamic system. All in all, we preferred to use both terms since they are still being used widely in the academia.

2.5.1. Historical Background

Cross-linguistic influence (CLI) has been of interest to intellectuals since ancient times. The earliest records dating back to ancient Greeks have revealed that appropriate use of language played a very important role in daily life. Scholars and aristocracy spoke a 'proper Greek' and this became an unwritten symbol for intellectual and elite life. Those who did not speak Latin with standard accent were humiliated, and were named as barbarians. Peasants who lived in different parts of the Empire, and thus speaking various mother tongues tried to learn Latin but this was not quite possible to acquire after a critical period. Their speech in Latin showed some clues from their mother tongues and thus, they were recognized easily by their accent or word choice when they were interacting with people. In fact, although their use of Latin showed characteristics from their native language, their acquisition of Latin affected their mother tongue as well. Loan words enriched the lexis of their mother tongues. However, this was not limited to borrowing new words; it went well beyond that to include acquisition of prosodic features that would indicate knowledge of Latin, mainly for show off in their homelands (Weinreich, 1953).

On the other hand, the use of proper language was also really significant in the Ottoman Empire. The public in Anatolia spoke pure Turkish. However, the written language was Ottoman Turkish, which was based on Turkish but also included huge amount of loan words from Arabic and grammatical rules from Persian. The written language shaped the *spontaneous speech* of educated people as well and it became an essential rule to speak the language without regional and ethnical influence. Especially, scholars whose main duties were addressing people in public places were chosen carefully, and those who did not meet these criteria were not allowed to appear in public in the name of the Empire.

When we look at today's modern world, using a language without any effects or influence from another language is still important. People addressing the public are chosen carefully, they have to use the language properly in accordance with the expected standard dialect of the country they live and work. Clearly, using a pure language of the homeland is much more prestigious in many aspects of life including language teaching. However, as we have stated before, influence of one language on another is inevitable especially after some period. In addition, this influence is not

mono-directional; rather it is reciprocal and includes various factors that interfere in this process.

Cross-linguistic influence or transfer results from the similarities and differences between the mother tongue and the target language. In second language acquisition, this process can be done consciously or unconsciously and the influence can range from lexical to phonological level as well as grammar and semantics (Weinreich, 1953; Lado, 1957). If the speakers' L1 have similar characteristics with that of L2, transfer would assist the acquisition process of L2. This is called as *positive transfer* or *facilitation*. On the other hand, if L1 and L2 have different features, then, this process would include errors resulting from the previous language(s) and that would retard the acquisition process. This is known as *negative transfer* or *interference* (Odlin, 1989; Ellis, 1994).

2.5.2. Interlanguage Theory

There are different theories towards learners' productions due to the unexpected utterances. When a child utters a sentence like 'I goed to the cinema yesterday', it may be possible to talk about a language mechanism which is different from their L1 but also different from their L2. This is called as interlanguage which is developed continuously over time (Selinker, 1992). The dynamics of L2 usage in various areas like syntax and semantics have been well-described and prosodic features in phonology can also be described within the framework of this theory (Bada, 2006). In this case, it is important to gain an understanding of the generative processes involved in speech production.

Learners' productions either in written or spoken language may mirror the effects of L1 on the output. Kumaravadivelu (2006) states that output is not linear; rather, it is a much more complex system involving various contextual factors. Therefore, investigating effects of L1 on speakers of English from a cross-linguistic perspective may help to get an insight about the effects of acquired language(s) to productions in the target language.

2.5.3. Head-direction Parameters

All languages have basic structures but there are variations among them. In English and Italian, the verb comes before the complement and in Turkish and Hungarian, after the complement. The Universal Grammar explains these variations under two types of constraints as *Principles* and *Parameters* (Chomsky, 1981).

Principles include universal properties in a language that are permanent. Parameters, on the other hand, include the properties that can vary from one language to another. Children innately have these principles and parameters as they are given by Universal Grammar. A human language consists of these principles and parameters.

Guasti (2002) emphasizes that human language capacity is set to figure out the regularities of the native language at an amazing pace. Even from the starting of the multiword utterances, findings suggest that children get familiar with the word order phenomena by listening to the language around (p. 101). These languages can be head-initial or head-final but this is not a problem for children. English is a head-initial language which means that English heads have their complements to the right. Turkish is a head-final language which means that Turkish heads have their complements to the left. This variation is known as *head-direction parameter*. English and French are head-initial languages and complements follow the head. Turkish and Japanese are head-final languages and complements precede the head. In order to build a phrase structure, the learner has to conform to the following X-bar schema:

XP ----> Spec X'
X' ----> (YP) X (YP)

The learner must figure out whether it is head-final or head-initial through exposure to that language (Guasti, p.102). Brown (1973) states that order of heads and complements hardly changes in the target language at multiword utterances phase.

2.5.4. Coordinating Conjunctions in English

There are two kinds of conjunctions in English. These are coordinating and subordinating conjunctions. Coordinating conjunctions connect ideas of equal level. These can be words, phrases or clauses that are equal (Halliday and Hassan, 2014). Common coordinating conjunctions in English are *and, but, or, so, yet, nor* and *for*.

The 'and' conjunction connects similar ideas in words and sentences. It has frequent use in both written and spoken English. When it is used between words, it means 'also' and 'addition', such as tea *and* coffee. When connecting words, it is also used between repeated words to show something is going on:

1. His headache got worse *and* worse.

When the ‘and’ conjunction is used as connecting words, it is usually subject to *liaison.* That is, when a consonant, which is usually not pronounced, is followed with a vowel, this consonant is pronounced, and two sounds are combined by leaving no pause between them. For example, in a phrase like ‘teacher and students’, there will be *liaison* by pronouncing silent /r/ to create a mutual understanding between the listener and the speaker. However, when the ‘and’ conjunction connects two sentences, native speakers of English usually pause longer preceding it.

The ‘but’ conjunction connects items which are of the same grammatical types. This conjunction usually links sentences that have contrastive ideas:

1. Mary loves fruit *but* she is allergic to orange.
2. He has bought a house in downtown *but* he still lives in the country.
3. The ‘or’ conjunction links items that have alternatives or possibilities. It is usually found as linking words and sentences:
4. George doesn’t like tea *or* coffee.
5. You can stay here *or* go out with your friends.
6. Just like the ‘and’ conjunction, ‘or’ might also be subject to *liaison* when it connects two items.
7. As a coordinating conjunction, ‘so’ links items of result or purpose. It is found as a sentence connector:
8. I was very bored, *so* I left the cinema.
9. Assistants are busy, *so* you will have to wait.

2.6. Describing Languages

In this part of the literature review, we investigated the linguistic characteristics of each language in question and presented their history, phonology, morphology, syntax, and coordinating conjunctions as sub-headings.

2.6.1. Turkish

Turkish is the mother tongue of more than 80 million people living in Turkey. With a variety of dialects, it is widely spoken in Balkans, Cyprus, Syria, Iraq, and many other Middle East countries. These countries were once part of the territory in the Ottoman Empire.

2.6.1.1. History of Turkish

Turkish belongs to the Oghuz group of Turkic languages. The similarities among Turkish, Azerbaijani, Turkmen and Qashqay are much higher than their differences. These languages are mutually intelligible. Turkic languages belong to Altaic family of languages, and also include national languages in Kazakhstan, Kyrghyzstan and Uzbekistan. Anatolian Turkish encompasses 40% of the speakers of Turkic languages (Lewis, 1967).

History of Turkish language is divided into three periods; Old Anatolian Turkish (Eski Anadolu Türkçesi), Ottoman Turkish (Osmanlı Türkçesi/Osmanlıca) and Modern Turkish (Yeni Türkçe). The earliest inscriptions about Turkic languages are Orkhun Inscriptions in Mongolia. They were written in Old Turkish Alphabet, which is not in use anymore. Within time, Turkish language expanded to Central Asia and Mediterranean. Old Turkish was spoken in this Southwest branch of Turkic family, especially by Oghuz Turks and Seljuq Empire. Ottoman Turkish used to be spoken as an official language by educated people. It was based on Turkish but was also heavily influenced by Arabic and Persian both grammatically and morphologically. However, it was not spoken by common people. Following the foundation of the modern Turkish government by Atatürk, a number of language reform acts were carried out. As a result of these reforms, the language became ‘purer’ by throwing out the loan words and grammatical rules from Arabic and Persian (Underhill, 1976; Göksel & Kerslake, 2005).

2.6.1.2. Phonology

There are 21 letters in Turkish consonants inventory. Consonant clusters are not allowed in the beginning of a word. Stops, fricatives and affricates have voiceless and voiced varieties. They are usually devoiced in final position, such as ‘kitap’- ‘kitabı’. Among Turkish consonants, there is also ‘ğ’ letter but it lengthens the preceding vowel in dative. *Yağ* ‘oil’ is *yağa* (Ergenç, 2002). Turkish consonants are presented in Table 1:

Table 1

Turkish Consonants

		Labial	**Dental**	**Palatal**	**Velar**	**Glottal**
Stop	Voiceless	p	t		k	
	Voiced	b	d		g	
Affricative	Voiceless			tʃ		
	Voiced			dʒ		
Fricative	Voiceless	f	s	ʃ		h
	Voiced	v	z	ʒ		
Nasal		m	n			
Liquid			l, r			
Glide					j	

Turkish vowels represent all possible varieties of front/back, high/low, rounded/unrounded values. Since Turkish is an agglutinating language, it is easier to add suffixes to stem words but some changes occur in order to maintain a vowel harmony. This harmony involves front/back and rounded/unrounded vowels. Vowels can occur in the beginning of a word but there is assimilation due to the preceding vowel, so a front vowel must follow a front vowel. If there is a rounded vowel, preceding vowels must be rounded as well (Ergenç, 2002; Göksel & Kerslake, 2005). Turkish vowels are displayed in Table 2:

Table 2

Turkish Vowels Chart

	Front		**Back**	
	Unrounded	**Rounded**	**Unrounded**	**Rounded**
High	i	ü	ı	u
Low	e	ö	a	o

Stress is usually on last syllable of a word. This is a very common feature in all Turkic languages. When suffixes are added, the stress also moves to the end. Quantity of syllables does not affect the role of stress since its location is predictable. There are many pairs of words which can be distinguished by the accent (Underhill, 1979). The placement of pauses within sentences is associated with meaning of these clauses. Even pauses for breathing are inserted appropriately in order to remain coherent in meaning. In terms of intonation, pitch changes in Turkish can be categorised as rising, falling and

midlevel. Duration of tones can be either long or short, and vowels can create a contrast with changes in pitch. In short sentences with single conjugation, the usual pattern is falling intonation. On the other hand, it is common to have fall-rise intonation in longer sentences. For example, in a sentence like “Eve gelince beni görsün” (He/she must pay me a visit when he/she gets home), it is possible to witness at least three pitch changes by just examining “görsün” in this clause (Demircan, 1996).

2.6.1.3. Morphology

Turkish is an agglutinative language and in order to show certain grammatical functions, different suffixes are added to the stem words. The order of suffixes is fairly rigid and inflectional suffixes follow derivational ones. Prefixes are only common to create strong adjectives and adverbs.

Ev	‘house’
Evler	‘houses’
Evlerim	‘my houses’
Evlerimiz	‘our houses’
Evlerimizde	‘in our houses’
Evlerimizdeki	‘which is in our houses’

Like other Turkic languages, Turkish nouns do not have a grammatical gender. Singular nouns are not marked and plural nouns are marked with suffixes –lar/-ler. There are six cases in Turkish, and they are marked by inflectional suffixes:

Nominative	oda ‘house’
Genitive	evin
Dative	eve
Objective	evi
Locative	evde
Ablative	evden

There are several derivational suffixes which are added to the stem verb. These are reflexive, reciprocal, causative, passive, impossibility, negative and abilitative. Examples for tense/aspect sufixes are:

General:	oynarım	‘I play’, ‘I will play’
Progressive:	oynuyorum	‘I am playing’
Past :	oynadım	I played
Unwitnessed past:	oynamışım	‘I played’ (expected)
Future:	oynayacağım	‘I will play’
Necessitative:	oynamalıyım	I must pay

2.6.1.4. Syntax

Usual word order in Turkish is Subject-Object-Verb (SOV). Since Turkish belongs to Turkic languages, it shows almost all properties of an object-verb language (Aksu-Koç & Slobin, 1985). An unmarked sentence in Turkish will be like:

2. İbrahim kitap -ı Mehmet –e verdi.
   İbrahim book –OBJ Mehmet –DAT give – PAST
   İbrahim gave the book to Mehmet.

Turkish has a pragmatic word order and it is not unusual to have this sentence in a fairly free word order:

3. İbrahim kitabı Mehmet’e verdi. (SOV)
4. Verdi İbrahim kitabı Mehmet’e. (VSO)
5. Kitabı İbrahim verdi Mehmet’e. (OSV)
6. Kitabı Mehmet’e verdi İbrahim. (OVS)

Rather than their grammatical functions, information in nouns determines their places in the sentence because of pragmatic functions, so new information usually comes before verb. However, this does not mean that sentences have to be verb final, unmarked information can come after the verb by creating inverted sentences.

Turkish is a head-final language and nouns follow adjectives together with possessives and relative clauses. Turkish is also a pro-drop language, so it is not very common to use subject pronouns. Pronouns are used if it is intended to show a contrast.

2.6.1.5. Coordinating Conjunctions in Turkish

Main conjunctions in Turkish are *ve* 'and', *fakat* 'but', and *ya da* 'or'. These can be phrases, subordinate clauses or coordinating sentences.

Ve (=and)

Ve is a particle borrowed from Arabic, and it connects all types of phrases and clauses, and can function both as a conjunction and as a discourse connective:

7. Arapça *ve* Farsça
   (Arabic *and* Persian)

In its function of conjoining two clauses, *ve* is often replaced by *-(y)Ip* or (less commonly) by *-(y)ErEK* (Aksu-Koç & Slobin, 1985).

Veya (=or)

Of the various terms expressing the 'or' conjunction in Turkish, *ya da*, *veya* and *(ve) yahut (da)* are interchangeable in most contexts, both as conjunctions and as discourse connectives.

8. Evde meyve veya/ya da tatlı var mı?
   (Is there any fruit *or* any sweet in the home?)

Ama (=but)

Fakat and *ama* are interchangeable. They conjoin clauses whose combined content expresses some kind of conflict or contradiction.

9. Sonbahar geldi ama/fakat ağaçlar hâlâ yeşil. (Contradiction)
   (Autumn is here, *but* the trees are still green.)

Ama and *fakat* can also conjoin adjectival construction:

10. Sıcak ama [bunaltıcı olmayan] bir havası var Ankara'nın.
    (The weather in Ankara is hot *but* not suffocating.)

Juxtaposition

One of the most common methods of co-ordinating two or more phrases or sentences is simply to list them without using an overt co-ordinator. Turkish speakers use simple *juxtaposition* in many cases where English speakers use the ‘and’ or ‘or’ conjunctions (Underhill, 1976).

11. Siyah beyaz bir film
    (a black *and* white film)
12. Öğleyin ekmek peynir yedim.
(I had bread *and* cheese at lunch time.)

Other *juxtaposition* occurs in listing, and this is separated by a pause in speech. In writing, this requires a comma:

13. Ziya pabuçlarını, paltosunu giydi, eline şemsiyesini aldı, işe gitti.
    (Ziya put on his shoes *and* coat, picked up his umbrella *and* left for work.)

2.6.2. Swahili

Swahili is used both as a means of intertribal language and as a ‘lingua franca’. It is used as a mother tongue and a second language for different purposes. Swahili has been the mother tongue in Kenya and Tanzania for centuries, and it is a second language in surrounding countries.

2.6.2.1. History of Swahili

Origin of Swahili remains disputed. It is generally accepted that the name Swahili is a modified form of Arabic ‘sahil’ coast, but there is questionable evidence that Swahili developed as a coastal trade language. Swahili is strictly based on Bantu structure but enriched its vocabulary by the influx of Muslim civilisation. By the 15th century, Swahili appears as a well-established language (Polome, 1967).

Swahili is a Bantu language. Languages in this group show very close similarities, and show characteristic structural features. There are limited contrasts in vowels but the consonant system is much more complex. Bantu languages are tone languages; differences in pitch on syllables are both morphologically and semantically related. Differences in pitch are the only marker of difference in tense, mode or aspect.

However, Swahili has lost this very important characteristic of Bantu, and this loss resulted in the original development of a dialanguage. In Bantu languages, syllables end in a vowel, and there are not falling diphthongs (Marten, 2006).

The verbal system is complex, and the verbal root is invariable but with the agglutination of different components, the morpheme functioning as a verb may indicate a negative prefix, tense-marker, class, person and number of object. For verbal derivation, suffixes are added to the root in a specific order. The conjugation includes much more tenses than Indo-European languages. Aspect is stressed, and there is no specific relative pronoun in Bantu (Polome, 1967).

The lexicon of Bantu is very poor in adjectives. These languages substitute this lack by using connectives, such as saying ‘door of the wood’ instead of ‘wooden door’. Syntax is the word order in noun phrases which contains noun, possessive adjective and qualifier.

2.6.2.2. Phonology

Modern Swahili has an established written standard enabling education and communication easier to spread out. However, less attention has been given to Swahili pronunciation. This is a result of sentimental attachment of coastal Islamic communities to their dialects. Muslim and non-Muslim speakers alike show different attitudes towards the pronunciation of Arabic loan words. Whereas the former imitate those words in Arabic pronunciation, the latter discard such empathic pronunciation (Polome, 1967).

In the Swahili language, each vowel is counted as a syllable. The smallest syllable might consist of a single vowel or a nasal. In terms of morphemic structure, the root of Bantu languages is usually of the type CVC (Consonant-Vowel-Consonant). A final vowel is added to the root.

Swahili phonology shares some typical features of Bantu languages. It has five vowels and 36 consonants. Syllables end in a vowel. There are no consonant clusters or final consonants. A vowel is added to the end of consonants in loan words (Bleek, 1869).

Swahili consonants are implosive sounds that are produced by inhaling the air, rather than expelling from the lungs. Pre-nasalized consonants are produced as phonological units, combining a nasal with a fricative or stop, i.e. /m/ can form a

syllable, *mti* ‘tree’. Swahili consonants are presented in Table 3 and vowels are shown in Table 4.

Table 3

Swahili Consonants Chart

		Bilabial	**Labiodental**	**Interdental**	**Alveolar**	**Postalveolar**	**Palatal**	**Velar**	**Glottal**
	voiceless plain	p			t			k	
	voiceless aspirated	pʰ			tʰ			kʰ	
	voiced implosive	b			ɗ		ʃ	ɠ	
Stops	voiced prenasalized	ᵐb			ⁿd		ᶯɟ	ᵑg	
	voiceless		f	θ	s	ʃ		x	h
	voiced		v	ð	z			ɣ	
Fricatives	prenasalized		ᵐv		ⁿz				
	voiceless plain					tʃ			
Affricate	voiceless aspirated					tʃʰ			
Nasals		m			n		ɲ	ŋ	
Lateral					l				
Flap or trill					r				
Approximants		w					j		

Table 4

Swahili Vowels Chart

	Front	**Central**	**Back**
Close	i	xx	u
Mid	e	xxx	o
Open	xx	a	xx

We can infer from Table 4 that there are not diphthongs in Swahili vowels. The rule for the distribution of segmental phonemes is rather simple. Vowel phonemes might occur in initial or final position. Consonants, on the other hand, usually occur in

initial position. In words of Bantu origin, only two types of clusters occur; either nasal+consonant or consonant + /j/ or /w/. In loan word from non-Bantu languages, other clusters are likely to occur.

Stress occurs on vowel phoneme or a nasal phoneme. The stress pattern on Arabic loan words is different, and this is considered as a stylistic feature.

Intonation patterns are difficult to describe due to some variations. These variations result from different influences. For example, we can see Arabic because of the chanting recitation style in Qoranic schools. English is observed as a result of British patterns taught in primary and secondary education as a deliberate effort to eliminate influence of the local language and also the effect of the native tongue of non-native Swahili speakers.

In terms of pitch, we can see three different levels as high, mid, and low. Stressed syllables are characterised by a slightly higher pitch.

2.6.2.3. Morphology

Swahili shows general structural features of Bantu languages. For instance, there is an articulated noun class system and morphologically marked agreement is observed between different clauses and sentences. Swahili morphology is very complex, and it is classified as an agglutinating language. Word order is comparatively free, and it is affected by the information structure. However, unlike other Bantu languages, absence of tone is a remarkable difference in Swahili.

Nouns are assigned to a specific noun class, and they are marked by a class prefix. Noun classes in Bantu languages are grouped according to a numerical system (Bleek, 1869). Noun classes and agreement in Swahili are presented in Table 5:

Table 5

Swahili noun classes and agreement

Class	**Noun Class prefix**	**Example word**	**Concord**	**Relative concord**	**Possessive concord**	**Dem prox**	**Dem ref**	**Dem non-prox**
1	m	mtu ‘person’	a/yu	ye	wa	huyu	huyo	yule
2	wa	watu ‘people’	wa	o	wa	hawa	hao	wale
3	m	mti ‘tree’	u	o	wa	huu	huo	ule
4	mi	miti ‘trees’	i	yo	ya	hii	hiyo	ile
5	ji	jicho ‘eye’	li	lo	la	hili	hilo	lile
6	ma	macho ‘eyes’	ya	yo	ya	haya	hayo	yale
7	ki	kiti ‘chair’	ki	cho	cha	hiki	hicho	kile
8	vi	viti ‘chairs’	vi	vyo	vya	hivi	hivyo	vile
9	n	ndege ‘bird’	i	zo	ya	hii	hiyo	ile
10	n	ndege ‘birds’	zi	o	za	hizi	hizo	zile
11	u	ubao ‘board’	u	o	wa	huu	huo	ule
14	u	uhuru ‘freedom’	u	ko	wa	huu	huo	ule
15	ku	kuimba ‘to sing’	ku	po	kwa	huku	huko	kule
16	pa		pa	po	pa	hapa	hapo	pale
17	ku		ku	ko	kwa	huku	huko	kule
18	mu		mu	mo	mwa	humu	humo	mule

We can see from Table 5 that in Swahili, there are 16 different noun classes. Classes 1 and 2 refer only to humans. Class 14 is used for abstract qualities and class 15 for verbal infinitives. From 16 to 18 are locatives.

Noun classes are important for agreement in Swahili. We can see the syntactical relationship between adjectives, demonstratives and relative clauses with their nominal head thanks to their agreement prefixes or concord.

Inflection in Swahili verbs is complex. There are ten positions identified for Swahili verbs. The morphological template for these verbs is as follows:

1	2	3	4	5	6 Stem	7
Pre Initial	SM	Post	Tense	Relative	Marker	OM
Neg		Initial	Marker	Marker		
		Neg				
8	9	10				
Verbal	Final	Post Final				
Base		Plural				

Examples:

14. Wa-ta-som-a.
    SM2-FUT-read-FIN
    (They will read.)
15. Wa-na-o-ku-j-a.
    SM2-PRES-REL2-STEM-come-FIN
    (They who come.)
16. (Ha-wa-ta-ku-ambi-e-ni)
    NEG-SM2-FUT-OM2-tell-FIN-PL
    (They will not tell you.)

Verbs can also be modified by several derivational suffixes. Vowel harmony plays an important role for building forms of morphemes. Meaning and function of the verbs depend on their root meaning as well as the context in which they are used (Marten, 2006).

2.6.2.4. Syntax

Swahili is a head-modifier language, and basic sentence structure is SVO. Word order can change in order to adapt to the specific context. Generally, topicalised elements are on the left, and focused elements are on the right of the phrase. Some example sentences are:

17. Asha a-li-m-kut-a Juma njia-ni.
    Asha SM1-PAST-OM1- Juma 9.street.LOC

(Asha met Juma in the street.)

18. Ndoo hizi z—jaz-e ma-ji.
    10.buckets these OM10-fill-SUB- NP6-water
    (These buckets, fill them with water.)
19. Zi-jaz-e ma-ji ndoo.
    OM10-fill-SUB NP6-waer 10.buckets
    (Fill the buckets with water.)

Studies about the syntax of Swahili are relatively new, and require further analysis (Ashton, 1947).

2.6.2.5. Coordinating Conjunctions in Swahili

Conjunctions are called as “viunganishi” in Swahili. They do not change. They do not have number, class or tense. Coordinating conjunctions are used in indicative mood. The major coordinating conjunctions are *na* (= and), *lakini* (= but), *au* (= or), *wala* (= nor).

If coordinated clauses in indicative or conditional mood refer to the same grammatical category (person, tense), infinitive form is used for the verb in second position. The verb in this second position begins with *na* (= and) in affirmative sentences, but it starts with *wala* (= nor) in negative counterpart (Bleek, 1869; Polome, 1967).

20. Aliimba na kupiga densi na kunywa pombe.
    (He sang *and* danced *and* drank alcahol.)
21. Hakuimba wala kupiga densi wala kunywa pombe.
    (He did not sing, *nor* danced *nor* drink alcahol.)
22. Tutatembea na kuenda sinema.
    (We will walk *and* go to a movie.)
23. Hatutatembea wala kuenda sinema.
    (We will not walk *nor* go to a movie.)

In coordinated clauses, while using an affirmative sentence in the past, consecutive marker *ka* is also used instead of the conjunction *na* (= and).

24. Watamfuata na kumpata.
    (They will follow him *and* get him.)
25. Walimfuata na kumpata.
    (They followed him *and* got him.)
26. Walimfuata wakampata.
    (They followed him *and* got him.)

If coordinated clauses do not have a conjunction, the subjunctive is used as a default mood. This is especially the case when an affirmative sentence is followed by a negative one.

27. Huwa wanamfuata wasimpate.
    (They usually follow him *but* don't get him.)
28. Walimfuata wasimpate.
    (They followed him *but* did not get him.)
29. Ataanguka asiumie.
    (He will fall down *but* will not get hurt.)
30. Angeanguka asiumie.
    (He would fall down without getting hurt.)

After non-declarative sentences, the subjunctive is usually preferred. In those cases, the conjunction *na* (= and) is omitted, and the subjunctive in the second clause is enough to show that two sentences are connected.

31. Shika kalamu uandike.
    (Take a pen *and* write.)
32. Ushike kalamu uandike.
    (Take a pen *and* write later.)
33. Shikeni kalamu muandike.
    (Take a pen *and* write you all.)

A negative verb in second clause is formed with conjunction *wala* (nor). If two clauses are negative, then *wala* may not be used in the clause, and second verb only appears in infinitive form.

34. Andika wala usiniulize maswali.
    (Write, *and* do not ask me questions.)
35. Msimuulize maswali wala msimsumbue.
    (Do not ask him questions *nor* bother him you all.)
36. Usiombe wala kupokea pesa kutoka wageni.
    (Neither request nor receive money from the guests.)

Na (= and/with)

37. Nitanunua kalamu na daftari dukani.
    (I will buy pens *and* a notebook at the store.)
38. Ninapenda kunywa chai na kahawa.
    (I like to drink tea *and* coffee.)

Lakini (= but)

39. Ninapenda tenisi lakini sipendi kucheza hoki.
    (I like tennis, *but* I do not like to play hockey.)
40. Ruth anacheka lakini Tom analia.
    (Ruth is laughing, *but* Tom is crying.)

Au (= or)

41. Utanunua ndizi au viazi.
    (You will buy bananas *or* potatoes.)
42. Unataka kucheza au kupumzika?
    (Do you want to play *or* rest?)
43. Leta mkate mweusi au mweupe.
    (Bring black *or* white bread.)
44. Nunua shati jekundu au jeupe.
    (Buy the red *or* the white short.)

Wala (= nor)

45. Hakuna mchele wala unga.
    (There is no uncooked rice *nor* flour.)
46. Sikuwaona wanafunzi, wala mwalimu wao.
    (I did not see the students, *nor* their teacher.)

2.6.3. Hausa

Hausa is a major language spoken by more than 30 million people as a first language. It is mainly spoken in Northern Nigeria and southern Niger. It is the most important West African language, and it is also a transnational lingua franca. Only Swahili is considered to be a rival for its status as lingua franca in Africa. It is widely used in the mass media as well as commercial, educational and administrational areas.

2.6.3.1. History of Hausa

Hausa is a member of Chadic language family, and Chadic belongs to Afro-asiadic language family. Hausa dialects display variations in phonology, lexicon and morphology. Loan words from various African languages have enriched its vocabulary but most of the loan words in Hausa are from Arabic, English and French. Arabic words are widely used in religion, education, law, government and commerce for more than 500 years. English and French words have been used in technology, military and education for almost a hundred years (Smirnova, 1982).

Hausa was written in Arabic script for more than 200 years. This script is called *Ajami*, but this script has been replaced with Latin script called *Bookoo*.

2.6.3.2. Phonology

There are not any consonant clusters within a syllable. Three types of syllable structures are possible in Hausa: CV (light), CVV, and CVC (heavy). VV can be either a diphthong or two vowels. The structure of a syllable in Hausa is precise. There is no accumulation of consonants within a syllable. If two consonants come together in a word, they are separated into two syllables.

Hausa is a tonal language. There are two basic discrete-level tones, and they are not stated in standard orthography. These are High tone (H) and Low tone (L) and apart from these basic tones, there is also a Falling tone which represents a transition from one tone to other. The distinction is indicated with an accent over the vowel which carries the tone (Jagar, 2001).

Examples: yāro 'boy' (H-L), riga 'gown' (L-H), kifī 'fish' (H-H), fita 'go out' (L-H), 'abu 'thing' (L-L), daga 'from' (L-L)

In standard Kano dialect, Hausa has 32 consonants and 12 vowels (10 monopthongs and two diphthongs). Hausa has many consonants because of the presence of voiced and voiceless glottal contrasts, together with palatalised and labialised consonants. Hausa consonants are illustrated in Table 6:

Table 6

Hausa Consonants Chart

		Bilabial	**Alveolar**	**Postalveolar**	**Palatal**		**Velar**			**Glottal**
Stops	voiceless		t			k	kʲ	kʷ	ʔ	ʔʲ
	Ejective					k’	kʲ’	kʷ’		
	Voiced	b	d			g	gʲ	gʷ		
	Implosive	ɓ	ɗ							
Fricatives	Voiceless	ɸ	s	ʃ					h	
	Voiced		z							
Affricates	Voiceless			tʃ						
	Ejective		ts’	tʃ’						
	Voiced			dʒ						
Nasals		m	n							
Trills			r							
Flap			ɾ							
Lateral			l							
Approximants		w			j					

Vowels in Hausa are either short or long: *i,e,a,o,u.* The contrasts between vowels are grammatically and lexically important. Long vowels are indicated with a macron. If there is a need, double vowels are used to show that a vowel can be long or short (Jaggar, 2001). We can observe Hausa vowels and diphthongs in Table 7:

Table 7

Hausa Vowels and Diphthongs

	Front	**Central**	**Back**
High	i i:		u u:
Mid	e e:		o o:
Low		a a:	

For intonational purposes, there is a pitch variation in Hausa. This results in an intonational pattern which affects lexical and grammatical tones. In a typical statement, intonation is progressive downward sloping of the pitch.

2.6.3.3. Morphology

Words in Hausa are generally disyllabic. However, words with more than two or three syllables also occur but these are usually loan words from Arabic and English.

In order to identify a word as a part of speech, it has to be considered in its grammatical markers, function within the sentence and its relation with other lexis. There are eight personal pronouns; five of them are singular, and other three are plural. Gender is indicated in the second and third person singular. Personal pronouns express different syntactic functions, such as object, possessive and reflexive. Non-personal nouns are marked with a gender, and involve demonstratives, interrogatives and indefinites.

Verbs in Hausa are categorised into seven basic Grades. This is determined in terms of its morphological and structural resemblance with Semitic languages.

Grades (0-3) are basic grades; Grade 1 includes transitive or intransitive verbs; Grade 2 includes basic transitive verbs with LH tone; and Grade 3 contains intransitive verbs. Grades (4-7) include derived verbs with their own semantics to the base form of the verbs. These grades might indicate an action (Grade 4); may change intransitive/transitive verbs (Grade 5); show a movement (Grade 6); or impersonal passive (Grade 7).

Nouns in Hausa are basically classified in two categories: common nouns and proper nouns. Common nouns include dynamic/non-dynamic, abstract/concrete and countable/uncountable. Proper nouns include personal names and place names. Nouns are distinguished as masculine or feminine only in singular, and gender is marked. Some nouns might differ in gender in different dialects. Feminine nouns usually end in

suffix –YAA or –WAA, e.g., yaarinyaa (= girl). Masculine nouns show all final vowels and consonants, e.g., dilaa (= Jackal), yaaroo (= boy). Hausa noun plurals are complex and include suffixes, vowel addition and tonal melodies. In many ways, nouns and adjectives are close to each other. They both have number and gender. They also have similar functions in a sentence.

2.6.3.4. Syntax

Hausa has a strict word order which is a common feature of Chadic languages. The basic word order follows as Subject-Verb-Object (SVO).

47. Daalibin yaa kaawoo wa maalaminsa aikii.
    Student.the 3MASC.SG.PERF bring to teacher his work
    (The student brought the work to his teacher.)

Hausa is a pro-drop language. Sentences can occur without explicit noun phrase subject. Adjectives precede nouns, and there must be an agreement in number and gender (Smirnova, 1982).

48. Wani karamin yaaroo.
    INDEF.MASC.SG small.MASC.SG.of.MASC.SG boy.MASC.SG
    (A certain small boy)

There is not a definite article in Hausa. Whether a noun is definite or not depends on the context in which it is used. Negation in verbal sentences typically requires double negation.

49. Baa zaa su yarda ba. (Negative Future)
    Neg FUT 3PL agree NEG
    (They will not agree.)

As a common feature of African languages, Hausa has ideophones, which belong to independent class of expressive phonosemantic words. These ideophones

reflect the intensity of an action, vision or sound. Ideophones in Hausa have their own phonological properties.

2.6.3.5. Coordinating Conjunctions in Hausa

Coordinating conjunctions in Hausa are *da* (=and), *ko* (=or) and *amma*/*sai* (=but). These coordinators are usually used for noun phrases, adjectives, and verb phrases as well as clause connections.

Da (=and)

The coordinating conjunction *da* is used for simple coordination in noun phrases. A *da* can also be used before first phrase to reinforce the meaning by making a "both X and Y" expression. A connective particle *kuma* (= also) can be inserted before the conjunction as well (Smirnova, 1982; Jaggar, 2001).

50. Gida da mota
    (A house *and* a car)
51. Farin tsuntsu da doguwar bishiya
    (A white bird *and* a tall tree)
52. Na sayi taba da goro.
    (I have bought cigarettes *and* kolanuts.)
53. Da yara da manya da mata duk suna nan.
    (Children *and* adults *and* women are all here.)
54. Dalibai da kuma leburori
    (Students *and* also workers)

However, *da* is not used to coordinate two clauses. Coordination of independent clauses is accomplished by direct *juxtaposition*, without any explicit linker.

55. Mun ci mun sha.
    (We ate *and* we drank.)
56. Naci na koshi.
    (I have eaten *and* am full.
57. İliya yana tafiya yana waka.

(İliya was going along *and* singing.)

It is very common to give a stylistic effect by using the same verb first in active clause and then in passive clause. This shows the perfection of an action.

58. Ya daure tunkiya ta dauru.
    (He tied a sheep *such that* it was well tied up.)
59. Ta dafa abinci ya dafu.
    (She cooked the food *so that* it was well cooked.)

Ko (= or)

Ko is a central coordinator, and shows an alternative or an emphasis on meaning. Just like the use of *da*, it can take place before the first conjoin to make coordination stronger. Ko X ko Y (either X or Y) is used to coordinate noun phrases. *Ko* is also used to coordinate two independent clauses.

60. Za ka gaya wa Mamman ko Audu?
    (Will you tell Mamman *or* Audu?)
61. Za ni ko Amirka ko İngila.
    (I am off to either USA *or* England.)
62. Za ka raka mu ko za ka zauna a gida?
    (Are you going to accompany us *or* are you going to stay home?)

Hausa does not have equivalent of English coordinators ‘neither…nor’. Instead, this can be expressed by using ‘ko…ko’ in a negative context.

63. Ban ga ko malabin ko daliban ba.
    (I didn’t see either the teacher *or* the students.)

Amma or Sai (= but)

Contrasting is achieved by means of *amma* or *sai*. It can contrast noun phrases, adjectival phrases as well as clauses.

64. Halima kyakkyava ce sai dai matalauciya.

(Halima is beautiful *but* poor.)

65. Shi siriri ne amma da karfi.
    (He is thin *but* strong.)
66. Na ji amma ban yarda ba.
    (I understand *but* I don't agree.)

Contrastive coordinator may be omitted as well:

67. Na zocikin lokaci (amma) bag an ka ba.
    (I came on time *but* I didn't see you.)
68. Sun hadu (amma) bas u gaisa ba.
    (They met *but* they didn't greet.)

If sentences are both in imperfective, future, continual or habitual, Tense/Aspect/Mood (TAM) marker may be deleted, leaving a Neutral Ø- TAM marker. This includes only subject-agreement pronoun.

69. Yana tashi da asuba, (ya Ø- TAM) yi wanka, (ya Ø- TAM) tafi salla.
    (He gets up at dawn, washes *and* goes to pray.)
70. Zan koma gida (in Ø- TAM) kwanta (in Ø- TAM) huta.
    (I am going to go home, lie down, *and* rest.)

2.6.4. Arabic

Arabic is a Semitic language in Afro-Asiatic language family. It is an official language in 26 countries in the Middle East and Africa. It is also one of the six official languages of the UN. There are more than 300 million native speakers of Arabic worldwide. Since Arabic plays an important role in the history of Islam, it is valued by more than 1 million Muslims around the world (Prochazka, 2010).

2.6.4.1. History of Arabic

The oldest documents as short graffiti in Arabic, dated as far as 6th century BC, were found in Syria and Northern Arabian Desert. A rich source of pre-Islamic Arabic corpus was also transmitted by Arabic scholars. However, the largest data in Arabic was composed of poems and verses after the emergence of Islam. During the expansion of

Islamic States, Arabic became the language of communication and administration. Scholars from various schools of thought from Baghdad to Andalusia have contributed a great deal of Quranic and scientific texts in Arabic as a lingua franca. Arabic language was systematized by philologists from the 8th century to the 10th century, and this language is called Classical Arabic (CA). The rich literature in this period paved the way for Arabic as a dominant language for centuries (Ryding, 2005).

From the 16th century onward, Arabic has lost its position as a lingua franca by falling far behind the scientific developments in the West. In 19th century, Arabic scholars restarted to examine their language, and noticed its shortcomings. This process started Modern Standard Arabic (MSA). MSA is quite similar to CA in terms of phonology, morphology and syntax, yet there are also very big differences in lexicon and style. MSA has a lot of shortcomings, and it is limited to written language and formal speech. However, it is a linguistic tie that connects the entire Arabic world together. Both CA and MSA are called as 'Old Arabic' and present day Arabic dialects spoken all over the world are called as 'New Arabic'. It is the colloquial language in Arabic countries, and there are dialectical differences which make comprehension almost impossible without the linguistic tie of Old Arabic among nations. There are some distinctions between Old Arabic and New Arabic, especially in terms of case endings in nouns and adjectives.

2.6.4.2. Phonology

There are three vowels in the Arabic language /a, i, u/ together with their short or long contrasts. Arabic vowels are displayed in Figure 1:

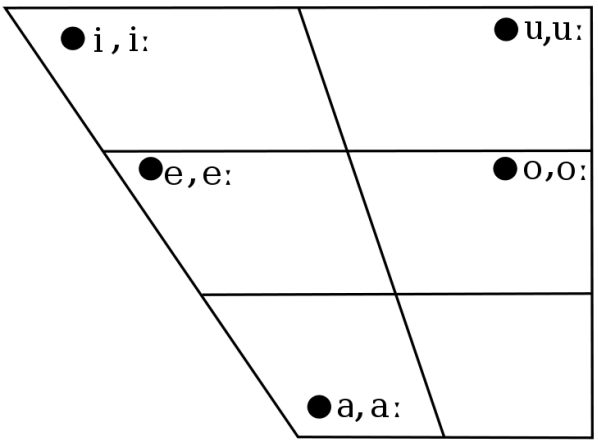


Figure 1. Arabic vowels.

Although vowels in Arabic are quite few, it has 28 consonants with their short-long contrasts. We can see Arabic consonants chart in Table 8:

Table 8

Arabic Consonants Chart

		Bilabial	**Labio-dental**	**Inter-dental**	**Dental**	**Emphatic**	**Palatal**	**Velar**	**Uvular**	**Pharyngeal**	**Glottal**
Stop	Voiceless				t	ṭ		k	q		ʔ
	Voiced	b			d	ḍ					
Fricatives	Voiceless		f	θ	s	ṣ	ʃ		χ	ħ	h
	Voiced			ð	z	ẓ			ʁ	ʕ	
Affricatives							dʒ				
Nasals		m			n						
Laterals					l	l					
Trill					r						
Approximants							j				

The basic Arabic syllable structure consists of three types; CV, CV, and CVC. In Modern Standard Arabic, final vowels are usually omitted so in this case, CVC and CVCC are also possible. Words do not begin with a vowel, and if there are two vowels, they must be separated by at least one consonant.

2.6.4.3. Morphology

Arabic lexicon is based on the basic principle of root and pattern relation. Root-pattern system creates uniformity in Arabic vocabulary, and it is almost free of irregularities. In order to express certain words, the root is combined with limited patterns by using consonants, vowels, and sometimes with prefixes and suffixes (Ryding, 2005). The root words mostly consist of three consonants, which are called as radicals. Roots with two or four consonants are also common. The root carries basic word meaning and vowels give grammatical information. For example,

He wrote.	*katab-a* (v)
He corresponded.	*kaatab-a* (v)
It was written.	*kutib-a* (v)
Book	*kitaab* (n)
Books	*Kutub* (n)
Writer	*Kaatib* (n)
Writers	*Kuttaab* (n)
Write	*Uktub* (v)

One pattern can be used for different semantic concepts as verb, noun, singular or plural. Therefore, some patterns might be ambiguous in terms of morphology, but there are also some patterns for certain uses (Ryding, 2005).

There are two genders in Arabic, masculine and feminine. Plurals are formed either by suffixes or by a reformation of the word. For example, ‘bayt’ means *house* and ‘buyut’ means *houses*. ‘Qalam’ means *pen* and ‘aqlam’ means *pens*. There are three cases; nominative, genitive and accusative, which differ according to the formation of the final vowels for singulars or plurals. Inflection of the verbs is based on either suffix conjugation of perfect or prefix conjugation of imperfect.

2.6.4.4. Syntax

Word order in Arabic is usually Verb-Subject-Object (VSO). However, in order to emphasize the theme, Subject-Verb-Object (SVO) is also possible. Word order is also influenced by foreground and background distinction. In order to focus on the foreground information, Verb-Subject order is preferred. For the background information, Subject-Verb order is used (Cowell, 2005).

Verbs in Arabic serve as a combination of tense and aspect. Suffixes describe the past events, whereas prefixes show the present events together with progression.

Adjectives follow the head noun, and they agree in case, as well as in gender and number. Definiteness is constructed by *al-* particle and it is not inflected for case, gender or number. For example, ‘bintun jamilatun’ means ‘a beautiful girl’, and ‘al-bintun al-jamilatun’ means ‘the beautiful girl’.

2.6.4.5. Coordinating Conjunctions in Arabic

Wa (= and)

This conjunction is put as a prefix before the following word, yet it may coordinate whole clause or phrase. Unlike its English counterpart, the ‘wa’ conjunction may also be used as a subordinating conjunction, and to give emphasis (Cowell, 2005).

71. Slon al earus wal earis?
    (How are the bride *and* the groom?)
72. Mai numret telefono wa anwano.
    (I have his phone number *and* his address.)
73. Ana rayeh eslah awaeiyyi w-albas bijamti.
    (I am hoping to take off my clothes *and* put on my pyjamas.)
74. Bihebb banat eammto w-bihabb yashar mahon.
    (He likes his aunt’s daughters and he likes to spend the evening with them.)

‘Wa’ is also used as a sentence starter, and it is considered as a good style but it is not usually translated into English. Unlike the English ‘and’, the Arabic conjunction ‘wa’ is repeated before every item it is coordinated.

75. Baddna si badle wa-sabbat w-umsan, wa-si swayyet grad
    (I want a suit and shoes and shirts, *and* a few other things.)

Aw (= or)

‘Aw’ is often used to coordinate words or phrases. It is rarely used to coordinate clauses.

76. Byebad al fallah tamam ahbubo aw fwaki aw xedrato mn s-samsar.
    (The farmer collects the price of his grain *or* fruit *or* vegetables from the broker.)
77. Santan aw tlate bennasbe la-mhandes ktar.
    (Two *or* three years for an engineer are a lot.)

Fa (=and so, and then, and thus)

This connector implies several different meanings in a sentence. It can have a sequential meaning (=and then), a resultative meaning (=and so), a contrastive meaning (=yet, but), or a conclusion (=and therefore). It may start a sentence or combine the elements in a sentence.

Laken (=but)

78. Mahmud byerabo lahsen, laken arbe swayye beide.
    (Mahmoud is related to Hussein, *but* it is a rather distant relationship.)
79. Walla ana bhebb al fatunwe laken baddi ruh eassinama.
    (I do like the Youth Club *but* I want to go to the movies.)

Bal (rather, but actually)

This conjunction introduces something different or contrastive from the main clause.

80. Wa-turjimat haadhihil kutubu ilaa llaatiniyyati bal kutiba muamu haa bihuruufin ibriyyatin.
    (These books were translated into Latin, *but* (actually) they were mostly written in Hebrew script.)

Asyndetic Coordination

Certain things are often coordinated without a conjunction. These can be numerals, adjectives or nouns, verbs with the same subject-referent, or translocative verbs.

81. Doctor al lazem nestanna tlata rbaet iyyam.
    (The doctor said we would have to wait three *or* four days.)
82. Ma btefre maei beda soda.
    (I don’t care whether it is black *or* white.)
83. Haka kamm kelme xalla yestehi.
    (He said a few words to him *and* embarrassed him.)

2.7. Summary

In this chapter of our research, we presented the theoretical background for our study as well as with practises within the field. We started with defining pauses and the differences between *read* and *spontaneous speech* together with their importance in pause productions. Then, we enriched the literature by providing related research around the world. In the next phase, we tried to present the history of Cross-linguistic Influence (transfer) and its importance in literature in order to provide a ground for our research on pauses. In the last phase, we described the mother tongues of our speakers, (Turkish, Swahili, Hausa and Arabic) by providing their history as well as their linguistic features as phonology, morphology and syntax.

CHAPTER III

METHODOLOGY

3.1. Introduction

In the previous chapter, we stated a detailed literature review about our research. In this chapter, the research design for this study is justified. Following this, characteristics of the participants are explained together with data collection tools and the procedure for the research. Then, information about how we analysed this data is defined. Lastly, we illustrate the reasons for conducting a pilot and a follow-up study.

3.2. Research Design

Our thesis is based on a case-study design in order to get an in-depth insight analysis for our research questions. Therefore, we used both quantitative and qualitative research methods for our study. In social sciences, case studies require up-close and detailed investigation of a phenomenon and its contextual relations. Although quantitative research methods are very suitable for measurement and analysis of facts, they may fall short of presenting a thorough analysis about multidimensional characteristics of facts. Case studies examine a phenomenon within its real-life contexts (Ying, 1981).

Researchers who carry out case studies generally use a combination of methods for data collection which includes interviews, observations and reviews together with quantitative data. This is called as triangulation through which research ensures the validity of this process. In case studies, researchers employ various perceptions to make their study more meaningful and clear (Birnbaum, Emig and Fisher, 2003).

Case studies usually focus on one case and try to support data by triangulation of methods. However, in our research, rather than explaining the nature in one single case, we elaborated on the same issue from a multiple-case design. This was done with the assumption that it would help strengthen the validity of the same phenomena from various perspectives. According to Yin (1981), by replicating the case study by means of pattern-matching and creating a link between several pieces of information on a theoretical basis, multiple-case design supports, and increases the level of confidence of

the research. Therefore, in order to obtain more solid explanation about the nature of the phenomenon we investigated, we found it necessary to carry out our case study on pauses through a variety of instruments.

3.3. Participants

In this research, we wanted to examine the pausing patterns within different cross-linguistic contexts. As Kendall (2009) stated in his research, pause and speech rate differ according to region, ethnicity and gender. Considering speakers' accessibility for pilot and follow-up studies, we preferred a convenient sampling method for this study. Convenient sampling is a kind of non-probability research technique in which participants are selected due to accessibility and proximity to researchers (Birnbaum et al, 2003). Keeping this in mind, we chose Turkish, Swahili, Hausa and Arabic speakers of English, who all were undergraduate or graduate students in Turkey at the time we carried out our research. As was mentioned in literature review, these languages belong to different language branches. They all have their specific and varied linguistic features. An overview about demographic information about participants is presented in Table 9:

Table 9

Demographic Information about Participants

Characteristic	**Turkish**	**Swahili**	**Hausa**	**Arabic**
Age ($\bar{x}$)	23.6	22.3	23.3	22
Male (N)	5	6	7	7
Female (N)	5	4	3	3
Experience in Years ($\bar{x}$)	11	17.8	17.5	13.6
English Level	B2-C1	C1-C2	B2-C2	B2-C1

Since the languages in question here can be spoken as a *lingua franca* in different countries, we also limited our participant profiles to certain countries. Our research included totally 40 participants, with 10 from each language group. For Turkish, we included speakers whose mother tongues are Turkish; born to Turkish speaking parents, and grew up in Turkey; their ages ranged from 21 to 29; their English

language level differed from B2 to C1; all were monolinguals; learnt English as a foreign language; and began learning English when they were either at 4th grade in primary school or in high school.

For Swahili, our sampling consisted of 10 students from Kenya, where Swahili is spoken either as a mother tongue or at mother tongue level. In Kenya, there are various tribes, and each tribe as its own language. However, they all speak Swahili with each other since they were born. Thus, these speakers were at least bilingual in Swahili and in one other tribal language. Our participants were born in Kenya; their parents spoke Swahili as a mother tongue; their ages ranged from 19 to 29; spoke English at C1 to C2 levels. In Kenya, English is spoken as a *lingua franca*, and the medium of instruction is English at schools. Some participants reported that they started to learn English even when they were three years old, especially from their parents.

For Hausa, our participants were 10 students from Nigeria, where Hausa is spoken as a mother tongue by various tribes in northern regions of the country. Together with Hausa, these tribes also speak their own tribal languages. Our participants were bilinguals in at least Hausa and one other tribal language; all were born to Hausa speaking parents in Nigeria; their ages ranged from 18 to 40; spoke English at B2 to C2 levels. In Nigeria, English is widely spoken, and is the medium of instruction at schools; therefore, our participants started to learn English at primary schools.

For Arabic, our sampling included 10 students from Syria. Arabic has a lot of varieties from Africa to the Middle-East; so, we tried to limit our sampling with speakers from Syria only. Our participants were all born to Arabic speaking parents in Syria; all were between 20-24 years of age; and spoke English at B2 to C1 levels. English is a second language in Syria, and our participants started to learn English at around 4th grade in primary schools.

3.4. Data Collection Tools

Since our research required the analysis of the coordinating conjunctions, it was a necessity to collect data accordingly. For the *read speech*, we needed sentences in which we could find various use of conjunctions. In order to have a natural flow of speech, we also wanted to obtain data within context instead of isolated sentences. For that reason, we targeted short stories that would be convenient both for our study and our participants. We decided on a short story, *Little Red Riding Hood* by Brothers

Grimm. The reason we chose this story was that it included similar ideas conjoined through the ‘and’ conjunction, contrasting ideas through the ‘but’ conjunction, alternative choices through the ‘or’ conjunction; and cause and effect relation through the ‘so’ conjunction. The text consisted of 1474 words, and included a variety of uses for these conjunctions both as a sentence and a noun connector. The story included 20 occurences of ‘and’ (16 as a sentence connector and 4 as a noun connector), 14 of ‘but’, 6 of ‘or’ (3 as a sentence connector and 3 as a noun connector), and 11 of ‘so’. The text included many other uses of these conjunctions but we did not analyse those which are not coordinating conjunctions. You can find the story in Appendix 2.

For the *spontaneous speech* phase of our research, we carried out semi-structured interview protocols with our participants. It was important to elicit coordinating conjunctions during the interviews; therefore, our questions should have been structured accordingly. Considering speakers’ current experiences in Turkey, we chose ‘Migration’ as the topic of our interviews since it was a hot issue all over the world, and speakers would have many reasons and effects to talk about during the protocols as most of them were already familiar with this issue for they came to Turkey from countries already suffering from this problem. In particular, we asked about the causes and results of migration, as well as similarities and differences between homeland and host country. Our interviews lasted around 15 minutes for each participant. Information for demographic questions can be seen in Appendix 4, and interview questions can be seen in Appendix 5.

3.5. Procedure

This dissertation was completed in three main phases: the pilot, the main study, and the follow-up. Each phase revealed insights about movement to the next by evaluating feasibility and challenges.

3.5.1. Pilot Study

Instead of immediately conducting the main study, we wanted to know what would be the pros and cons of our research. This was an important step because it would give us an important experience in many ways. It would be possible to see the convenience our data collection instruments (reading texts, interview topics) as well as technical equipment (voice recorder, multiple analyses on *Praat* and *SPSS*).

Keeping this in mind, we decided to conduct our pilot study with two participants from each language group, and they were informed about the ethical statements of our research (See Appendix 1). First of all, they were invited to the *read speech* part of our research. In this part, we prepared reading texts from different genres; literary, scientific, and newspaper articles which included frequent usage of coordinating conjunctions. In allocated study rooms of university libraries (Gaziantep, Boğaziçi, İstanbul Ticaret, and Beyazıt Library), the participants read out aloud the texts, and they were audio recorded by the researcher. After we had completed the *read speech* part, the participants were invited for the semi-structured interviews. During the interview, we asked them about the similarities and the differences between their life in Turkey and their hometown. These questions were chosen in order to elicit more coordinating conjunctions in terms of similarity-difference and cause-effect relations. The interviews lasted around ten minutes for each participant. Having completed the data collection, we started measuring the pauses on *Praat* and following the measurements, analyses were carried out through *SPSS* v. 20. Results of the pilot study are presented in the Findings Chapter.

During the *read speech* part of the pilot study, some speakers were observed to be reading out the texts either too fast or too slow. This created a difficulty for measuring the duration of pauses. On the other hand, during the *spontaneous speech* part, it was noticed that speakers were using the ‘and’ and ‘but’ conjunctions frequently; however, the interview topic did not lead to utilisation of the ‘or’ and ‘so’ conjunctions in the interviews.

All in all, the whole process of this pilot study lasted around five months, and we observed that our research was both feasible and viable to continue with the next phase. The problems that we encountered during the pilot phase helped us improve our instruments in preparation for the main study.

3.5.2. Main Study

The challenges that we came across during the pilot study phase paved the way to conduct our research on a more solid ground. The main part of our research was conducted in two steps, just like the pilot study. First of all, we invited the participants for the *read speech* part, where they read aloud the short story *Little Red Riding Hood* by Brothers Grimm. The recording session lasted around 15 minutes for each participant

and our total recoding was around 7.5 hours for *read speech* spanning 2.5 months. After we finished the recording session of *read speech*, we invited the participants for the semi-structured interviews. The speakers were asked to talk about the causes and effects of migration. In order to continue the natural flow of speech, the researcher interacted with the speakers by agreeing or simply nodding. Since *spontaneous speech*, by its nature, might make participants feel nervous or distressed, it was crucial to build a relaxing atmosphere for them. Thus, the rooms were well-lit and a friendly, non-formal conversation took place between the researcher and the participants about their stay in Turkey. Following this, the participants were asked about whether they or anyone they knew had interesting experiences worth talking about immigration problems. And further, they were asked to comment on similarities and the differences between their native countries and Turkey.

All recordings were transferred into *Praat*, a speech analysing program, for the measurement of coordinating conjunctions. More than 7510 pauses were measured in both preceding and following coordinating conjunctions, and analyses of the duration of these pauses were made through *SPSS* v. 20 for significance values. For *read* and *spontaneous speech*, the total time spent on determining the durations of pauses along with their analyses took around 4 months.

3.5.3. Follow-up Study

In order to support our claims resulting from the findings of our data, the researcher carried out a follow-up study. The aim of the follow-up study was to find out whether the pausing patterns were resulting from a transfer from the participants' mother tongue patterns or from transfer of training during language education. This follow-up research was conducted in two phases.

The first phase consisted of collecting data on pauses from corresponding coordinating conjunctions in speakers' L1. It was intended to see if it was possible to talk about a cross-linguistic influence from mother tongue patterns on English speech performance. In this part of the study, the researcher asked language teachers, assumed as experts in their fields, from each language group to prepare sentences including equivalence of coordinating conjunctions. The experts prepared 24 sentences for each mother tongue (See Appendix 3). Following this, the researcher asked five participants from each language group to read aloud these sentences. Having read the sentences, the

recordings were transferred to *Praat* for necessary measurements. Then, the data was analysed through *SPSS* v. 20 to find out whether there was a statistically significant difference between pauses preceding and following these conjunctions.

In the second phase of our follow-up study, we carried out interview protocols with English teachers who spoke Turkish, Swahili, Hausa and Arabic. With this, our aim was not to have a thorough interview of our research, but rather, we wanted to elaborate on potential causes for differences in terms of pause durations in each mother tongue. In particular, we wanted to know if the differences in pauses were resulting from speakers' mother tongues, or from schooling in English medium. Interview protocols would give us an answer from different perspectives so as to determine the causes for potential idiosyncratic pause durations in different mother tongues. Therefore, we carried out the interview protocols with two teachers from each language group with the aim to elicit answers to our research questions in a simplified, everyday language (Maxwell, 2013).

3.6. Data Analysis

Our research is descriptive in nature, and we intended to answer our research questions by carrying out a case study. For that reason, this study required both quantitative and qualitative data, and analysis of this data was carried out accordingly. In order to have the pause duration preceding and following each conjunction, we used *Praat*, cutting-edge speech analysis software which allows conducting various linguistic analyses for researchers. We used version 6.0.29 for this study. Different phonetic analyses are possible by using this software. Namely, one can view spectrograms of audio data, and carry out measurements about specific features of data. It is possible to get pitch analysis, formant analysis, intensity analysis, and acoustic synthesis. In Figure 2, we can see a spectrogram for the sentence "Because you may fall or break the bottle":

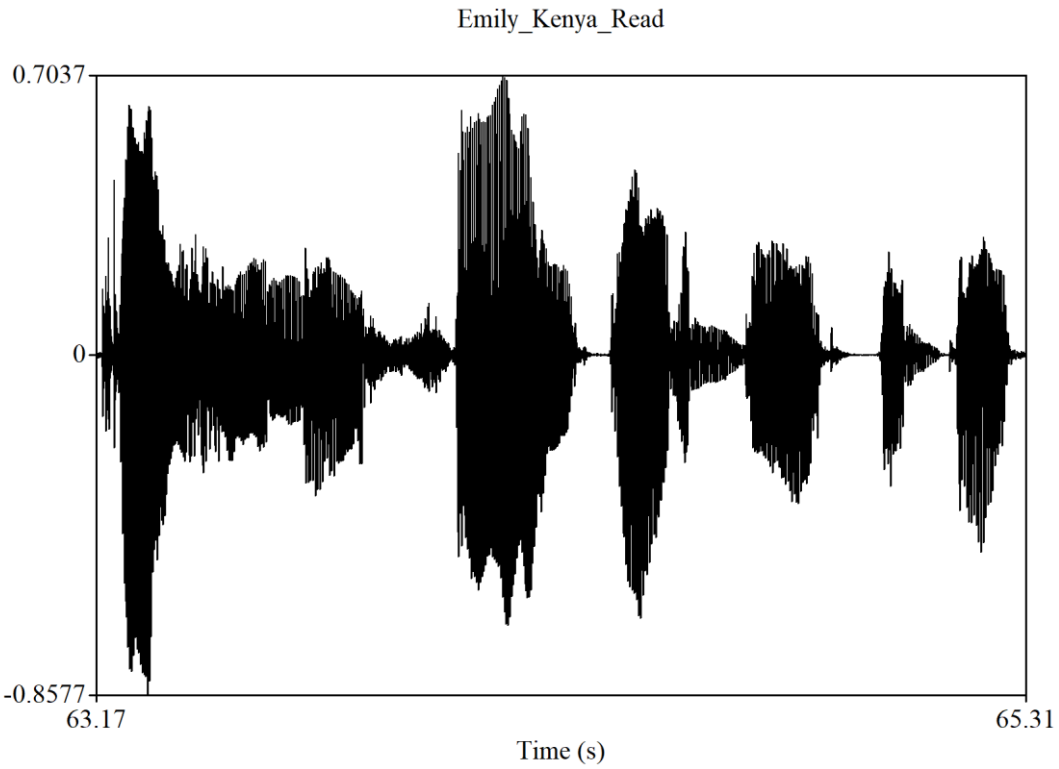


Figure 2. Spectrogram view of a sentence in Praat.

In Figure 2, we can see how an audio sentence will look like on a speech analysis software. The waves here represent the intensity of a sound, and the straight line shows that there is no activity. However, in such a diagram it would not be possible to measure a pause, so we have to zoom in to get a clearer view for durations between each sound. Therefore, an example measurement of a pause preceding the 'so' conjunction in a *read speech* will be visualised as in Figure 3:

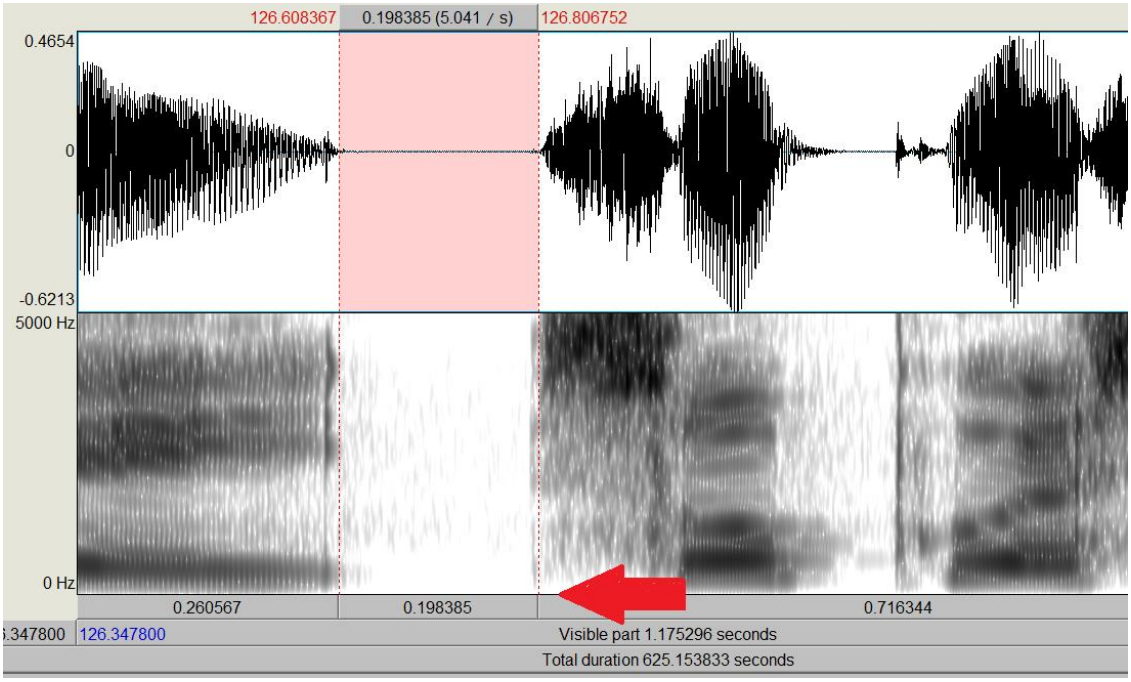


Figure 3. Measuring a Pause Preceding the 'so' Conjunction in Read Speech.

The red arrow in Figure 3 shows that the pause preceding the 'so' conjunction in *read speech* was measured as 0.198 seconds in this example. Therefore, we can say that this is a precise and reliable tool to measure pause durations.

3.6.1. Analysis of the Quantitative Data

The measurements of pauses gathered from *read* and *spontaneous* speech recordings were transferred to *SPSS* (v. 20) software for statistical analysis. The *SPSS* software enables researchers to carry out multiple quantitative analyses considering their research design. Before continuing with further analysis, it was important to decide whether the researcher should have applied a parametric or a non-parametric test. This was only possible by checking the homogeneity of variances. Therefore, the researcher conducted Levene's test to obtain information whether variances of groups were equal. The results were statistically insignificant for all coordinating conjunctions ($p \leq 0.05$): for the 'and' conjunction, $p = .314$; for 'but', $p = .335$; for 'or', $p = .229$; and for 'so', $p= .410$. These findings suggest that there was a statistically insignificant difference among groups when equal variances were assumed. This enabled the researcher to carry out a parametric test in this study. Therefore, we analysed our data by utilising a Paired Samples t-test. When researchers are trying to figure out whether there is a statistically significant difference between two variables, Paired Samples t-test would be the most

appropriate tool to conduct statistical analyses. Considering our dependent variable, such as mean duration of pauses for the ‘and’ conjunction among Turkish speakers, our independent variables would be pauses preceding and following this conjunction. In our research, the data from the pilot study, the main study, and the first phase of follow-up study were measured and analysed by using *Praat* and *SPSS*.

3.6.2. Analysis of the Qualitative Data

The qualitative part of our research was done in the second phase of our follow-up study. This research included English language teachers from each language group. The researcher took notes while conducting the interviews. Since interviewees would feel disturbed by recording, the researcher decided not to record their voices. It was intended to elicit specific constructs regarding their teaching on prosodic skills, and recording their voice might create a bias which would definitely affect the course of the interview. Additionally, the data needed for our research could be easily gathered from interviewees’ speeches. After the data collection, these interview protocols with teachers were analysed by identifying the recurring themes from interview notes.

3.7. Summary

Throughout this chapter, we explained the research methodology of our study. We started with stating our rationale for the research design by focusing on how it would provide a basis for our research. Then, we presented demographic data about our participants in order to understand their experience with English as a second/foreign language better. This was followed by explaining data collecting tools to elicit the intended conjunctions. Next, we stated the phases of our research by explaining the pros and cons of the pilot, main and follow-up studies. Finally, we tried to demonstrate how cutting-edge technologies would make our research viable by analysing the collected data. The next chapter will present the findings of our research.

CHAPTER IV

FINDINGS

4.1. Introduction

In this research, we wanted to analyse the pauses preceding and following coordinating conjunctions in Turkish, Swahili, Hausa and Arabic in both *read* and *spontaneous speech*. We also sought to discover what could be the reasons for potential differences. The previous chapter gave information about the methodology, and in this chapter, we present the results of our analysed data in three sections: First, findings of the pilot study are presented to see whether our main research would be viable and feasible with a limited sampling. Then, we present the results of the main study, and finally, we demonstrate the findings of the follow-up research.

4.2. Findings of the Pilot Study

The pilot study was conducted with speakers from each language group in order to observe the challenges, and thus prepare for the main research. In this phase, 812 pauses preceding and following 406 coordinating conjunctions in *read* and *spontaneous speech* were measured through *Praat,* and the results were analysed through *SPSS* by using a Paired Samples t-test.

4.2.1. The ‘and’ Conjunction

The ‘and’ conjunction conjoins two similar items in sentences and nouns. Pauses preceding and following this conjunction in *read* and *spontaneous speech* are presented in Table 10:

Table 10

Paired Samples T-test Results for the 'and' Conjunction

		Read Speech			Spontaneous Speech	
Pausing	**f**	**x̄**	**p**	**f**	**x̄**	**p**
Turkish						
PP	30	.149	.149	23	.197	.385
PF	30	.086		23	.290	
Swahili						
PP	30	.202	**.008**	32	.420	**.000**
PF	30	.052		32	.049	
Hausa						
PP	30	.307	**.005**	29	.269	.323
PF	30	.141		29	.198	
Arabic						
PP	30	.196	.876	24	.316	**.045**
PF	30	.091		24	.172	

Note: Significance level is $p \leq 0.05$

Findings indicate that except the *spontaneous speech* of Turkish speakers (x̄ = .197/.290), pauses preceding the 'and' conjunction were longer in both *read* and *spontaneous speech* of all speakers. Durations of pauses were not statistically significant in *read* and *spontaneous speech* of Turkish speakers (p = .149/.385). However, pauses were statistically significant in both *read* and *spontaneous speech* of Swahili speakers (p = .008/.000). Differences in pauses were also statistically significant in *read speech* of Hausa speakers (p = .005) and in *spontaneous speech* of Arabic speakers (p = .045).

The 'and' conjunction connects both clauses and nouns, and when this conjunction connects two nouns, pauses are considerably shorter, which might affect the mean pause duration in general. In this pilot study, considering the low number of sampling, the 'and' conjunction was not analysed separately. However, findings related to this conjunction are presented projecting the role of this conjunction as a sentence connector and a noun connector in the main study.

4.2.2. The ‘but’ Conjunction

The ‘but’ conjunction connects contrastive ideas in sentences. Pauses preceding and following this conjunction in *read* and *spontaneous speech* are presented in Table 11:

Table 11

Paired Samples T-test Results for the ‘but’ Conjunction

	Read Speech			**Spontaneous Speech**		
Pausing	**f**	**x̄**	**p**	**f**	**x̄**	**p**
Turkish						
PP	14	.145	.519	29	.202	.093
PF	14	.109		29	.144	
Swahili						
PP	14	.201	.055	15	.224	**.001**
PF	14	.063		15	.043	
Hausa						
PP	14	.501	**.026**	14	.398	**.006**
PF	14	.205		14	.122	
Arabic						
PP	14	.302	.666	18	.363	.173
PF	14	.251		18	.226	

Note: Significance level is $p \leq 0.05$

Findings indicate that English speakers from all language groups of this study paused longer preceding the ‘but’ conjunction in both *read* and *spontaneous speech*. In *read speech*, findings were statistically significant in Hausa (p = .026); and in *spontaneous speech*, they were statistically significant in both Hausa (p = .006) and Swahili (p = .001).

The ‘but’ conjunction connects sentences that have contrasts in their meaning. Statistically significant differences in Hausa and Swahili may indicate that speakers from these languages spend more time preceding the ‘but’ conjunction to plan the rest of the conversation in *spontaneous speech*.

4.2.3. The ‘or’ Conjunction

The ‘or’ conjunction connects alternatives in sentences and nouns. Paired Samples t-test results are presented in Table 12:

Table 12

Paired Samples T-test Results for the ‘or’ Conjunction

	Read Speech			**Spontaneous Speech**		
Pausing	**f**	**x̄**	**p**	**f**	**x̄**	**p**
Turkish						
PP	12	.135	.066	5	.000	**.016**
PF	12	.043		5	.100	
Swahili						
PP	12	.283	**.003**	7	.169	.159
PF	12	.160		7	.113	
Hausa						
PP	12	.403	**.018**	NA		
PF	12	.084		NA		
Arabic						
PP	12	.217	.253	7	.225	.850
PF	12	.100		7	.406	

Note: Significance level is $p \leq 0.05$

Findings show that speakers paused longer preceding the ‘or’ conjunction in *read speech*. This difference was found to be statistically significant between Swahili (p = .003) and Hausa speakers (p = .018). In *spontaneous speech*, it was not possible to observe any occurrence of this conjunction by Hausa speakers.

4.2.4. The ‘so’ Conjunction

The ‘so’ conjunction connects sentences that show the results in a cause-effect connection. Paired Samples t-test results are presented in Table 13:

Table 13

Paired Samples T-test Results for the 'so' Conjunction

		Read Speech			Spontaneous Speech	
Pausing	**f**	**x̄**	**p**	**f**	**x̄**	**p**
Turkish						
PP	6	.215	.105	3	9.44	.366
PF	6	.020		3	.000	
Swahili						
PP	6	.143	**.042**	8	.241	**.012**
PF	6	.000		8	.037	
Hausa						
PP	6	.556	**.006**	24	.324	**.000**
PF	6	.105		24	.088	
Arabic						
PP	6	.175	.364	8	.560	.092
PF	6	.095		8	.243	

Note: Significance level is $p \leq 0.05$

Findings reveal that speakers from all language groups paused considerably longer preceding the 'so' conjunction in both *read* and *spontaneous speech*. In particular, Swahili and Hausa speakers paused much longer, compared to other speakers, and these differences were found to be statistically significant in *read* (Swahili: p = .042; Hausa p = .006) and *spontaneous speech* (Swahili: p = .012; Hausa: p = .000).

4.3. Findings of the Main Study

Analysis of the main research presents the duration of pauses in preceding and following positions of coordinating conjunctions. Paired Samples t-test analysis illustrates whether these pauses were statistically significant or not. The findings related to *read speech* and *spontaneous speech* are displayed in a tabular form regarding each conjunction in question. The count of conjunctions, pauses and duration of speech are presented in Table 14:

Table 14

The Count of Conjunctions, Pauses and Mean Duration of Recordings

	Turkish		**Swahili**		**Hausa**		**Arabic**	
f	**Read**	**Spon**	**Read**	**Spon**	**Read**	**Spon**	**Read**	**Spon**
And	199	186	199	231	196	197	196	173
But	137	120	136	104	137	140	137	142
Or	60	95	59	66	57	87	58	100
So	108	68	108	78	107	137	105	129
Subtotal	**504**	**469**	**502**	**479**	**497**	**561**	**496**	**544**
Duration	1.45 h	2.20 h	1.23 h	3 h	1.42 h	3.20 h	2.05 h	2.40 h
TOTAL	**7510 pauses; 3755 conjunctions; 18.2 hours speech recordings**							

As can be observed in Table 14, we analysed the pauses preceding and following coordinating conjunctions in 18.2 hours of *read* and *spontaneous speech* recordings of Turkish, Swahili, Hausa and Arabic speakers of English. In total, we analysed 7510 pauses in 3755 coordinating conjunctions (9318 pauses including the pilot and the follow-up research). Counts of pilot and follow-up studies are not included here. The recordings that were not intelligible due to speech rates, volumes or for some other reasons were excluded as well. In the *read speech* phase, the speakers read out the prepared material; therefore, the number of conjunctions was limited with text content. However, since *spontaneous speech* has its own dynamics, the use of conjunctions showed fluctuations for each language group. A comparison of the count of conjunctions in *spontaneous speech* can be observed in Figure 4 below:

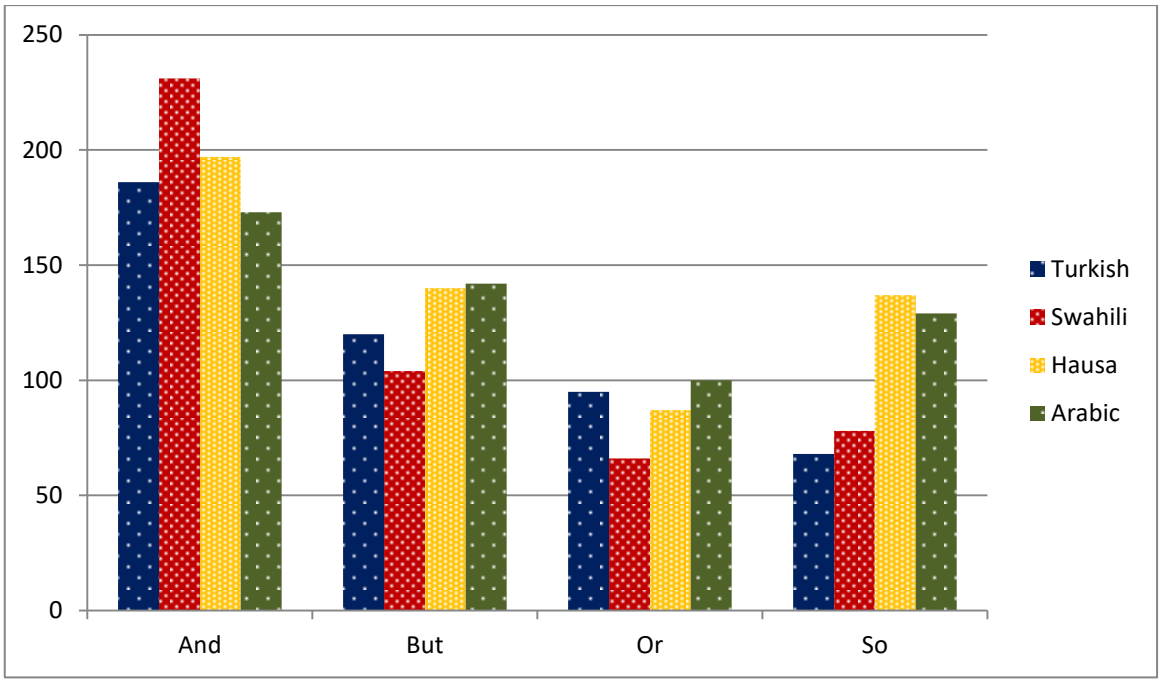


Figure 4. Comparison of conjunction utilisation in *spontaneous speech.*

We can infer from Figure 4 that the 'and' conjunction was the most commonly used conjunction in *spontaneous speech*. Swahili speakers uttered considerably more conjunctions than other speakers (f = 231). The 'and' conjunction was followed by the 'but' conjunction, and we can see that the quantity of this conjunction is almost the same in Hausa (f = 140) and Arabic (f = 142). In *spontaneous speech*, the third most commonly employed conjunction was 'so' by all speakers, and we can again see that Hausa (f = 137) and Arabic speakers (f = 129) showed a similarity in their use of the 'so' conjunction. The 'or' conjunction was the least used: Turkish (f = 95), Hausa (f = 87) and Arabic (f = 100) speakers.

4.3.1. The 'and' Conjunction

The 'and' conjunction links two similar items, and this conjunction can be used to connect two nouns, phrases or sentences. When it conjoins two nouns, it may be linked to the preceding or following because of *liaison*; it is subject to *liaison* (linking) in most cases especially when the preceding word ends with a consonant. For example, in a phrase like 'cake and wine', instead of reading it as /keɪk ənd waɪn/, we would expect this phrase in a speech as /keɪkən waɪn/. This might result in the absence of a pause between two nouns. For this reason, we looked into this conjunction when

connecting two sentences, and two nouns; thus, findings related to these two functions were presented in separate tables.

4.3.1.1. The 'and' Conjunction in Read Speech

When Conjoining Sentences

Paired Samples t-test results for the 'and' conjunction when conjoining two sentences in *read speech* are presented in Table 15:

Table 15

T-test Results for 'and' as a Sentence Connector *in Read Speech*

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	160	.299	.263	318	9.14	**.000**
PF	160	.093	.108			
Swahili						
PP	159	.198	.212	316	6.756	**.000**
PF	159	.077	.077			
Hausa						
PP	157	.148	.139	312	5.56	**.000**
PF	157	.077	.077			
Arabic						
PP	157	.201	.209	312	4.67	**.000**
PF	157	.106	.147			

Note: Significance level is $p \leq 0.05$

Table 15 shows that the mean duration of pauses in all language groups was longer in the preceding position than it was in the following position (Turkish x̄ = .299/.093; Swahili x̄ = .198/.077; Hausa x̄ = .148/.077; Arabic x̄ = .201/.106) and this difference was found to be statistically significant regardless of speaker groups (p = .000).

We can infer from Table 15 that speakers from all languages paused longer in the preceding position. Native speakers of English paused longer preceding this conjunction in *read speech*, and all speakers performed a native-like production.

Turkish speakers also paused much longer than speakers of other languages in the preceding position ($\bar{x}$ = .299); it was even twice as long as that of Hausa speakers ($\bar{x}$ = .148). Relying on our follow-up study, we can state that this may have resulted from L1 transfer to L2.

When Conjoining Nouns

The durations for the 'and' conjunction, when connecting two nouns were analysed, and pertaining findings are presented in Table 16 below.

Table 16

T-test Results for 'and' as a Noun Connector in Read Speech

Pauses	**f**	**$\bar{x}$**	**SD**	**Df**	**t**	**p**
Turkish						
PP	39	.240	.220	76	3.933	**.000**
PF	39	.089	.092			
Swahili						
PP	40	.252	.246	78	3.73	**.000**
PF	40	.096	.098			
Hausa						
PP	39	.145	.125	76	4.012	**.000**
PF	39	.057	.052			
Arabic						
PP	39	.187	.166	76	3.652	**.000**
PF	39	.083	.064			

Note: Significance level is $p \leq 0.05$

As can be observed from Table 16, our findings illustrate that speakers of all language groups paused longer preceding the 'and' conjunction than in the following position, and this difference was found to be statistically significant (p = .000). Mean duration in the preceding position regarding Turkish and Swahili groups was rather similar: Turkish ($\bar{x}$ = .240) and Swahili ($\bar{x}$ = .252). Mean duration in the following position was also very close in all languages (Turkish $\bar{x}$ = .089; Swahili $\bar{x}$ = .096; Hausa $\bar{x}$ = .089; Arabic $\bar{x}$ = .083).

We can infer from these findings that *liaison* did not affect the mean duration, at least in *read speech*, since there was a statistically significant difference in pause duration of the 'and' conjunction when connecting sentences and nouns.

4.3.1.2. The 'and' Conjunction in Spontaneous Speech

When Conjoining Sentences

When we look at the measurements of the 'and' conjunction in *spontaneous speech*, our t-test findings, presented in Table 17, illustrate an interesting picture for Turkish speakers.

Table 17

T-test Results for 'and' as a Sentence Connector *in Spontaneous Speech*

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	153	.361	.379	304	-.053	.958
PF	153	.363	.493			
Swahili						
PP	177	.286	.251	352	2.372	**.018**
PF	177	.220	.269			
Hausa						
PP	152	.271	.251	302	4.670	**.000**
PF	152	.151	.194			
Arabic						
PP	132	.308	.284	262	3.639	**.000**
PF	132	.186	.257			

Note: Significance level is $p \leq 0.05$

Findings displayed in Table 17 indicate that speakers of all languages paused longer preceding the 'and' conjunction in sentences. This difference was found to be statistically significant for Swahili ($p = .018$), Hausa ($p = .000$) and Arabic speakers ($p = .000$). However, as for Turkish speakers, the mean duration of pauses for both preceding and following positions was almost the same; thus, the t-test analysis revealed a statistically insignificant difference between the two positions: $p = .958$.

Since *spontaneous speech* has different dynamics compared to *read speech*, pauses in here bear cognitive characteristics; that is, speakers need some time to contemplate on what they were to say. When we compare the mean duration of pauses preceding and following the 'and' conjunction as a sentence connector in *read speech* to that in *spontaneous speech*, we can see that the participants spent longer time in the preceding position of *spontaneous speech* due to cognitive load. However, Turkish speakers displayed a different pattern in terms of pause duration compared to others, and the mean duration in their speech was almost the same ($\bar{x}$ = .361/.363). This difference may have resulted from the head-direction parameters in Turkish, since it is a head-final language; that is, the head follows its complements, and the sentence structure is SOV. On the other hand, Swahili, Hausa and Arabic are head-initial languages where the head of a phrase precedes its complements. Sentence structures are SVO in Swahili and Hausa, and VSO in Arabic. However, SVO is also permissable in Arabic when emphasizing the theme. Since speakers of almost all languages speak in lexical chunks rather than in isolated words, we might expect a cross-linguistic influence (transfer) from speakers L1 to their L2 or L3.

When Conjoining Nouns

Findings for the 'and' conjunction as a connector of nouns are presented in Table 18:

Table 18

T-test Results for the 'and' as a Noun Connector in Spontaneous Speech

Pauses	**f**	**$\bar{x}$**	**SD**	**Df**	**t**	**p**
Turkish						
PP	23	.035	.034	44	-.148	.883
PF	23	.037	.061			
Swahili						
PP	54	.039	.088	106	.577	.565
PF	54	.032	.024			
Hausa						
PP	45	.070	.155	88	1.137	.258
PF	45	.038	.107			
Arabic						
PP	41	.035	.052	80	1.355	.179
PF	41	.024	.017			

Note: Significance level is $p \leq 0.05$

The findings in Table 18 indicate that pauses preceding and following the ‘and’ conjunction were similar for all language groups (Turkish $\bar{x}$ = .035/.037; Swahili $\bar{x}$ = .039/.032; Hausa $\bar{x}$ = .070/.038; Arabic $\bar{x}$ = .035/.024). The t-test result reveals that pause durations for both positions were not statistically significant for all groups: Turkish p = .883; Swahili p = .565; Hausa p = .258; Arabic p = .179.

From the findings, we can infer that regardless of their L1, participants did not spend much time for cognitive planning when they used the ‘and’ conjunction as a noun connector in *spontaneous speech*. Except for the preceding position in Hausa ($\bar{x}$ = .070), we can see that the mean duration in all positions was less than .04 seconds. The rather restricted time spent for cognitive planning can also be explained through the *liaison* of preceding or following consonants/vowels. For instance, when they uttered the words, ‘open and liberal’, we expected to elicit as / əʊpənən lıbərəl/ or / əʊpən ænd lıbərəl/ depending on the emphasis on the ‘and’ conjunction.

Compared to speakers from other language groups, Turkish participants uttered a small number of the ‘and’ conjunction as a noun connector (f = 23). This could be due to an influence of Arabic on Turkish, since Turkish speakers use the ‘ile’ (= and) conjunction instead of ‘ve’ (= and) when they connect two nouns. Similarly, the ‘ile’ conjunction is also linked to the previous sound if the preceding word ends with a vowel. We would thus expect Turkish speakers to say ‘Ayşe’yle Mehmet’ instead of ‘Ayşe ile/ve Mehmet’. And, this may have led to the relatively restricted utterance of ‘and’ by Turkish speakers.

4.3.1.3. An Overview of the ‘and’ Conjunction as Sentence Connector

An overview of the ‘and’ conjunction as a sentence connector both in *read* and *spontaneous speech* is illustrated in Table 19:

Table 19

An Overview of the 'and' Conjunction in Read vs. Spontaneous Speech

	Read Speech			Spontaneous Speech		
Pausing	**f**	**x̄**	**p**	**f**	**x̄**	**p**
Turkish						
PP	160	.299	**.000**	153	.361	.958
PF	160	.093		153	.363	
Swahili						
PP	159	.198	**.000**	177	.286	**.018**
PF	159	.077		177	.220	
Hausa						
PP	157	.148	**.000**	152	.271	**.000**
PF	157	.077		152	.151	
Arabic						
PP	157	.201	**.000**	132	.284	**.000**
PF	157	.106		132	.257	

Note: Significance level is $p \leq 0.05$

We can observe from Table 19 that except for the *spontaneous speech* of Turkish speakers, the duration of pause, compared to the following position, was longer in the preceding position of the 'and' conjunction in both *read* and *spontaneous speech* of all language groups. Since pauses are syntactic in *read speech* and cognitive in *spontaneous*, we can expect the mean pause duration to be relatively longer in *spontaneous speech*.

4.3.2. The 'but' Conjunction

The 'but' conjunction connects contrasting ideas of two independent clauses in English.

4.3.2.1. The 'but' Conjunction in Read Speech

The values related to Paired Samples t-test for the 'but' conjunction in *read speech* are presented in Table 20:

Table 20

T-test Results for the 'but' Conjunction in Read Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	137	.356	.290	221	6.808	**.000**
PF	137	.160	.172			
Swahili						
PP	136	.250	.259	214	4.188	**.000**
PF	136	.143	.147			
Hausa						
PP	137	.323	.269	197	7.041	**.000**
PF	137	.142	.131			
Arabic						
PP	137	.249	.218	223	5.267	**.000**
PF	137	.134	.131			

Note: Significance level is $p \leq 0.05$

Findings indicate that speakers of all language groups paused longer preceding the 'but' conjunction in *read speech*. This mean duration was found to be statistically significant for all language groups (p = .000). Participants here performed a native-like pattern in their productions. Also, the mean duration of pauses in both preceding and following positions were observed to be similar between Turkish (x̄ = .356/.160) and Hausa speakers (x̄ = .323/.142). Additionally, the mean duration was also closer between Swahili (x̄ = .250/.143) and Arabic (x̄ = .249/.134). This pattern may have resulted from the fact that in their mother tongues, Turkish and Hausa speakers use rather similar function words as sentence connectors: 'ama' in Turkish and 'amma' in Hausa. On the other hand, such a similarity exists between Swahili and Arabic speakers regarding the function words, 'lakini' (in Swahili) and laakin لـ كن' (in Arabic). It is possible that speakers of these languages displayed such language production similarity due to a transfer from their L1 reading habits into English.

4.3.2.2. The 'but' Conjunction in Spontaneous Speech

Paired Samples t-test analysis for the 'but' conjunction in *spontaneous speech* is presented in Table 21:

Table 21

T-test Results for the 'but' Conjunction in Spontaneous Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	120	.465	.387	238	1.957	.051
PF	120	.349	.517			
Swahili						
PP	104	.326	.315	182	4.775	**.000**
PF	104	.147	.216			
Hausa						
PP	140	.342	.287	278	1.551	.122
PF	140	.280	.378			
Arabic						
PP	142	.315	.301	260	5.007	**.000**
PF	142	.157	.224			

Note: Significance level is $p \leq 0.05$

In Table 21, we can observe from Paired Samples t-test analysis that speakers of all language groups paused considerably longer in the preceding position of the 'but' conjunction compared to the following position in *spontaneous speech*. This mean duration was found to be statistically significant between Swahili and Arabic languages (p = .000). However, it was not statistically significant between Turkish (p = .051) and Hausa speakers (p = .122).

We noticed that in terms of pause durations, there was a difference in favour of pause preceding among all language groups. However, there was a similar pattern between Turkish-Hausa and Swahili-Arabic in either preceding and/or following positions. Although *spontaneous speech* has its own dynamics, we still could observe the same pattern here in terms of difference between mean durations. As was previously stated, in Turkish and Hausa, the corresponding words of 'but' in English is 'ama' and 'amma' respectively. These words connect phrases, clauses and sentences in these languages. On the other hand, the conjunction 'lakini' in Swahili and 'laakin (لٰكن)' in Arabic connect sentences only. Therefore, the results obtained here may be a reflection of such similarities between the languages at issue. Another interpretation may be that Turkish speakers may have employed head-direction parameters from Turkish in their

spontaneous speech in English. Since Turkish is a head-final language, the speakers may have produced similar duration of pause in both preceding and following positions due to this characteristic of Turkish. As for the Hausa speakers, although Hausa is a head-initial language, *juxtaposition* of the 'but' conjunction (amma) is quite common for *spontaneous speech* when it connects two sentences. The sentence *I came on time but I didn't see you* can be uttered as *Na zocikin lokaci (amma) bag an ka ba* in a random conversation.

4.3.2.3. An Overview of the 'but' Conjunction

An overview of the 'but' conjunction between *read* and *spontaneous speech* is presented in Table 22 for a comparison:

Table 22

An Overview of the 'but' Conjunction in Read and Spontaneous Speech

	Read Speech			**Spontaneous Speech**		
Pausing	**f**	**x̄**	**p**	**f**	**x̄**	**p**
Turkish						
PP	137	.356	**.000**	120	.465	.051
PF	137	.160		120	.349	
Swahili						
PP	136	.250	**.000**	104	.326	**.000**
PF	136	.143		104	.147	
Hausa						
PP	137	.323	**.000**	140	.342	.122
PF	137	.142		140	.280	
Arabic						
PP	137	.249	**.000**	142	.315	**.000**
PF	137	.134		142	.157	

Note: Significance level is $p \leq 0.05$

Comparison of the 'but' conjunction suggests that speakers paused longer in favour of preceding coordinating conjunctions in both *read* and *spontaneous speech*. The difference in length was statistically significant in *read speech* of all speakers. However, in *spontaneous speech*, it was found to be significant regarding only Swahili and Arabic speakers of English.

4.3.3. The ‘or’ Conjunction

The ‘or’ conjunction is used to give alternatives among choices. It can connect both sentences and nouns.

4.3.3.1. The ‘or’ Conjunction in Read Speech

The ‘or’ conjunction was analysed both as a connector of two sentences and two nouns.

When Conjoining Sentences

The t-test results for the ‘or’ conjunction as a connector of sentences in *read speech* are presented in Table 23:

Table 23

T-test Results for ‘or’ as a Sentence Connector in Read Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	30	.289	.370	58	2.620	**.011**
PF	30	.103	.118			
Swahili						
PP	29	.254	.246	56	3.461	**.001**
PF	29	.091	.059			
Hausa						
PP	30	.160	.155	58	1.799	.077
PF	30	.101	.092			
Arabic						
PP	30	.101	.091	58	.428	.670
PF	30	.091	.095			

Note: Significance level is $p \leq 0.05$

Analysis of the Paired Samples t-test results indicate that speakers of Turkish, Swahili, Hausa and Arabic paused longer preceding the ‘or’ conjunction as a connector of sentences in *read speech*. While the difference between two positions was found to

be statistically significant between Turkish (p = .011) and Swahili speakers (p = .001), it was not found to be so between Hausa (p = .077) and Arabic speakers (p = .670).

Since speakers do not usually take time to plan for upcoming text in *read speech*, the tendency towards pausing much longer compared to other speakers was observed among Turkish and Swahili speakers, in that they paused much longer in the preceding position than they did in the following position.

As for the Hausa and Arabic speakers, although they paused longer in the preceding position, this difference was not found to be statistically significant and this result may be attributed to the fact that since the two languages are frequent users of asyndetic coordination in spontaneous speech, such a characteristic may have been transferred to L2 production in reading. Asyndetic coordination is also very common in Turkish, and we would expect Turkish speakers to equally produce relatively similar pauses between two positions; however, this was not found to be the case, possibly due to the fact that they may have transferred read speech patterns in their native language to L2 production.

When Conjoining Nouns

Paired Samples t-test results for the 'or' conjunction, as a connector of nouns are presented in Table 24:

Table 24

T-test results for 'or' as a Noun Connector in Read Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	30	.174	.186	58	.295	.769
PF	30	.159	.206			
Swahili						
PP	30	.192	.266	58	1.643	.106
PF	30	.106	.110			
Hausa						
PP	27	.154	.226	52	1.394	.169
PF	27	.091	.068			
Arabic						
PP	28	.263	.336	54	1.889	.064
PF	28	.131	.154			

Note: Significance level is $p \leq 0.05$

Findings in Table 24 illustrate that speakers of all languages paused longer preceding the ‘or’ conjunction. However, the differences in mean durations were not found to be statistically significant (Turkish: p =.769; Swahili: p = .106; Hausa: p = .169; Arabic: p = .064).

It can be observed that Turkish, Hausa, and Arabic speakers did not see the need to pause differently preceding and following nouns regarding this conjunction, which may be a result of an asyndetic coordination habit stemming from these languages. Although there is no asyndetic coordination in Swahili, the insignificant difference may have resulted from the *liaison* of consonants and vowels in words preceding this conjunction.

4.3.3.2. The ‘or’ Conjunction in Spontaneous Speech

In *spontaneous speech*, the ‘or’ conjunction was analysed both as a sentence connector and a noun connector.

When Conjoining Sentences

Paired Samples t-test analysis for the ‘or’ conjunction as a connector of sentences is presented in Table 25:

Table 25

T-test results for the ‘or’ Conjunction as a Sentence Connector in Spontaneous Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	66	.271	.303	130	.470	.639
PF	66	.241	.420			
Swahili						
PP	42	.280	.260	82	3.246	**.002**
PF	42	.134	.130			
Hausa						
PP	55	.226	.259	108	1.933	.056
PF	55	.144	.176			
Arabic						
PP	64	.232	.306	126	-.070	.944
PF	64	.235	.242			

Note: Significance level is $p \leq 0.05$

Findings in Table 25 suggest that Turkish, Swahili, and Hausa speakers paused longer preceding the ‘or’ conjunction as a sentence connector in *spontaneous speech*. Of all the languages, this duration was observed to be statistically significant only in Swahili (p = .002). Arabic speakers paused longer in favour of the following position of the ‘or’ conjunction ($\bar{x}$ = .232/.235).

Juxtaposition is a very common feature of Turkish, Hausa and Arabic. Instead of using a conjunction, two sentences can be conjoined by direct *juxtaposition* in these three languages. On the other hand, *juxtaposition* does not exist in Swahili, and speakers of this language usually use these conjunctions for conjoining two sentences. Although Swahili group produced only one-third of the production of this conjunction by other speakers (f = 42), they were, however, observed to pause much longer in the preceding position ($\bar{x}$ = .280) and shorter in the following position ($\bar{x}$ = .134) compared to all other speakers, a result which may be attributable to absence of *juxtaposition* in the mother tongue.

When Conjoining Nouns

Paired Samples t-test results for the ‘or’ conjunction as a noun connector in *spontaneous speech* are presented in Table 26:

Table 26

T-test Results for the ‘or’ Conjunction as a Noun Connector in Spontaneous Speech

Pauses	**f**	**$\bar{x}$**	**SD**	**Df**	**t**	**p**
Turkish						
PP	29	.037	.045	56	1.301	.199
PF	29	.034	.026			
Swahili						
PP	24	.046	.074	46	.671	.506
PF	24	.033	.052			
Hausa						
PP	32	.046	.069	62	1.387	.170
PF	32	.028	.025			
Arabic						
PP	36	.027	.020	70	.488	.627
PF	36	.024	.023			

Note: Significance level is $p \leq 0.05$

Findings illustrated in Table 26 indicate that speakers of all languages paused less than .05 seconds in both preceding and following the 'or' conjunction when employed as a noun connector in *spontaneous speech*. The difference in pause duration was observed to be statistically insignificant for all language groups: Turkish: p =.199; Swahili: p =.506; Hausa: p =.170; Arabic: p =.627.

The 'or' conjunction offers a choice between two options, and *liaison* between preceding or following consonants is more likely to happen when conjoining nouns. Another reason for insignificant difference between two positions may be due to aysndetic coordination in Turkish, Hausa and Arabic. Considering the fact that there is no asyndetic coordination in Swahili, *liaison* seems to be the only viable explanation for the statistically insignificant difference between both positions, if not for all groups, it is highly likely for the Swahili group. Similar to the case in *read speech*, we can observe the potential effect of *liaison* in *spontaneous speech* as well.

4.3.3.3. An Overview of the 'or' Conjunction as a Sentence Connector

A comparison of the 'or' conjunction in *read* and *spontaneous speech* as a sentence connector is presented in Table 27:

Table 27

An Overview of the 'or' Conjunction in Read and Spontaneous Speech

	Read Speech			**Spontaneous Speech**		
Pausing	**f**	**x̄**	**p**	**f**	**x̄**	**p**
Turkish						
PP	30	.289	**.011**	66	.271	.639
PF	30	.103		66	.241	
Swahili						
PP	29	.254	**.001**	42	.280	**.002**
PF	29	.091		42	.134	
Hausa						
PP	30	.160	.077	55	.226	.056
PF	30	.101		55	.144	
Arabic						
PP	30	.101	.670	64	.232	.944
PF	30	.091		64	.235	

Note: Significance level is $p \leq 0.05$

The comparison of *read* and *spontaneous speech* indicates that speakers from all groups paused longer in favour of the preceding position in both *read* and *spontaneous speech* except Arabic group. The difference was found to be statistically significant in *read speech* regarding Turkish and Swahili speakers. In *spontaneous speech*, however, the difference was observed to be statistically significant only for Swahili speakers. On the other hand, we could not observe any statistically significant difference in *spontaneous speech* of Turkish, Hausa and Arabic speakers.

4.3.4. The 'so' Conjunction

The 'so' conjunction is used to show the results or effects of something. It conjoins two sentences that have a cause-consequence relation.

4.3.4.1. The 'so' Conjunction in Read Speech

Pauses preceding and following the 'so' conjunction in *read speech* were analysed through a Paired Samples t-test, and results are presented in Table 28:

Table 28

T-test Results for the 'so' Conjunction in Read Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	108	.394	.298	204	6.859	**.000**
PF	108	.142	.240			
Swahili						
PP	108	.258	.265	201	3.404	**.001**
PF	108	.148	.205			
Hausa						
PP	107	.361	.288	196	6.117	**.000**
PF	107	.147	.216			
Arabic						
PP	105	.228	.178	208	2.888	**.004**
PF	105	.148	.221			

Note: Significance level is $p \leq 0.05$

Results illustrated in Table 28 indicate that speakers from all language groups paused longer in the preceding position than they did in the following position in *read speech*. This difference was found to be statistically significant in all language groups: Turkish: p = .000; Swahili: p = .001; Hausa: p = .000; Arabic: p = .004.

We can infer from the findings that although pauses in *read speech* are syntactic, that is, although speakers did not require time to plan for the rest of the speech, they still paused longer preceding this conjunction. Participants from all language groups employed the same strategy, expected from a native speaker of English. Particularly, in Turkish and Hausa, the duration of pause preceding the 'so' conjunction was observed to be twice longer than the following position: Turkish: $\bar{x}$ = .394/142; Hausa: $\bar{x}$ = .361/147. Considering L1 *read speech* pattern of Turkish group, obtained from the follow-up study, they may have transferred their L1 *read speech* habits to English.

4.3.4.2. The 'so' Conjunction in Spontaneous Speech

Statistical data regarding pauses preceding and following the 'so' conjunction is presented in Table 29:

Table 29

T-test Results for the 'so' Conjunction in Spontaneous Speech

Pauses	**f**	**$\bar{x}$**	**SD**	**Df**	**t**	**p**
Turkish						
PP	68	.489	.337	114	.750	.454
PF	68	.432	.522			
Swahili						
PP	78	.445	.316	132	7.528	**.000**
PF	78	.124	.205			
Hausa						
PP	137	.434	.286	269	6.723	**.000**
PF	137	.210	.262			
Arabic						
PP	129	.355	.292	204	7.674	**.000**
PF	129	.127	.168			

Note: Significance level is $p \leq 0.05$

Findings displayed in Table 29 illustrate that all groups paused longer preceding the 'so' conjunction in *spontaneous speech*. Durations of pauses in preceding and

following positions were observed to be statistically significant in Swahili, Hausa and Arabic (p = .000). However, as for the Turkish speaking group, no significant differences between positions were observed: p = .454.

The results here may be attributed to the fact that speakers took time to prepare for upcoming speech when they were trying to build a cause-effect relationship. However, we could observe a statistically insignificant difference between the pause positions of the Turkish group. Similarly, spontaneous speech findings regarding the 'and', 'but' and 'or' conjunctions also presented the same pattern for Turkish speakers, in that pauses between two positions did not present any statistically significant difference. As was previously stated, this pattern may have resulted from the head-direction parameters of the Turkish language. That is, speakers may have transferred the pattern of head-final sentences or lexical chunks in their mother tongue to English.

4.3.4.3. An Overview of the 'so' Conjunction

A comparison of the 'so' conjunction in *read* and *spontaneous speech* is presented in Table 30:

Table 30

An Overview of the 'so' Conjunction in Read and Spontaneous Speech

	Read Speech			**Spontaneous Speech**		
Pausing	**f**	**x̄**	**p**	**f**	**x̄**	**p**
Turkish						
PP	108	.394	**.000**	68	.489	.454
PF	108	.142		68	.432	
Swahili						
PP	108	.258	**.001**	78	.445	**.000**
PF	108	.148		78	.124	
Hausa						
PP	107	.361	**.000**	137	.434	**.000**
PF	107	.147		137	.210	
Arabic						
PP	105	.228	**.004**	129	.355	**.000**
PF	105	.148		129	.127	

Note: Significance level is $p \leq 0.05$

As can be seen from Table 30, the comparison of *read* and *spontaneous speech* reveals that speakers of all languages paused considerably longer preceding the ‘so’ conjunction. This difference was observed to be statistically significant in *read speech* regarding all groups. For *spontaneous speech,* except for the Turkish, the difference was found to be statistically significant for all other groups.

4.4. Findings of the Follow-up Study

Findings in the main study revealed that the mean duration of pauses differed from speakers of one language to another. We also saw that the duration of these pauses were different in *read* and *spontaneous speech* as well. In order to support our interpretations regarding the nature of these pauses, we analysed these coordinating conjunctions in *read speech* of the speakers’ mother tongues. With this, we endeavoured to discover whether these patterns were resulting from L1 transfer, or were due to other variables. We also carried out unstructured interviews with the English Language teachers attending classes of these groups in order to observe if we could talk about a potential transfer of training resulting from schooling in English.

4.4.1. Coordinating Conjunctions in Native Languages

In this final phase of the research, equivalents of 498 coordinating conjunctions in speakers’ mother tongues were found, and the mean durations of 996 pauses were analysed by utilising a Paired Samples t-test.

4.4.1.2. The ‘and’ Conjunction

Equivalent of the ‘and’ conjunction is ‘ve’ in Turkish, ‘na’ in Swahili, and ‘wa’ in Arabic. There is no equivalent of ‘and’ as a coordinating conjunction in Hausa, but the coordination is performed by asyndetic coordination in *spontaneous speech*. Therefore, we used ‘kuma’, which reinforces the agreement in sentences as a substitution. Findings are presented in Table 31:

Table 31

Paired Samples T-test Results for the 'and' Conjunction in L1 Read Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	40	.202	.162	78	6.385	**.000**
PF	40	.035	.032			
Swahili						
PP	34	.193	.222	66	3.220	**.002**
PF	34	.063	.079			
Hausa						
PP	30	.127	.161	58	.472	.638
PF	30	.104	.217			
Arabic						
PP	30	.065	.052	58	2.365	**.021**
PF	30	.039	.028			

Note: Significance level is $p \leq 0.05$

Findings in Table 31 reveal that speakers of all groups paused longer preceding the 'and' conjunction in their mother tongues, and the duration was found to be statistically significant in *read speech* of Turkish (p = .000), Swahili (p = .002) and Arabic (p = .021) speakers of English; however, the difference was observed to be statistically insignificant for the Hausa group (p = .638).

We can infer from these findings that speakers may have transferred their L1 reading habits into English, since these findings were found to be in line with those in their English performance, at least, regarding *read speech*. Although the Hausa group also paused in favour of the preceding position, the duration was not found to be statistically significant in L1.

4.4.1.3. The 'but' Conjunction

The 'but' conjunction is translated as 'ama' in Turkish, 'lakini' in Swahili, 'amma' in Hausa, and 'laakin' in Arabic. Equivalent of the 'but' in those languages derived from Arabic origin. Findings for these conjunctions are presented in Table 32:

Table 32

Paired Samples T-test results for the 'but' Conjunction in L1 Read Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	30	.243	.203	58	3.618	**.001**
PF	30	.085	.124			
Swahili						
PP	30	.195	.237	58	1.192	.238
PF	30	.129	.188			
Hausa						
PP	30	.171	.184	58	.570	.571
PF	30	.140	.233			
Arabic						
PP	30	.101	.094	58	3.584	**.001**
PF	30	.037	.024			

Note: Significance level is $p \leq 0.05$

Findings in Table 32 illustrate that speakers paused longer in favour of the preceding position all language groups, and this duration was found to be statistically significant in Turkish (p = .001) and Arabic (p =.001). However, this difference was statistically insignificant in Swahili (p = .238) and Hausa (p = .571).

We can explain the statistically significant findings in Turkish and Arabic as transfer of L1 reading habits into target language because these findings are also statistically significant in their *read speech* data for the 'but' conjunction in target language. On the other hand, we can again see the effect of asyndetic coordination in Hausa. Although findings of L1 reading patterns are statistically insignificant, their performance was in favour of the preceding position and this was parallel to *read speech* patterns in English. Similarly, in Swahili, although a difference was observed in favour of the pause in the following position regarding this conjunction, it was, however, found to be statistically insignificant. The fact that the difference was not statistically significant may bring about an interpretation that in Swahili, when an affirmative sentence is followed by a negative one, coordinating clauses do not have a conjunction and the subjunctive is used as a default mood.

4.4.1.4. The ‘or’ Conjunction

The corresponding particle for the ‘or’ conjunction is ‘veya’ in Turkish; ‘au’ in Swahili; ‘ko’ in Hausa, and ‘aw’ in Arabic. Just like their use in English, they can connect two nouns or two sentences. Findings for the ‘or’ as a sentence connector in L1 read speech are presented in Table 33:

Table 33

Paired Samples T-test Results for the ‘or’ Conjunction in L1 Read Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	34	.180	.157	66	3.854	**.000**
PF	34	.060	.088			
Swahili						
PP	30	.257	.331	58	2.220	**.030**
PF	30	.104	.181			
Hausa						
PP	30	.159	.175	58	1.110	.272
PF	30	.108	.178			
Arabic						
PP	30	.063	.063	58	-.083	.934
PF	30	.065	.089			

Note: Significance level is $p \leq 0.05$

Paired Samples t-test results illustrated in Table 33 indicate that Turkish, Swahili, and Hausa speakers paused longer preceding the ‘or’ conjunction in their L1. Arabic speakers spared an equal amount of time for both preceding and following the ‘or’ conjunction. Results in Turkish and Swahili were observed to be statistically significant (Turkish: p = .000; Swahili: p = .030). However, findings were found to be statistically insignificant for Hausa and Arabic speakers (Hausa: p = .272; Arabic: p = .934).

Statistically significant differences regarding the ‘veya’ conjunction in Turkish may suggest that the Turkish corresponding pattern may have acted as a contributing factor to performance of the Turkish group regarding their read speech in English.

On the other hand, we can see an important pattern for Swahili, Hausa, and Arabic in terms of significant values for these languages. Findings in this data are very much in line with the *read* and *spontaneous speech* data in English. Considering these pause patterns for the 'or' in their mother tongues, it would not be a strong claim to suggest that speakers of these languages may have transferred such native language characteristics to both *read* and *spontaneous speech* in English. The mean pause duration of the 'or' conjunction was insignificant in Hausa and Arabic and these patterns in L1 were also the same in their *read* and *spontaneous speech* in English. Additionally, we can state that the 'or' conjunction is marked in Hausa and Arabic.

4.4.1.5. The 'so' Conjunction

Equivalent of the 'so' conjunction is 'bu yüzden' in Turkish, 'kwa hiwyo' in Swahili, 'dan haka' in Hausa and 'lazalik' in Arabic. Findings for the mean duration of pauses are presented in Table 34:

Table 34

Paired Samples T-test Results for the 'so' Conjunction in L1 Read Speech

Pauses	**f**	**x̄**	**SD**	**Df**	**t**	**p**
Turkish						
PP	30	.325	.203	58	7.259	**.000**
PF	30	.051	.032			
Swahili						
PP	30	.189	.195	58	1.860	.068
PF	30	.109	.129			
Hausa			.			
PP	30	.180	.193	58	.594	.555
PF	30	.150	.206			
Arabic						
PP	30	.137	.093	58	3.757	**.000**
PF	30	.055	.074			

Note: Significance level is $p \leq 0.05$

Findings indicate that regardless of their mother tongues, all speakers paused longer preceding the ‘so’ conjunction. The difference of this duration was found to be statistically significant in Turkish (p = .000) and Arabic (p= .000). A statistically insignificant difference was observed between mean duration in preceding and following pauses regarding Swahili (p = .068) and Hausa speakers (p = .555).

The ‘so’ conjunction is not a commonly utilised conjunction in many languages, especially in Swahili and Hausa. Usually, a substitution is preferred in a cause-effect relationship. For instance, in a sentence like “It was raining, so I didn’t go out”, an affirmative sentence is followed by a negative one. It is not uncommon for a Swahili speaker in their *spontaneous speech* to employ the subjunctive instead. Therefore, Swahili speakers may have applied their L1 *spontaneous speech* dynamics in their L1 *read speech* productions.

Similar to other conjunctions, we could not observe any statistically significant difference for the ‘so’ conjunction in the Hausa group although they were observed to pause longer in favour of the preceding position. This can be explained in terms of *juxtaposition* in this language. In this case, the different findings for *read* and *spontaneous speech* in English may have resulted from their training in English, which might also be the case for Swahili speakers.

4.4.2. Attitudes of English Teachers Regarding Prosody

In this research, we observed that duration of pauses differed in both *read* and *spontaneous speech* of the English speaker groups of this study regardless of their L1. We also saw that L1 pause durations of all language groups in *read speech* displayed similarities and differences in terms of statistically significance values with their productions in the target language. Keeping this in mind, we wanted to discover whether the participants’ performance was a result of transfer of training in English, or a result of a cross-linguistic transfer from L1 characteristics. In order to address this problem, we carried out unstructured interviews with eight English teachers, two from each language group, and asked them about their teaching methods concerning prosodic features, pauses in particular. Analysis of the interviews revealed important insights about their teaching practises, and findings obtained from the interviews were categorised under three main themes: (1) negligence of prosodic features, (2) graded teaching of prosody, and (3) incidental acquisition of prosody.

4.4.2.1. Negligence of Prosodic Features

The first theme we inferred from the findings of the interviews was that teachers did not pay due attention to prosodic features, such as pauses, intonation and rhythm. Results stated that they actually wanted to teach these features, yet due to some restrictions they could only pay attention to 'more important' skills, such as teaching grammar and vocabulary. Some of the reasons indicated by the teachers are: (1) limited time, (2) summative assessment. Due to limited time, they had to ignore the phonetics in their classes, and thus had to rush to cover chapters without sparing enough time to focus on more 'stylistic' skills of the language. Another reason is related to summative assessment procedures. The skills that were expected to be assessed generally focused on grammar, vocabulary and reading. Productive skills, such as writing and speaking are significant problems, especially for those who are teaching at primary schools and high schools. One of the teachers from Syria highlighted these problems as:

> *We can't pay attention to pronunciation and fluency. In most cases, we have to focus on grammar. Some students are very enthusiastic to speak but since we can't pay attention to speaking more, our students feel shy. In our language, students usually mispronounce /p/ and /b/, since we do not have a difference between these two phonemes in our language, even this basic issue is very difficult to teach. So, we do not pay much attention to fluency and accuracy.*

Besides these curricular restrictions, some teachers claimed that as language teachers, they were not even made aware of pauses and other prosodic features during their training. They expressed that there should be more attention given to training prospective teachers. Another teacher from Turkey highlighted this issue:

> *I think conjunctions and fillers are crucial when it comes to maintaining a conversation. I did not come across a teacher in Turkey who teaches prosodic skills the way you mentioned. I used to have only one lecturer back at the university who taught the importance of prosodic skills especially pauses. He made us put slashes before the conjunctions and made us pause before them when reading out so that we could see the difference ourselves. I can say it made a huge difference. Most of the students tend to read in a monotonous way; no*

pausing, not using the correct intonation or stress patterns, which is quite irritating for listeners. Not pausing before conjunctions makes it extremely difficult for others to concentrate on the speech.

As can be seen from such teachers' experiences, appropriate pauses are very important for both the speaker and the listener. We stated that in *spontaneous speech*, speakers of English usually paused longer preceding conjunctions because of the necessity to plan for the rest of the speech, especially between independent clauses. Observations from the teachers are also in line with our findings. They stated that pausing appropriately was as important for the speaker as it was for the listener in order to be able to comprehend each other efficiently. However, the interview with the teacher mentioned above reveals that during her experiences as a language learner, she had only one teacher touching upon prosodic features. This explains the immense lack of attention given by teachers to such linguistic characteristics. Although teachers have a great many restrictions resulting from curriculum pursuit, examinations, and unawareness of such prosodic characteristics, they still would like to see this significant prosodic feature dealt with by educational authorities.

4.4.2.2. Graded Teaching of Prosody

The second theme that emerged as a construct of teachers is *graded teaching of prosodic features*. In the previous theme, we saw that productive skills were neglected in classrooms due to some reasons. This theme, however, revealed that in spite of the problems, some teachers were aware of the importance of prosodic features and tried to teach them to their students. However, the teachers here stated that most of the time, this was limited with paying attention to a word pronunciation and they rarely paid attention to fluency and/or accuracy in clauses. Practises related to pauses, intonation, and rhythm are taught to advanced-level learners. An English teacher from Turkey explains this issue as:

In the school where I teach now, we do not have a common schedule. Teachers organise their lesson plans as they want. So, I prefer teaching daily conversations instead of grammar points. Pronunciation has great importance, and I try to show sentence stress as well. I do not expect a hundred percent

success from my students since I know that they are not familiar with such a lesson plan, but as long as they are learning something, it should be the best for them.

We conclude from this teacher's practices that if teachers were given autonomy to run their classes as they wished, without having been dependent on the curriculum, they would pursue a programme that would appeal to students' needs and endeavours to meet students' expectations regarding some language points, such as prosodic features. However, we should bear in mind that this is an isolated case, and in order to draw some salient conclusions, it is important to increase the scale of the interviews. Another teacher from Syria also supports this practice:

I teach pronunciation in general depending on the students' level by using simple rules of the phonetic chart. I start from the very beginning with the phonetic chart explaining the difference between letters and sounds.

From these classroom practices expressed by the teachers mentioned above we can infer that a potential prosodic training can only be rendered successful when the training is given observing the right level of students as well as involving teachers who would be equipped with the necessary expertise and pedagogically well-prepared regarding the teaching of this linguistic feature.

4.4.2.3. Incidental Acquisition of Prosody

Previous themes illustrated that apart from teachers' individual practises, prosodic features were not attached much importance in the school curriculum. Teachers felt that they needed to teach these skills to advanced students. Even with advanced students, it would be appropriate to suggest that the teaching of prosody rarely goes beyond the word level. As was indicated by the teachers interviewed, this is a commonly applied practice by English teachers from Turkey, Kenya, Nigeria and Syria. Interviews with teachers from Kenya and Nigeria reveal one other important aspect, that is, the *incidental acquisition of prosodic features*. An English teacher from Kenya explains this implicit learning:

I think we learn pauses and other features subconsciously. That is how we hear in our environment. As children, we pick up speaking skills from the environment around us. We definitely notice the tonal features in affirmative or contrastive sentences and that is how we learn. Apart from this we do not teach it beyond word pronunciation.

We need to keep in the mind that people in Kenya and Nigeria start to learn English at very early ages. Our demographic study shows that this learning starts at even when children are only 3 years old. That is, because more than 200 languages are spoken in Nigeria alone, together with their tribal languages, people attain mastery in English, which is used as a *lingua franca* in both Nigeria and Kenya. However, findings of our research show that although Swahili and Hausa speakers learn English both in formal and informal environment, there are differences in terms of significance for pause durations in their L1 *read speech* and their *spontaneous speech* in English. Therefore, we can state that these differences do not result from their language education; rather, it may be possible to talk about a potential transfer of prosodic features from their L1 to English.

4.5. Summary

In this chapter, findings of the research were presented in three main phases: the pilot study, the main study, and the follow-up study. The pilot study was carried out with a limited number of participants in order to see whether we could have a solid ground on which to base our main research. The findings showed that our research was viable yet there should be some modifications such as increasing the duration of *spontaneous speech* with the aim to elicit less frequently utilised conjunctions which were not observed in the pilot study. Some technical problems were also observed about the voice quality. Still, with a limited number of participants, we were able to observe that there were differences in terms of significance values between *read* and *spontaneous speech*.

Having resolved the problems encountered in the pilot study, the researcher carried out the main research. The data collected from the participants were analysed; and findings were presented under each coordinating conjunction as *read* and *spontaneous speech*. Results showed that in most cases, the participants paused longer

in favour of the preceding position in coordinating conjunctions in both *read* and *spontaneous speech* regardless of mother tongues. While findings related to the former were associated with syntactic properties, the latter were linked to cognitive planning. We also saw that the number of pauses and their duration differed among language groups. Based on the nature of coordinating conjunctions, comparisons and contrasts were observed in terms of significance values in different language groups. Although characteristics of the languages in question revealed significant reasons for such similarities and differences, it was important to support these interpretations by employment of conjunctions in speakers' L1. Considering this in mind, the researcher carried out a follow-up research on speakers' pausing strategies in their L1 *read speech;* and interviews with English teachers from each language group were conducted to get a clearer perspective on their teaching practises.

Findings of the follow-up research supported our interpretations; the results revealed interesting insights towards the nature of languages where it may be possible to talk about a cross-linguistic influence across languages. The significance or insignificance values showed similarities in speakers' performances both in L1 and in English. The interviews with English teachers revealed rather limited teaching of prosody in language classes.

CHAPTER V

DISCUSSION

5.1. Introduction

In the previous chapter, findings of the pilot study, main study and follow-up study were presented, and potential reasons were explained. In this chapter, in alignment with our research questions, we compare and contrast our interpretations with studies on pauses in literature.

5.2. Evaluation of the Research Questions

Research Question 1:

Does the length of a pause preceding coordinating conjunctions differ from a pause following these conjunctions in read speech of Turkish, Swahili, Hausa and Arabic speakers of English?

Our analyses showed that regardless of their mother tongues, all speakers paused longer in the preceding position of the ‘and’, ‘but’, ‘or’, and ‘so’ conjunctions in *read speech*. Except for the use of ‘or’ conjunction among Hausa and Arabic groups, the difference in positions of these pauses was found to be statistically significant regarding all conjunctions.

For the ‘and’ conjunction, Turkish speakers paused much longer than other speakers, and this may have resulted from transfer from their L1 reading strategies. As for the ‘but’ conjunction, we could observe that the mean duration of pauses was quite close to those of Turkish and Hausa, in which the participants used the same conjunction in their L1. In addition, it was notable that mean duration of pauses was also quite similar to that in Swahili and Arabic, in which the speakers of these languages used the same conjunction. These similar patterns may suggest a potential L1 transfer into *read speech* in English.

Our analysis about the ‘or’ conjunction indicated that when Turkish and Swahili groups used this conjunction as a sentence connector, the difference regarding pause preceding this conjunction was statistically significant. Although Hausa and Arabic

groups also paused longer in favour of the preceding position, we could not observe any statistically significant difference, which may have resulted from the prevailing use of direct *juxtaposition* in these languages. On the other hand, analysis of the 'and' and 'or' conjunctions as noun connectors indicated some difference in terms of significance values, and this may have been attributed to *liaison* when these conjunctions are utilised as connectors of two nouns.

Our findings are correlated with studies in literature in this field. Research on pauses reveals that native speakers of English paused longer in the preceding position than the following in *read speech*. A study by Bada (2006) analysed 'that' clauses in native speakers of English in *read speech,* and results showed that native speakers of English paused significantly longer in preceding position. Findings of another research by Bada and Genç (2008) were also in line with the previous one. The researchers analysed the 'to' particle in *read speech* of English native speakers, and results illustrated that the duration of pauses were significantly longer in preceding position. Further studies by Genç, Özkan and Bada (2010), and Kılıç (2013) also presented a parallel pattern for native speakers of English, where the researchers investigated the 'to' particle in *to-participles* in *read speech,* and subordinating conjunctions in the latter.

Pauses in *read speech* are syntactic by nature, that is, they bear grammatical characteristics. Unlike cognitive pauses in which speakers need to consider as to what to say in *spontaneous speech,* they do not normally need time for planning for upcoming text in *read speech* since it is already there. Our participants here seem to have adhered to this principle in their production of pauses in *read speech*, a language behaviour which may find roots, as a positive transfer, in L1. The fact that this language behaviour was found to be consistent with a native-speaker-type strategy reveals that speakers from all language groups performed a native-like competence in *read speech.*

Research Question 2:

Does the length of a pause preceding coordinating conjunctions differ from a pause following these conjunctions in spontaneous speech of Turkish, Swahili, Hausa and Arabic speakers of English?

The analyses of our data regarding the ‘and’, and ‘so’ conjunctions revealed that speakers of all language groups paused longer in the preceding positions of conjunctions, and the difference was found to be statistically significant. However, as for the ‘but’ conjunction, although Turkish and Hausa speakers did also pause longer in favour of the preceding position, the difference was found to be statistically insignificant. At this point, findings for the Turkish group can be interpreted that head-direction parameters may have played a significant role in the organisation of the participants’ speech. Thus, we can state that the *spontaneous speech* performance of Turkish speakers may have been affected by transfer of L1 parameters. On the other hand, the insignificant result in Hausa speakers may have resulted from the use of direct *juxtaposition* for contrasting sentences in the Hausa language.

As for the analysis of the ‘and’ and ‘or’ conjunctions as noun connectors, it was observed that although speakers of all languages paused longer in favour of the preceding position in these conjunctions, the differences were not found to be statistically significant. Since pauses within chunks do not require organisation of speech, pauses between conjunctions as noun connectors have relatively lower durations. Such a low mean duration may also have resulted from *liaison* between nouns when a word ends with a consonant and followed by a vowel.

The ‘or’ conjunction when it was used as a sentence connector, speakers from all groups paused longer in favour of the preceding position, yet with statistically insignificant differences; however, Swahili speakers’ differences in pauses were found to be statistically significant. These speakers also used fewer conjunctions compared to other language groups. The pauses produced by these participants in *spontaneous speech* displayed similarities to those in *read speech*. Considering their L1 production regarding these conjunctions, we can thus infer that their mother tongue characteristics may have played a part here. Unlike the Swahili speakers, the speakers of Hausa and Arabic groups produced pauses with statistically insignificant differences between preceding and following positions in these conjunctions as well as the corresponding conjunction in their L1, a result which may lead us to interpret this language behaviour to stem from L1 strategy. Duration of pauses in their L1 revealed as a marked feature in English performance (Eckman, 1977).

In *spontaneous speech*, native speakers of English usually tend to pause longer preceding any judged boundary, which is also the case in their *read speech* (Martin, 1970; Genç & Bada, 2008; Özkan, Genç & Bada, 2010). This was also the case for

Turkish, Swahili, Hausa and Arabic speakers in both *read* and *spontaneous speech*, especially for the ‘and’ and ‘so’ conjunctions.

Research Question 3:

If there are differences, what can be the potential reasons?

Findings of the L1 *read speech* analyses revealed that speakers of all languages paused longer in the preceding positions of the ‘and’, ‘but’ and ‘so’ conjunctions. As for the ‘or’ conjunction, although speakers from Turkish, Swahili and Hausa paused longer in the preceding position, the Arabic speakers paused longer in the following position. Since in *read speech* participants did not have to worry about producing new language (for it is already there), the fact that their pauses in preceding position displayed characteristics similar to those of native speakers suggests that they were competent in rendering such a native-like prosodic behaviour. Similarly, their *spontaneous speech* performance was also found parallel to that of English native speakers.

Considering the results obtained from the pilot, main, and follow-up studies, we are able thus to put forth that speakers of all groups, as they had not received any training regarding this prosodic feature in English, a positive transfer of training may be ruled out here; rather, a viable interpretation for all groups producing pauses parallel to their L1 may suggest that an L1-based transfer strategy may have been resorted to by all participants.

5.3. Summary

In this chapter, findings of our study were presented in line with our research questions. These results were corroborated with current studies in literature to reveal comparisons and contrasts as means of support for our thesis. Pauses preceding and following coordinating conjunctions were discussed under *read* and *spontaneous speech* titles separately to show pattern variation in different languages. Our results revealed that speakers employed the same strategies in *read* and *spontaneous speech*, and these strategies were not independent of L1 speech features. Therefore, differences in terms of statistical-significance were observed especially in *spontaneous speech*. The cognitive load required for coordinating conjunctions differed in order to prepare upcoming speech material, and this displayed a parallel structure in participants’ L1 *read speech*, particularly for the ‘or’ conjunction. Finally, potential reasons for these patterns were

highlighted within the scope of Cross-linguistic Influence (Transfer). The following chapter is dedicated to the conclusions that we can draw from our research, and how we can integrate them into a language teaching curriculum.

CHAPTER VI

CONCLUSIONS

6.1. Introduction

This chapter is dedicated to general statements that we could derive from this research. This is followed by pertaining implications to language teaching and learning as well as by suggestions for further research on pauses.

6.2. Conclusion

Speech is a backbone of communication, and reveals itself in our daily life in various forms. Depending on the context, we may prefer to explain our thoughts by means of written or spoken language. Whether our choice focuses on the former or the latter, it is sensitive to our context, and therefore, requires different dynamics when performing our expected outcomes. These dynamics or variables do not arise in isolation; rather, they are constantly in touch with other factors which inevitably affect our speech. These factors regulate our speech, and their results are manifested in our performance. Analysis of our utterances reveals a great deal about these variables. However, our silences, in other words, our pauses, do also tell us more about the nature of this process. In this thesis, we intended to show how these effects are manifested in language production of speakers of English as a foreign language through measurements and analyses of *read* and *spontaneous speech*. Moreover, we endeavoured to explain possible causes of speakers' speech performance by investigating the relationship between such a performance and speakers' mother tongues.

Our preliminary findings showed that *read speech* and *spontaneous speech* had different dynamics which affected duration of pauses. *Read speech* is linear, and not many breakups are expected during this type of speech. That is, since when we read something, our focus is on structural elements, i.e. punctuations in particular. Therefore, our *read speech* consists of syntactic pauses and speakers do not spend much time when organising such speech. In contrast, *spontaneous speech* is not linear, and expecting speakers to perform the same way as they do in *read speech* is an illusion. There are

breakups in our speech, and we speak in chunks consisting of no more than five or six words. Speakers take time to plan for the rest of their speech, and therefore, produce longer or shorter pauses depending on the complexity of upcoming utterances. This is also apparent in pausing patterns of mentally disordered patients whose speech rates and pauses have fluctuations resulting from frequency of words they intend to use in their conversations.

Our research also illustrated that speakers from various language backgrounds may pause longer or shorter, and their mother tongue could be an important factor determining variation in their *spontaneous speech* performances. Since *read speech* includes grammatical pauses, we did not observe much differences in terms of pause duration of our participants. However, their *spontaneous speech* performance indicated that speakers from the same mother tongue formed a unity in their pauses, which led to statistically significant differences when compared to speakers from other language groups. Head-direction parameters played an important role in the organisation of *spontaneous speech* depending on characteristics of speakers' mother tongues. Belonging to a head-final language, in terms of statistically significant durations, Turkish speakers displayed a different pause durations from that of other speakers whose mother tongues are head-initial.

Analyses of pauses preceding and following coordinating conjunctions also revealed some insights into the use of these conjunctions in *read* and *spontaneous speech*. We saw that pausing patterns form a unity regardless of speakers' mother tongues. That is, almost in all cases, speakers paused longer preceding coordinating conjunctions. When it comes to *spontaneous speech*, speakers mostly paused longer in favour of the preceding position, yet statistically significant differences were observed in terms of mean duration of pauses. This was observed particularly in the 'but' conjunction which conjoins contrastive sentences, and the 'or' conjunction that connects clauses with alternatives. In particular, the 'or conjunction showed differences in terms of significance values by standing out as a marked conjunction in speakers' mother tongues. While the differences between mean durations were found to be statistically insignificant among Hausa and Arabic speakers in their *read, spontaneous* and L1 *read speeches*, these differences were found to be statistically significant among *read, spontaneous* and L1 *read speech* of the Swahili group.

Finally, our follow-up research illustrated that prosodic features were not taught in language classes. It was rather limited with teachers' own efforts, and rarely went

beyond the teaching of correct word pronunciation at advanced levels. Speakers acquired prosodic features incidentally, and performed a native-like pattern if they were exposed to English beyond their classroom practises.

6.3. Implications of the Study

Learning a language takes time, and learners need to attain mastery over certain skills of their target language. However, this mastery does not happen in isolation; rather, it is affected by various factors which may be arising from L1 practises in a form of training in the target language. Therefore, our first implication would be to raise awareness about dynamics of speech and how it functions within a given context. Having a contrastive knowledge about the nature of learners' L1 and that of their target language will facilitate the learning process. Considering the globalised world where learners have an unseen mobility across cultures and languages, this is of prime importance for prospective teachers, who are expected to teach English in different contexts where they will probably have students with various language backgrounds. This can be achieved in English Language Teaching Departments by teaching 'Cross-linguistic Influence' courses in which EFL learners are equipped with insights into the linguistic nature of target language from various points. Subsequently, this must be supported with teaching prosody in order to observe how pauses, intonation and rhythm are manifested in the target language.

Additionally, language teaching course books by the Ministry of National Education can be restructured to include teaching of prosodic features to improve the fluency and accuracy rather than focus on receptive skills only. This could also be supported by providing or revising in-service training for already practicing and prospective language teachers.

6.4. Recommendations for Further Research

When carrying out a scientific research, researchers need to define their scope well, and naturally, are expected to remain within the confines of their scope. This is what we endeavoured to do with this study. Therefore, there are some recommendations we would like to make to prospective researchers in the field. Firstly, we recommend investigating the effects of cross-linguistic influence(s) at a further level as a follow-up to our conclusions. Investigating this area of research in speakers' L1 *spontaneous*

speech would contribute significantly to the field. Considering the limitations of this research, by doing so, it would be much more feasible to have a collection of meta-data about the nature of pausing performances among different language groups. Secondly, the number of studies dealing with productions of native speakers regarding this area is rather limited. More research in this direction would significantly contribute to prosodic research. Thirdly, we also encourage prospective researchers to examine pause performances by speakers from other languages, such as Arabic speakers of Turkish or vice versa; such research on lexical chunks from different languages would significantly contribute to the field. Finally, this field would certainly gain a significant dimension by lookin into pause patterns considering gender variation of participants.

6.5. Summary

In this chapter, we tried to display inferences based on findings obtained from our research. The conclusions drawn were associated with their implications to second language learning with reference to classroom practices. We finished our chapter by focusing on implications of our research and recommendations made for further studies.

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APPENDICES

Appendix 1: Written Consent Form:

Name:

Gender: Male ( ) Female ( )

Age:

You are invited to participate in across-linguistic research study about pauses in read and *spontaneous speech*. This study is being conducted by Ömer EREN and supervised by Prof. Dr. Erdoğan BADA and Assist. Prof. Dr. Mehmet KILIÇ. Participation in this study is voluntary. If you agree to participate in this study, you will be asked to read some sentences while your voice is being recorded. In the next phase of the research, we will carry about semi-structured interviews. Participating in this study may not benefit you directly, but it will help us learn some properties of read and *spontaneous speech* dynamics in English. The information you will share with us will be kept completely confidential to the full extent of the law.

If you have any questions about this study, please contact Ömer EREN [omereren2003@gmail.com].

I agree to participate in the study. **I DON'T agree to participate in the study.**

(Name and Signature) **(Name and Signature)**

Appendix 2: Short Story for the Read Speech

Little Red Riding Hood by Brothers Grimm

Once upon a time there was a dear little girl who was loved by everyone who looked at her but most of all by her grandmother and there was nothing that she would not have given to the child. Once she gave her a little riding hood of red velvet, which suited her so well that she would never wear anything else so she was always called 'Little Red Riding Hood.'

One day her mother said to her: 'Come, Little Red Riding Hood, here is a piece of cake together with a bottle of wine; take them to your grandmother, she is ill, weak and they will do her good. Set out before it gets hot. When you are going, walk nicely, quietly. Do not run off the path! Because you may fall or break the bottle. Then your grandmother will get nothing, when you go into her room, don't forget to say, "Good morning", don't peep into every corner before you do it.'

I will take great care,' said Little Red Riding Hood to her mother and gave her hand on it.

The grandmother lived out in the wood, half a league from the village. just as Little Red Riding Hood entered the wood, a wolf met her. Red Riding Hood was not at all afraid of him because she did not know what a wicked creature he was.

‘Good day, Little Red Riding Hood,' said he.

‘Thank you kindly, wolf.'

‘Whither away so early, Little Red Riding Hood?'

'To my grandmother's.'

'What have you got in your apron?'

'Cake and wine; yesterday was baking-day so poor sick grandmother is to have something good, to make her stronger.'

'Where does your grandmother live, Little Red Riding Hood?'

'A good quarter of a league farther on in the wood; her house stands under the three large oak-trees, the nut-trees are just below; you surely must know it,' replied Little Red Riding Hood.

The wolf thought to himself: 'What a tender young creature! what a nice plump mouthful - she will be better to eat than the old woman. I must act craftily, so as to catch both so he walked for a short time by the side of Little Red Riding Hood and then he said: 'See, Little Red Riding Hood, how pretty the flowers are about here - why do you not look round? I believe, too, that you do not hear how sweetly the little birds are singing; you walk gravely along as if you were going to school, while everything else out here in the wood is merry.'

Little Red Riding Hood raised her eyes; when she saw the sunbeams dancing here or there through the trees but pretty flowers growing everywhere, she thought: 'Suppose I take grandmother a fresh nosegay; that would please her too. It is so early in the day that I shall still get there in good time so she ran from the path into the wood to look for flowers. Whenever she had picked one, she fancied that she saw a still prettier one farther on ran after it deeper into the wood.

Meanwhile the wolf ran straight to the grandmother's house and knocked at the door.

'Who is there?'

'Little Red Riding Hood,' replied the wolf. 'She is bringing cake or wine; open the door.'

'Lift the latch,' called out the grandmother, 'Because I am too weak,I cannot get up.'

The wolf lifted the latch, the door sprang open. Without saying a word he went straight to the grandmother's bed and devoured her. Then he put on her clothes, dressed himself in her cap, laid himself in bed and drew the curtains.

Little Red Riding Hood, however, had been running about picking flowers. When she had gathered so many that she could carry no more, she remembered her grandmother and set out on the way to her.

She was surprised to find the cottage-door standing open. When she went into the room, she had such a strange feeling that she said to herself: 'Oh dear! how uneasy I

feel today or at other times I like being with grandmother so much.' She called out: 'Good morning' but received no answer so she went to the bed and drew back the curtains. There lay her grandmother with her cap pulled far over her face but looking very strange.

'Oh! grandmother,' she said, 'what big ears you have!'

'All the better to hear you with, my child,' was the reply.

'But grandmother, what big eyes you have!' she said.

'All the better to see you with, my dear.'

'But grandmother, what large hands you have!'

'All the better to hug you with.'

'Oh! but grandmother, what a terrible big mouth you have!'

'All the better to eat you with!'

Scarcely had the wolf said this, than with one bound he was out of bed and swallowed up Red Riding Hood.

When the wolf had appeased his appetite, he lay down again in the bed, fell asleep and began to snore very loud.

The huntsman was just passing the house, he thought to himself: 'How the old woman is snoring! I must just see if she wants anything so he went into the room. When he came to the bed, he saw that the wolf was lying in it.

'Do I find you here, you old sinner!' said he. 'I have long sought you!' but just as he was going to fire at him, it occurred to him that the wolf might have devoured the grandmother. She might still be saved so he did not fire but took a pair of scissors. Then she began to cut open the stomach of the sleeping wolf.

When he had made two snips, he saw the little red riding hood shining and then he made two snips more. Then the little girl sprang out, crying: 'Ah, how frightened I have been! How dark it was inside the wolf.'

After that the aged grandmother came out alive also but scarcely able to breathe. Red Riding Hood, however, quickly fetched great stones with which they filled the wolf's belly. When he awoke, he wanted to run away but the stones were so heavy that he collapsed at once and fell dead.

Then all three were delighted. The huntsman drew off the wolf's skin and went home with it; the grandmother ate the cake, drank the wine which Red Riding Hood had brought but Red Riding Hood thought to herself: 'As long as I live, I will never leave the path by myself to run into the wood, when my mother has forbidden me to do so.'

It is also related that once, when Red Riding Hood was again taking cakes to the old grandmother, another wolf spoke to her by trying to entice her from the path. Red Riding Hood, however, was on her guard, went straight forward on her way and told her grandmother that she had met the wolf and that he had said 'good morning' to her but with such a wicked look in his eyes, that if they had not been on the public road she was certain he would have eaten her up.

'Well,' said the grandmother, 'we will shut the door so he can not come in.'

Soon afterwards the wolf knocked and cried: 'Open the door, grandmother, I am Little Red Riding Hood! I am bringing you some cakes.'

They did not speak or open the door so the grey-beard stole twice or thrice round the house but at last jumped on the roof, intending to wait until Red Riding Hood went home in the evening. Then to steal after her and devour her in the darkness but the grandmother saw what was in his thoughts.

In front of the house was a great stone trough so she said to the child: 'Take the pail, Red Riding Hood; I made some sausages yesterday so carry the water in which I boiled them to the trough.'

Red Riding Hood carried until the great trough was quite full. Then the smell of the sausages reached the wolf, he sniffed, peeped down and at last stretched out his neck so far that he could no longer keep his footing. He slipped down from the roof straight into the great trough and was drowned but Red Riding Hood went joyously home and no one ever did anything to harm her again.

Appendix 3: Read Speech Sentences in Speakers' Mother Tongues

Sentences in Turkish

1. Akıl, hemen her çağda başvurulan bir şeydir **ve** Aydınlanma çağında özel bir anlamı olduğu vurgulanmalıdır.

2. Eğer bir insan mantık çerçevesinde davranmıyorsa, bunun en temel sebebi yersiz kurumlar **ve** kötü eğitimdir.

3. Kendisinin erkek çocuğunu dahi gözünü kırpmadan **ve** elinde kesinlikle kanıt olmadan sürebilmiştir.

4. Ama öbür yandan Fatma'ya karşın hep şefkatli olmuş **ve** sıkı davranmıştır.

5. Çok aç ve çok yorgun olduğu için daha fazla bekleyememiş **ve** her tabaktan bir kaşık yemek almış.

6. Yaşlı bir satıcı kadın kılığına bürünmüş **ve** elinde içi kurdele dolu bir tablayla dağlara doğru çıkmış yola.

7. Yeni Kraliçe çok güzel bir kadınmış, **ama** bir o kadar da kibirliymiş.

8. Güzelsiniz Kraliçem, güzel olmasına **ama** Pamuk Prenses sizden daha güzel.

9. Beklemiş, beklemiş, **ama** kimsecikler gelmemiş.

10. Ben yapamadım, **ama** hava kararıncaya kadar bir ayı veya bir kurt benim yapamadığımı yapar.

11. Cüceleri görünce çok korkmuş **ama** kısa bir süre sonra iyi insan olduklarını anlamış.

12. Kraliçe Pamuk Prensesi tanımış **ama** bu sefer bir şey yapmaya fırsat bulamamış.

13. Bir gezintiye **veya** daireye gitmek için mükemmel bir arabası ve iki atı vardı.

14. Piliniz şarj olmuyorsa, yavaş şarj oluyorsa **veya** bir uyarı iletisi görüyorsanız ne yapmanız gerektiğini öğrenin.

15. Sesli Mesaj göndermekte **veya** indirmekte yaşanan bir çok sorun vardır.

16. Havayolları geciken **veya** kayıp bagajınızın en kısa zamanda dönmesi için her türlü çabayı gösterecektir.

17. İndirilen uygulamalar cihazınızın beklenmedik şekilde davranmasına neden olabilir **veya** performansını etkileyebilir.

18. Dünya Güneş'e şu anda olduğundan biraz daha yakın **veya** daha uzak olsa, dikkate değer herhangi bir değişim yaşanmazdı.

19. Mehmet çok küçükmüş **bu yüzden** okula gidememiş.

20. Uğradıkları yenilginin haberi tüm köylere yayılmış, **bu yüzden** insanların yeniden saldırıya geçme olasılığı daha da artmıştı.

21. Savaşta benim hayatımı kurtardın, **bu yüzden** seninle gurur duyduğuna eminim.

22. Göçebe olarak yaşadığımızdan, avlanmak başlıca işimiz olmuş **bu yüzden** ok atmada maharet kazanmışız.

23. Hedefimiz şampiyonluk **bu yüzden** taraftarın desteğine ihtiyacımız var.

24. Sen karanlığı daha az karanlık yapıyorsun **bu yüzden** sana ihtiyacım var.

Sentences in Swahili

1 Kwa kurudia, alikutana **na** kufuli yenye kuvunjwa, na mlango upo wazi.

2 Kwa sababu alikuwa mwizi wa hatari **na** hawakuweza kumkamata hata siku moja.

3 Kisha kufika kwa mganga, mganga alivumbua uongo wa bibi **na** akamufukuza pale pale.

4 Kisha kupokea furaha, bwana alitafuta kufichama **na** kumkimbia yule bibi.

5 Alimkamata tu mshipi wa suruali **na** hakutaka kumuacha mpaka tu apate furaha yake.

6 Je, si ni vizuri kufurahi kidogo kidogo kila siku fasi ya kufurahi sana tu siku moja **na** kuteswa mwezi muzima?

7 Alikimbia juu ya kinga yenyewe aliyoiiba **lakini** walimkamata tu mbio na kumleta kwa polisi.

8 Haifai kuogopa walevi **lakini** inafaa kuwasaidia wakati wapo katika hatari.

9Alikataza yule mama kuja kutazama watoto wake **lakini** watoto walikataa ile sauti ya baba yao.

10 Bwana anaweza kuwa na haki ya kuachana na bibi yake **lakini** baba hana haki kama watoto wake wanakuwa maskini juu yake.

11 Kufuli inahangaisha mwizi **lakini** haimkatazi sana kuingia hii nyumba.

12 Bwana alitafuta kufichama na kumkimbia yule bibi, **lakini** bibi mkalamusi, alimkamata tu mshipi wa suruali.

13 Je, inafaa kwenda huku na huku kwa kukongola furaha **au** kuuzisha kitu chako cha bei na kusikitika nyuma yake?

14-15 Tutakuwa tu tunajifungilia hii nyumba pasipo kutoka, **au** tutaacha tu mtu mmoja ndani ya nyumba kwa kwenda kwa sinema **au** kwa kutembelea wenzetu.

16 Alianza kuvalia nguo nzuri sana **au** sio? Utaweza kuitikia tuko wakati wa ba Salomon.

17 Je, roho yake? alikuwa mtu wa roho nzuri **au** roho mbaya?

18 Ni kinywa gani alianza kuwafundisha? ou bien: ni Kiswahili **au** ni kinywa gani?

19 Ulilelewa na baba mkali na mchambuzi sana, **kwa hivyo** umeamua kulea watoto wako kwa njia tofauti.

20 Nilikuwa nimechoka sana **kwa hivyo** nikalala mapema.

21 Kulinyesha sana **kwa hivyo** nilibeba mwamvuli.

22 Kwanyesha **kwa hivyo** siendi nje.

23 Uliponipigia simu nilikuwa mkutanoni **kwa hivyo** sikujibu upesi.

24 Nina mdahalo kesho **kwa hivyo** sitahudhuria sherehe ya kuzaliwa kwako.

Sentences in Hausa

1. Mun sayi littattafai **kuma** alqalma.

2. Umar **da** Aliyu abokai ne makusanta.

3. I Naje Masallaci **kuma** nayi sallah.

4. Ta karbi jakarta ta **kuma** dawo gida.

5. Kacemin zaka tafi **kuma** kaga anan.

6. Yaran zai tsaya shi **kuma** babban mutum zai tafi ne.

7. An bashi littattafai goma, **amma** daya tal ya zaba.

8. Gidan babba ne, **amma** yayi tsada sosai.

9. Ya iya shirya abubuwa, **amma** bashi da himmaar aiwatar da su.

10. Ba wai ya iya rubutu ne kawai ba, **amma** rubutu.

11. Tom yayi nazarin karatu sosai, **amma** bai ci gwajin ba.

12. Babu wanda zai iya wannan **amma** Khalil

13. Mikomin koren alqalamin **ko** shudin.

14. Yi amfani da lema **ko** ka jike.

15. Kayi aikin karatunka **ko** a hukuntaka.

16. Zai iya sayan littafin **ko** ya aro daga ma'ajiyar littattafai.

17. Zamu iya zuwa kasuwar ranar Talata **ko** Laraba.

18. Ali zai iya magance matsalolinka, **ko** ya kara tabarbarasu.

19. Maria na jin kishiruwa, **dan haka** tasha ruwa.

20. Ana sanyi a waje, **dan haka** ta saka kayan sanyi.

21. Bashi da lafiya, **dan haka** bazai iya halartar daurin auren ba.

22. Yaji yinwa sosai, **dan haka** ya cinke kek din dukka.

23. Ya fadi jarrabawar, **dan haka** sai ya kuma daukarta.

24. Sun taba yimin karya, **dan haka** bazan kuma amince musu ba.

Sentences in Arabic

1 - استيقظ بكراً و بدأ بإعداد الفطور (aistayqiz bakraan **wa** bada bi'iiedad alfatur)

2 - اشترى قلما و أعطاه جديداً لطفل (aishtaraa qulma jdydaan **wa**'aetah liltafl)

3 - يذهب أحمد إلى صديقه كل يوم و يلعب معه (yadhhab 'ahmad 'iilaa sadiqih kl yawm **wa** yaleab maeah)

4 - أنا أشرب الحليب و آكل التفاحة كل صباح ('ana 'ashrab alhalib **wa** kil tafahat kl sabah)

5 - أبي يتكلم اللغة العربية و الإنجليزية (abi yatakalam allughat alearabiat **wa** l'iinjlizia)

6 - أنا و أخي نعيش في تركيا ('ana **wa** 'akhi naeish fi turkia)

7 - كنت سآتي معك لكنني يجب أن أدرس (kunt sati maeak **lakun** ani yjbu 'ana adris)

8 - أحب القراءة الكافي الوقت لدي ليس لكن القراءة ('uhiba alqira'at **lakin** lays ladaya alwaqt alkafi)

9 - أ صعب كان الامتحان لكن جيداً درست (darast jydaan **lakin** alaimtihan kan saeb aan)

10 - أحب أنا السفر لكن البي لا يسمح لي ('ana 'uhibu alsafar **lakina** 'abiin la yasmah li)

11 - أنا قرأت عن ألمانيا لكنني لم أذهب إليها ('ana qarat ean 'almania **lakuna** ni lm 'adhhab 'iilayha)

12 - كنت على شك اللحاق بالباص لكنه ذهب (kunt ealaa washk allahaq bialbas **lakanah** dhahab)

13 - هل ستنام أم تذهب إلى الحديقة؟ (hal satanam '**am** tadhhab 'iilaa alhadiqat?)

14 - لقد مللت سأشاهد فيلما أو أستمع إلى الموسيقى (laqad malalt sa'ushahid filama **'aw** sa'astamieu 'iilaa almusiqaa)

15 - أنجد دعنا ماطر الجو أو الرحلة نأخذ تكسي (aljawa matir daena najal alrihlat '**aw** naakhudh taksi)

16 - هل ستذهب معنا إلى الشاطئ أم ستبقى في المنزل لدراسة؟ (hal satadhhab maeana 'iilaa alshshati **'am** satabqaa fi almanzil lildaras?)

17 - إذا جاء الشتاء لا نستطيع السباحة ولا القيام برحلة ('iidha ja' alshita' la nastatie alsabbahat **wa** la alqiam birihla)

18 - هل تحب الدراسة صباحا أم في الليل؟ (hal tuhibu aldirasat sabahaan **'am** a fi allyl?)

19 - لقد شربت القهوة مساء لذلك لم أستطع النوم بسهولة (laqad sharabat alqahwat masa'an **ldhalik** lm 'astatie alnawm bshwl)

20 - لقد أخطأت لذلك أنا أعتذر (laqad 'akhtat **ldhalik** 'ana 'aetadhir)

21 - لدي امتحانات في الأسبوع القادم لذلك يجب أن أدرس (ladaya aimtihanat fi al'usbue alqadim **ldhalik** yjb 'an 'udris)

22 - استيقظت متأخراً استعدت لذلك تأخرت في القدوم إلى العمل (aistayqazat mtakhraan **ldhalik** ta'akharat fi alqudum 'iilaa aleamal)

23 - سأسافر إلى أيالي التي سأذهب إلى الجامعة لذلك القادم الأسبوع (sa'usafir 'iilaa eayilati al'usbue alqadim **ldhalik** ln ati 'iilaa aljamiea)

24 - ليس لدي نقود كافية لذلك لن أذهب إلى الملعب لمشاهدة المباراة (lays ladaya nuqud kafiat **ldhalik** ln 'adhhab 'iilaa almaleab limushahadat almubara)

Appendix 4: Demographic Questions

1- How old are you?

2- In what country were you born?

3- Where did you grew up? How would you describe the type of community you grew up?

* a big city
* the suburbs or outskirts of a big city
* a town or a small city
* a country village
* a farm or home in the country

4- Were your parents born in the same country? If one or both are from another country, what is your mother tongue?

5- What languages do you speak?

6- How well do speak those languages? (Ref: CEFR)

7- Which languages do your family members speak?

8- How many years of full-time education have you received/undertaken?

9- How long have you been learning English? When did you start? How was your English experience since your schooling? (hours of instruction, availability of materials, teachers' attitude, etc.)

Appedix 5: Interview Questions

1) **Why do people migrate to another country?**

   Economic reasons

   Educational reasons

   Political reasons

   Social reasons

2) **What are the effects of migration on people's life?**

   Do these people find their expectations?

   Is language a problem for immigrants?

3) **Examples from your own life? OR a friend you know?**

   What kind of difficulties did you come across?

   What are the similarities between your life in your homeland and in Turkey?

   What are the differences between your life in your homeland and in Turkey?

Appendix 6: Measurements of *Read Speech*

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,03	0,23	0,65	0,05	0,6	0,06	0,3	0,08	0,08	0	0,09	0,06	0,07	0,1	0,03	0,02
2	0,18	0	0,2	0,17	0,1	0,02	0,26	0,05	0,05	0,03	0,07	0,04	0,56	0,04	0,11	0,11
3	0,5	0,02	0,71	0,04	0,25	0,02	0,77	0	0,05	0,11	0,35	0,06	0,16	0,04	0,08	0,14
4	0,11	0	0,23	0,04	0,07	0,05	0,72	0	0,03	0	0,05	0,04	0,06	0,05	0,15	0,17
5	0,14	0	0,26	0,04	0,16	0,06	0,33	0	0,1	0,02	0,08	0,04	0,03	0	0,12	0,04
6	0,46	0	0,64	0,34	0,02	0,58	0,07	0,1	0,06	0	0,39	0,04	0,07	0,14	0,04	0,05
7	1,07	0,47	0,04	0,09			0,39	0,04	0,06	0,06					0,05	0,04
8	0,5	0,03	0,49	0,03			0,13	0,03	0,07	0	0,05	0			0,04	0,06
9	0,41	0,03	0,04	0,19			0,76	0,02	0,03	0,03	0,05	0,05			0,15	0,11
10	0,47	0,03	0,14	0,5			0,55	0,6	0,06	0,04					0,02	0,1
11	0,34	0,02	0,02	0,75			0,53	0,14	0,08	0,04	0,08	0,1				
12	0,47	0,05	0,34	0,03					0,1	0,06	0,21	0,09				
13	0,04	0,06	0,39	0,09					0,03	0,05	0,05	0,05				
14	0,07	0	0,57	0,02					0,08	0,05	0,08	0				
15	0,03	0,06							0,09	0,11						
16	0,08	0,04							0,1	0,05						
17	0,11	0,24							0,07	0,03						
18	0,58	0,04	**Turkish 1**						0,4	0,14	**Turkish 3**					
19	0,36	0,25							0,39	0,09						
20	0,09	0,05							0,22	0						

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,45	0,03	0,31	0,07	0,81	0,09	0,35	0,02	0,07	0,06	0,06	0,42	0,2	0,04	0,35	0,11
2	0,86	0,03	0,21	0,98	0,78	0,58	0,52	0,08	0,23	0,04	0,3	0,14	0,12	0,05	0,17	0,07
3	0,7	0,08	0,45	0,28	0,1	0,03	0,66	0,95	0,22	0,04	0,31	0,06	0,1	0,03	0,8	0,11
4	0,04	0,02	0,78	0,08	1,02	0,44	0,5	0,02	0,03	0,03	0,44	0,12	0,17	0,03	0,37	1,95
5			0,15	0,11	0,29	0,06	0,54	0,02	0,18	0,05	0,1	0,11	0,27	0,04	0,05	0,06
6	0,3	0,06	1,17	0,09	0,26	0,05	0,57	0,07	0,48	0,06	0,49	0,14	0,09	0,08	0,38	0,89
7	0,31	0,05	0,3	0,09			0,32	0,43	0,38	0	0,2	0,15			0,53	0
8	0,07	0,04	0,05	0,05			0,24	0	0,35	0	0,07	0,08			0,27	0,29
9	0,31	0,02	0,42	0,09			0,47	0,52	0,38	0,05	0,35	0,04			0,29	0,06
10	0,26	0,04	0,69	0,16			1	0,05	0,26	0,04	0,48	0,1			0,15	0,35
11	1,25	0,02	1,25	0,11			0,45	0,07	0,88	0,04	0,28	0,46			0,17	0,06
12	0,73	0,03	0,58	0,13					0,23	0,05	0,35	0,11				
13	0,15	0,02	0,43	0,1					0,08	0,09	0,27	0,08				
14	0,52	0,02	0,68	0,57					0,44	0,07	0,17	0,28				
15	1,32	0,04							0,1	0,07						
16	0,08	0,03							0,44	0,1						
17	0,09	0,09							0,23	0,06						
18	0,45	0,08	**Turkish 2**						0,22	0,21	**Turkish 4**					
19	1,09	0,18							0,4	0,39						
20	0,38	0							0,31	0						

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,4	0,05	0,53	0,05	0	0,08	0,37	0,1	0,34	0,03	0,85	0,06	0,35	0,1	0,39	0,04
2	0,31	0,04	0,25	0,14	0,44	0,06	0,28	0,09	0,06	0,61	0,11	0,24	0,06	0,09	0,17	0,12

3	0,64	0,14	0,35	0,1	0,07	0,04	0,14	0,36	0,59	0,05	0,4	0,06	0,08	0,04	0,34	0,04
4	0,08	0,03	0,3	0,05	0,46	0,05	0,21	0,06	0,05	0,04	0,31	0,07	0,76	0,42	1,5	0,03
5	0,58	0,08	0,13	0,09	0,03	0,02	0,22	0,06	0,59	0,03	0,82	0,07	0,15	0,08	0,54	0,03
6	0,49	0	0,79	0,09	0,09	0,13	0,23	0,03	0,16	0	0,62	0,1	0,03	0,08	0,26	0,06
7	0,13	0,13	0,08	0,14			0,18	0	0,66	0,06	0,43	0,1			0,07	0,05
8	0,09	0,14	0,05	0,14			0,23	0	0,24	0,03	0,05	0,21				
9	0,06	0,06	0,08	0,08			0,54	0,05	0,11	0,03	0,32	0,07			0,43	0,27
10	0,67	0,06	0,27	0,12			0,64	0,09	0,41	0,05	0,32	0,06			0,3	0,04
11	0,51	0,09	0,65	0,06			0,1	0,14	0,26	0,02	0,59	0,06			0,53	0,09
12	0,06	0,1	0,63	0,04					0,12	0,04						
13	0,2	0,22	0,66	0,09					0,06	0,14	0,31	0,09				
14	0,19	0,07	0,09	0,07					0,58	0	0,06	0,06				
15	0,22	0,14							0,27	0,08						
16	0,22	0,08							0,16	0,06						
17	0,23	0,03	**Turkish 5**						0,55	0,14						
18	0,35	0,07							0,92	0,06	**Turkish 6**					
19	0,07	0,11							0,6	0,03						
20	0,56	0,08							0,24	0						

	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,17	0,03	0,72	0,08	0,19	0,12	0,51	0,11	0,55	0,1	0,72	0,08	0,18	0,04	0,76	0,22
2	0,57	0,04	0,08	0,17	0,47	0,39	0,38	0,17	0,73	0,14	0,51	0,19	0,13	0,16	0,56	0,12
3	0,42	0	0,52	0,04	0	0,09	0,24	0,06	0,1	0,45	0,76	0,12	0,04	0,04	1,37	0,09
4	0,05	0,08	0,08	0,22	0,09	0,46	1,56	0,31	0,04	0,11	0,57	0,72	0,17	0,1	1	0,26
5	0,05	0,09	0,15	0,09	1,73	0,07	0,14	0,44	0,68	0,18	0,37	0,16	0,16	0,1	0,67	0,04
6	0,65	0	0,23	0,12	0,07	0,13	0,26	0,05	0,22	0,09	1,27	0,2	0,11	0,16	0,79	0,14
7	0,11	0,09	0,06	0,28			0,8	0,16	0,4	0,1	0,44	0,49			0,6	0,26
8	0,04	0,05	0,07	0,13			0,64	0,08	0,21	0,06	0,37	0,28			0,28	0,06
9	0,04	0,1	0,07	0,13			0,27	0,03	0,06	0,17	0,28	0,14			0,48	0,05
10	0,06	0,08	0,24	0,46			0,48	0,04	0,75	0,18	0,52	0,05			0,62	0,09
11	0,23	0,06	0,09	0,13			0,31	0,11	0,15	0,1	0,72	0,15			0,59	0,09
12	0,08	0,09	0,48	0,07					0,66	0,24	0,69	0,21				
13	0,04	0,04	0,4	0,08					0,22	0,14	0,25	0,34				
14	0,08	0	0,04	0,09					0,22	0,15	1,63	0,58				
15	0,08	0,16							0,12	0,18						
16	0,05	0,36							0,33	0,16						
17	0,64	0,12	**Turkish 7**						0,12	0,14						
18	0,36	0,05							0,19	0,15	**Turkish 9**					
19	0,85	0							0,75	0,15						
20	0,13	0							0,24	0,43						

	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0	0,17	0,09	0,37	0,26	0,08	0,32	0	0,92	0,1	0,06	0,32	0,13	0,06	0,19	0,16
2	0,12	0,05	0,31	0,6	0,46	0,81	0,25	0,04	0,1	0,06	0,1	0,16	0,09	0,16	0,28	0,11
3	0,38	0,05	0,7	0,04	0,05	0,07	0,3	0,04	0,11	0,12	1,04	0,15	0,06	0,05	0,09	0,08
4	0,05	0,04	0,06	0,05	0,08	0,09	0,68	0,18	0,1	0,16	0,29	0,1	0,08	0,04	0,48	0,17
5	0,39	0,03	0,25	0,07	0,05	0,03	0,75	0,3	0,28	0,05	0,33	0,15	0,05	0,13	0,05	0,05
6	0,12	0	0,46	0,71	0,29	0,05	0,7	0,05	0,11	0,15	0,8	0,08	0,09	0,58	0,16	0,06
7	0,3	0,04	0,07	0,25			0,33	0,06	0,05	0,14	0,14	0,13			0,1	0,05
8	0,38	0,08	0,08	0,07			0,17	0,05	0,04	0,1	0,66	0,07			0,07	0,06
9	0,03	0,23	0,08	0,29			0,8	0,68	0,04	0,28	0,21	0,07			0,04	0,1
10	0,17	0,05	0,5	0,03			0,5	0,11	0,03	0,13	0,26	0,08			0,44	0,06
11	0,74	0,09	0,08	0,3			0,07	0,05	0,06	0,04	0,52	0,08			0,15	0,07
12	0,18	0,07	0,19	0,08					0,23	0,1	0,29	0,13				

13	0,09	0,09	0,44	0,08					0,21	0,1	0,12	0,1				
14	0,54	0,25	0,58	0,11					0,21	0,52	0,15	0,8				
15	0,32	0,09							0,11	0,12						
16	0,04	0,07							0,3	0,08						
17	0,35	0,04	**Turkish 8**						0,11	0,64						
18	0,06	0,37							0,54	0,33	**Turkish 10**					
19	0,53	0,23							0,43	0,1						
20	0,49	0,09							0,15	0,15						
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,73	0	0,76	0	0,2	0	0,42	0	0,29	0	0,47	0,15	0	0,16	0,44	0,14
2	0	0	0,48	0,14	0,06	0,61	0,45	0,2	0,23	0,4	0,49	0,19	0	0	0,33	0,19
3	0	0,09	0,98	0	0,11	0,05	0,72	0,12	0,32	0,07	0,46	0,24	0,11	0,05	0,31	0,11
4	0,08	0	0,23	0	0,83	0,08	0,51	0,12	0,12	0,07	0,44	0,12	0,73	0,08	0,53	0,04
5	0,42	0,16	0	0	0,44	0,09			0,41	0,11	0,34	0,11	0,64	0,11	0,75	0,14
6	0,16	0,06	0,81	0	0,77	0,08	0,16	0,04	0	0	1,22	0,14	0,06	0,17	0,53	0,04
7	0,08	0,04	0,11	0,14			0,5	0	0,06	0,06	0,43	0,14			0,06	0
8	0,09	0,07	0	0			0,09	0,11	0,1	0,1	0,12	0,04			0,44	0
9	0,05	0	0,06	0			0	0	0,16	0,08	0,27	0,14			0,42	0,08
10	0,49	0	0,72	0,11			0,36	0,13	0,27	0,09	0,23	0,4			0,33	0,24
11	0	0	0,09	0,59			0,09	0	0,05	0,08	0,5	0,14			0,34	0,17
12	0,32	0,05	0,14	0,73					0,1	0,05	0,56	0,06				
13	0,06	0	0,1	0,09					0,17	0,15	0,52	0,12				
14	0,14	0,08	0,26	0,24					0,5	0,06	0,96	0,05				
15	0,2	0,07							0	0,14						
16	0,13	0,11							0,14	0,12						
17	0,23	0,11	**Swahili1**						0,08	0,12	**Swahili 3**					
18	0,56	0,12							0,18	0,04						
19	0,88	0,26							1,25	0						
20	1,01	0,15							0,42	0,16						
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,67	0,07	0,42	0,1	0,05	0,18	0,31	0,02	0,07	0,09	0,54	0,1	0	0,08	0,83	0,14
2	0,23	0,09	0,11	0,27	0,72	0,08	0,96	0,18	0,45	0,58	0,08	0,18	1,03	0,18	0,42	0,16
3	0,07	0,07	0,44	0,07	0,06	0,1	0,41	0,1	0,07	0	0,8	0,1	0,28	0,07	0,41	0
4	0,08	0	0,69	0,12	0,45	0,12	0,64	0,06	0,1	0,13	0,1	0,08	0,09	0,09	1,14	0,05
5	0,21	0,11	0,06	0,17	0,1	0,08	0,59	0,01	0,43	0,12			0,1	0,05	0,18	0
6	0,06	0,12	0,47	0,1	0	0	0,41	0,05	0,2	0,07	0,19	0,31	0,06	0,08	0,04	0,04
7	0,07	0,12	0,28	0,1			0,12	0,61	0,13	0,11	0,44	0,11			0,08	0,38
8	0,14	0,08	0,08	0,06			0	0	0,06	0,11	0,07	0,04			0	0
9	0,05	0,05					0,34	0,05	0,05	0,07	0,11	0,2			0,1	0,72
10	0,15	0	1,1	0,2			0,16	0	0,06	0,02	0,56	0,05			0,55	0,96
11	0,17	0,06	0,55	0,1					0,05	0,08	0,91	0,07			0,04	0
12	0,08	0,12	0,76	0,12					0,16	0,03	0,11	0,1				
13	0,1	0,12	0,14	0,11					0,46	0,17	0,06	0,04				
14	0,15	0,07	0,14	0,13					0,07	0,07	0,8	0,18				
15	0,52	0,09							0,15	0,07						
16	0,25	0,15							0,23	0,08						
17	0,27	0,06							0,12	0	**Swahili 4**					
18	0,89	0,07							0,68	0,09						
19	0,51	0							0,15	0,12						
20	0,46	0,09							0,62	0,39						
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**

1	0,15	0,08	0,61	0,07	0,09	0,13	0,29	0,02	0,13	0,04	0,06	0,78	0,02	0,04	0,5	0,04
2	0,48	0,12	0,08	0,17	0	0,1	0,21	0,16	0,38	0,16	0,12	0,04	0,09	0,08	0,08	0,08
3	0,12	0,07	0,71	0,04	0,08	0,14	1,3	0	0,03	0,13	0,44	0,22	0,06	0,06	0,23	0,08
4	0,09	0,12	0,15	0,1	0,44	0,08	0,14	1,04	0,03	0,04	0,14	0,51	0,15	0,11	0,27	0,78
5	0,1	0,04	0,09	0,12	0,7	0,04	0,93	0,01	0,16	0	0,38	0,09	0,09	0,02	0,23	0,11
6	0	0	0,81	0,11	0,02	0,12	0,24	0,01	0,2	0,09			0,23	0,23	0,02	0,06
7	0,06	0,06	0,09	0,12			0,7	0	0,07	0,05	0,24	0,09			0,05	0
8	0,05	0,06	0,12	0,08			0,09	0,09	0,09	0,15	0,1	0,06			0,03	0,03
9	0,44	0,08	0,07	0,06			0,63	0,05	0	0	0,08	0,13			0,16	0,07
10	0,05	0,05	0,12	0,08			0,55	0,04	0	0,03	0,32	0,05			0,08	0,16
11	0,12	0	0,8	0,1			0,53	0,08	0,12	0,12	0,21	0,11				
12	0,05	0,07	0,71	0,01					0,12	0,15	1,18	0,11				
13	0	0,07	0,14	0,04					0,07	0,28	0,03	0,04				
14	0,07	0,06	0,13	0,06					0,31	0,07	0,54	0,02				
15	0,48	0,08							0,03	0						
16	0,03	0,14							0,08	0,14						
17	0	0,05	**Swahili 5**						0,03	0,04						
18	0,06	0,56							0,13	0,11	**Swahili 7**					
19	0,08	0							0,02	0						
20	0,12	0							0,37	0						

	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,44	0	0,04	0,11	0,07	0,11	0	0	0,27	0	0,43	0,1	0,2	0,09	0,48	0
2	0,1	0,05	0,15	0,39	0,8	0,11	0,11	0,42	0	0	0,19	0,13	0,11	0,07	0,35	0,09
3	0	0,1	0,44	0,44	0,09	0,04	0,26	0,36	0,05	0,07	0,46	0,09	0,11	0,12	0,73	0,02
4	0,08	0	0,23	0,09	0,11	0,29	0,2	0,2	0,11	0,04	0,47	0	0,51	0,14	0,05	0,43
5	0,54	0,07	0,13	0,13	0,06	0,04	0,39	0,18	0,54	0,03	0,16	0,16	0,1	0	0,42	0,05
6	0,05	0,11	0,32	0,26	0,14	0,16	0,35	0,09	0,11	0,12	0,45	0,09	0,21	0,15	0,55	0,57
7	0,08	0,1	0,14	0,16			0,1	0,81	0,16	0,06	0,53	0,31			0,21	0,05
8	0,04	0,07	0,07	0,07			0,1	0,06	0,35	0,06	0,06	0,19			0,11	0,05
9	0	0,16	0,07	0,17			0,37	0,05	0,4	0,11	0,09	0,1			0,4	0,82
10	0,09	0,07	0,56	0,18			0,79	0,69	0,06	0,05	0,16	0,09			0,41	0
11	0,21	0,09	0,17	0,17			0,11	0,06	0	0,06	0,46	0,13			0,26	0,1
12	0,06	0,03	0,07	0,07					0,09	0,06	0,53	0,19				
13	0,08	0,12	0,15	0,09					0,12	0,17	0,14	0,04				
14	0,32	0,14	0,15	0,07					0,38	0	0,17	0,36				
15	0,08	0,14							0,45	0,05						
16	0,25	0,12							0,18	0,15						
17	0	0	**Swahili 6**						0,39	0,06						
18	0	0,15							0,12	0	**Swahili 8**					
19	0,23	0							0,72	0						
20	0,05	0,16							0,52	0						

	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,51	0,05	0,2	0,13	0,22	0,08	0,74	0,13	0,57	0	0,08	0,06	0,07	0,11	0,74	0,03
2	0,32	0	0,36	0,11	0,09	0,11	0,18	0,1	0,13	0,04	0,13	0,21	0	0,07	0,12	0,14
3	0,18	0,05	0,13	0,12	0,11	0,07	1,27	0,1	0,66	0,04	0,51	0,18	0,07	0,04	0,6	0,1
4	0,18	0	0,18	0,1			0,48	0,18	0,18	0	0,48	0,11	0,4	0,15	0,4	0,03
5	0,85	0,3	0,16	0,12	0,45	0,07	0,13	0,12	0,06	0,04	0,07	0,1	0,06	0,03	0,34	0,03
6	0,19	0	0,1	0,41	0,22	0,16	0,12	0,46	0,04	0	0,46	0,08	0,09	0,14	0,14	0,04
7	0,23	0,08	0,48	0,14			0,84	0,08	0,05	0,05	0,07	0,07			0,18	0,03
8	0,19	0,08	0,11	0,46			0,1	0,2	0,24	0,05	0,61	0,14			0,08	0,06
9	0	0,13	0,09	0,32			0,25	0,09	0	0,13	0,44	0,08			0,47	0,06
10	0	0,07	0,49	0,12			1,21	0,1	0,06	0,11	0,51	0,07			0,42	0,14

11	0,05	0,15	0,09	0,55			0,19	0,11	0,07	0,09	0,36	0,03			0,11	0,06
12	0,06	0,09	0,12	0,23					0,13	0,09	0,12	0,06				
13	0,1	0,14	0,17	0,06					0	0	0,31	0,08				
14	0,34	0	0,07	0,17					0,1	0,03	0,16	0,14				
15	0,14	0,11							0,3	0,1						
16	0,17	0,09							0,09	0,1						
17	0,24	0							0,1	0,08						
18	0,21	0,12	**Swahili 9**						0,95	0	**Swahili 10**					
19	0,34	0,15							0,63	0,24						
20	0,37	0														

	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,17	0	0,47	0,11	0,1	0,05	0,21	0,19	0,13	0	0	0,11	0,1	0,13	0,33	0,08
2	0,2	0,18	0,13	0,16	0	0,09	0,15	0,11	0,2	0,08	0,07	0,18	0,07	0,07	0,22	0,15
3	0,18	0,13	0,23	0,05	0,1	0	0,14	0,08	0,1	0,07	0,69	0,04	0,1	0	0,45	0,08
4	0,1	0,05	0,13	0,07	0,09	0,12	0,92	0,14	0,11	0,05	0,08	0,07	0,15	0,07	0,43	0,02
5	0,2	0,05	0,07	0,1	0,1	0,07	0,31	0,04	0,08	0,05	0,1	0,12	0,22	0,09	0,11	0,03
6	0,18	0,1	0,68	0,16	0,09	0,11	0,11	0,07	0,05	0,07	0,17	0,14	0,04	0,09	0,1	0,04
7	0,5	0,12	0,12	0,38			0,08	0,11	0,06	0,06	0,05	0,07			0,17	0,03
8	0,22	0,1	0,16	0,6			0,05	0	0,09	0,06	0,12	0,14			0,13	0,04
9	0,1	0,07	0,08	0,1			0,09	0,21	0,09	0,03	0,16	0,07			0,07	0,04
10	0	0	0,3	0,11					0,05	0,07	0,23	0,03			0,27	0,05
11	0	0,15	0,11	0,07					0,1	0,04	0,23	0,09			0,12	0,12
12	0,11	0,13	0,1	0,13					0,17	0,12	0,16	0,11				
13	0,07	0,1	0,13	0,12					0,03	0,21	0,15	0,08				
14	0,07	0,07	0,23	0,4					0,06	0,07	0,5	0,14				
15	0,1	0,11							0,04	0,11						
16	0,09	0,11							0,06	0,13						
17	0,06	0,08							0	0						
18	0,13	0,16	**Hausa 1**						0,08	0,06						
19	0,37	0,08							0,05	0,07	**Hausa 3**					
20	0,06	0							0,06	0,07						

	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,38	0	0,12	0,09	0,11	0,13	0,34	0,03	0,33	0,02	0,17	0,1	0,07	0,1	0,03	0
2	0,13	0,12	0,05	0,19	0,07	0,09	0,14	0,15	0,14	0,02	0,09	0,13	0,13	0,11	0,02	0,14
3	0,14	0,04	0,37	0,04	0,06	0,05	0,28	0,84	0,24	0,04	0,14	0,04	0,11	0,05	0,42	0,05
4	0,09	0,05	0,57	0,11	0,1	0,37	0,19	0,69	0,02	0,02	0,1	0,03	0,42	0,05	0,48	0,02
5	0,2	0,05	0,45	0,1	0,1	0,03	0,07	0,11	0,11	0,04	0,09	0,18	0,05	0,03	0,03	0,03
6	0,13	0,09	0,84	0,05	0,12	0,22	0,31	0,23	0,49	0	0,79	0,14	1,11	0,22	0,26	0,03
7	0,13	0,09	0,66	0,21			0,56	0,09	0,12	0,04	0,09	0,1			0,04	0,03
8	0,07	0,07	0,07	0,1			0,15	0,14	0,2	0,07	0,09	0,12			0,07	0,07
9	0,03	0,13	0,05	0,18			0,07	0,28	0,51	0,02	0,06	0,07			0,14	0,04
10	0,12	0,07					0,15	0,92	0,06	0,06					0,02	0,06
11	0,13	0,13	0,05	0,33			0,4	0,13	0	0,03	0,62	0,1				
12	0,07	0,05	0,64	0,06					0,13	0,05	0,14	0,16				
13	0,05	0,1	0,13	0,2					0,07	0,11	0,43	0,08				
14	0,11	0	0,47	0,12					0,48	0						
15	0	0,1							0,1	0,06						
16	0,48	0,13							0,12	0,05						
17	0,04	0,04							0,08	0,03						
18	0,42	0,04							0,34	0	**Hausa 4**					
19	0,34	0,06	**Hausa 2**						0,13	0,13						
20	0,1	0,6							0,12	0						

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF
1	0,71	0,03	0,58	0,09	0,08	0,07	0,52	0,02	0,14	0,1	0,32	0,07	0,14	0,11	0,41	0,11
2	0,17	0,06	0,15	0,23	0,62	0,07	0,25	0,14	0,18	0,15	0,18	0,11	0,07	0,1	0,07	0,05
3	0,35	0,02	0,17	0,15	0,09	0,04	0,14	0,02	0,21	0,04	0,78	0,09	0,11	0,06	0,52	0,08
4	0,13	0,03	0,07	0,14	0,19	0,11	0,31	0,64	0,08	0,02	0,15	0,03	0,14	0,24	0,26	0,29
5	0,44	0,02	0,09	0,13	0,07	0,05	0,26	0,08	0,18	0,04	0,18	0,52	0,1	0,13	0,09	0,02
6	0,04	0,03	0,17	0,1	0,14	0,12	0,25	0,11	0,14	0,21	0,61	0,07	0,04	0,26	0,25	0,07
7	0,41	0,03	0,05	0,1			0,32	0,02	0,06	0,19	0,24	0,04			0,16	0,18
8	0,1	0,04	0,19	0,03			0,09	0,03	0,12	0,05	0,09	0,11			0,6	0,02
9	0	0,02	0,08	0,05			0,11	0	0,25	0,07	0,09	0,04			0,15	0,19
10	0,1	0,08	0,32	0,16			0,69	0,05	0,06	0,07	0,3	0,05			0,18	0,12
11	0,12	0,05	0,06	0,13			0,03	0,09	0,16	0,04	0,2	0,04			0,04	0,14
12	0,12	0,03	0,08	0,12					0,13	0,17	0,08	0,13				
13	0,06	0,11	0,08	0,08					0,05	0,1	0,1	0,05				
14	0,34	0,05	0,03	0,08					0,05	0,06	0,1	0,04				
15	0,22	0,07							0,07	0,04						
16									0,04	0,05						
17	0,27	0,06							0,05	0						
18	0,11	0,05	**Hausa 5**						0,05	0,06	**Hausa 7**					
19	0,2	0,03							0,13	0						
20	0,04	0							0,14	0,14						

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF
1	0,33	0,02	0,14	0,05	0,04	0,07	0,27	0,02	0,27	0,06	0,36	0,04	0,06	0,08	0,1	0,44
2	0,26	0,11	0,43	0,11	0,05	0,08	0,05	0,12	0,08	0,26	0,13	0,32			0,07	0,19
3	0,11	0,09	0,24	0,03	0,13	0,03			0,03	0,05	0,68	0,06	0,97	0	0,5	0,09
4	0	0	0,3	0,03	0,05	0,03	0,29	0,02	0,07	0,05	0,22	0,48	0,68	0,43	0,67	0,05
5	0,11	0,03	0,05	0,06	0,26	0,05	0,38	0,03	0,43	0,1	0,15	0,1	0,09	0,04	0,07	0,05
6	0,08	0,05	0,38	0,04	0,12	0,06	0,13	0,04			1,2	0,03			0,34	0,21
7	0,08	0,06	0,06	0,06			0,22	0,02	0,22	0,06	0,1	0,07			0,1	0,09
8	0,14	0,03	0,22	0,07			0,05	0,02	0,31	0,07	0,38	0,02			0,1	0
9	0,27	0,12	0,3	0,08			0,23	0,03	0,28	0,05	0,08	0,19			0,04	0,96
10	0,12	0,06	0,32	0,04			0,13	0,04	0,06	0,05	0,54	0,38			0,18	0,03
11	0,07	0,07	0,32	0,05			0,22	0,05	0,09	0	0,3	0,62			0,13	0,05
12	0,04	0,12	0,25	0,04					0,06	0,05	0,07	0,07				
13			0,5	0,06					0,04	0,08	0,13	0				
14	0,06	0,03	0,29	0,07					0,1	0,05	0,5	0,04				
15	0,09	0,04							0,04	0,05						
16	0,08	0,06							0,21	0,08						
17	0,05	0,04							0	0,04						
18	0,07	0,05	**Hausa 6**						0,07	0,04	**Hausa 8**					
19	0,25	0,08							0,03	0,57						
20	0,12	0,08							0,04	0,16						

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF
1	0,08	0,03	0,41	0,07	0,04	0,05	0,05	0,03	0,18	0,07	0,29	0,07	0,32	0,11	0,24	0,66
2	0,06	0,07	0,09	0,1	0,03	0,06	0,21	0,07	0,67	0,04	0,25	0,18	0,38	0,09	0,48	0,68
3	0,05	0,05	0,16	0,03	0,03	0,04			0,6	0,05	0,25	0,37	0,11	0,02	0,05	0,23
4	0,05	0,07	0,13	0,07	0,11	0,06	0,31	0,15	0,15	0	0,99	0,04	0,6	0,07	0,11	1,24
5	0	0	0,05	0,14	0,14	0,04	0,07	0,1	0,3	0,04	0,24	0,48	0,1	0,06	0,15	0,21
6	0,15	0	0,18	0,12	0,14	0,1	0,05	0,03	0,39	0,16	0,4	0,07	0,11	0,23	0,16	0,04
7	0,08	0,02	0,04	0,12			0,09	0,05	0,81	0,09	0,27	0,03			0,55	0,08
8	0,09	0,12	0,09	0,15			0,12	0,57	0,06	0,04	0,11	0,2			0,26	0,04

9	0,04	0,03	0,09	0,1			0,54	0,04	0,08	0,16	0,1	0,38			0,24	0,25
10	0,06	0,23	0,13	0,05			0,5	0,07	0,12	0,06	0,44	0,67			0,29	0,07
11	0,12	0,08	0,2	0,15			0,28	0,14	0,21	0,13	0,17	0,66			0,65	0,1
12	0,15	0,06	0,26	0,07					0,18	0,08	0,69	0,13				
13			0,14	0,07					0,06	0,19	0,67	0,15				
14	0,13	0	0,07	0,1					0,13	0,13	0,1	0,43				
15	0,12	0,19							0,07	0,1						
16	0,05	0,06							0,15	0,29						
17	0,06	0,06							0,14	0,07						
18	0,23	0,08	**Hausa 9**						0,04	0	**Hausa 10**					
19	0,36	0							0,12	0,13						
20	0,08	0,06							0,08	0,03						

	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,33	0,13	0,34	0,09	0,1	0,12	0,36	0,18	0,43	0,06	0,74	0,09	0	0,15	0,03	0,1
2	0,44	0,04	0,17	0,21	0,41	0,1	0,22	0,04	0,77	0,1	0,68	0,05	0,03	0,06	0,29	0,08
3	0,35	0,03	0,22	0,07	0,13	0,08	0,29	0,09	0,05	0,07	0,42	0,24	0,14	0,05	0,54	0,05
4	0,09	0,06	0,1	0,03	0,11	0,07	0,5	0,63	0,06	0,06	0,64	0,08	0,18	0,15	0,43	0,83
5	0,27	0,05	0,51	0,04	0,18	0,04			0,76	0,07	0,08	0,08	0,11	0	0,36	0,1
6	0,15	0,3	0,22	0,04	0,16	0,16	0,3	0,09	0,4	0,06	1,02	0,14	0,12	0,69	0,08	0,05
7	0,34	0,03	0,11	0,38			0,11	0,09	0,1	0,68	0,13	0,39			0,64	0,16
8	0,28	0,04	0,24	0,05			0,15	0,08	0,82	0	0,45	0,67			0,09	0,05
9	0,1	0,03	0,16	0,12			0,22	0,04	0,11	0,1	0,08	0,73			0,34	0,03
10	0,04	0,15	0,13	0,08			0,03	0,1	0,08	0,07	0,38	0,12			1,1	1,3
11	0,17	0,07	0,09	0,1			0,08	0,09	0,14	0,07	0,4	0,92			0,05	0,38
12	0,05	0,06							0,34	0,06	0,44	0,09				
13	0,15	0,03	0,15	0,09					0,14	0,1	0,33	0,08				
14	0,12	0,07	0,15	0,08					0,53	0,03	0,2	0,24				
15	0,28	0,06							0,22	0,07						
16	0,14	0,07							0,11	0,17						
17	0,38	0,05							1,33	0,06						
18	0,1	0,06	**Arabic 1**						0,19	0,16	**Arabic 3**					
19	0,07	0,05							0,44	0,06						
20	0,21	0,05							0,6	0,07						

	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,2	0,04	0,43	0,08	0,06	0,05	0,33	0,08	0,31	0,05	0,29	0,12	0,05	0,05	0,15	0,07
2	0,15	0,06	0,28	0,13			0,12	0,09	0,07	0,05	0,23	0,08	0,14	0,09	0,1	0,11
3	0,28	0,04	0,22	0,04	0,1	0,03	0,13	0,05	0,04	0,06	0,47	0,08	0,25	0,03	0,11	0,05
4	0,05	0,04	0,1	0,05	0,37	0,06	0,14	0,18	0	0,05	0,6	0,03	0,07	0,05	0,11	0,05
5	0,31	0,05	0,03	0,04	0,08	0,03	0,24	0	0,35	0,05	0,08	0,05	0,07	0	0,05	0,04
6	0,42	0,03	0,27	0,03	0,07	0,52	0,06	0,06	0,24	0,09	0,51	0,05	0,15	0,19	0,1	0,05
7	0,06	0,2	0,25	0,27			0,21	0,03	0,07	0,2	0,12	0,27			0,03	0,06
8	0,08	0,17	0,02	0,03			0,11	0,04	0,1	0,06	0,04	0,13			0,07	0,16
9	0,13	0,07	0,14	0,08			0,41	0,03	0,08	0,08	0,41	0,08			0,15	0,03
10	0,19	0,04	0,05	0,1			0,03	0,21	0,07	0,06	0,11	0,1			0,53	0,26
11	0,12	0,23	0,12	0,06			0,14	0,07	0,05	0,07	0,06	0,12			0,06	0,07
12	0,11	0,03	0,34	0,06					0,05	0,06	0,12	0,1				
13	0,11	0,13	0,13	0,05					0,08	0,12	0,46	0,08				
14	0,08	0,03	0,17	0,05					0,24	0	0,23	0,02				
15	0,09	0,1							0,05	0,11						
16	0,25	0,11							0,09	0,06						
17	0,13	0,11							0,42	0,04						
18	0,1	0,05	**Arabic 2**						0,13	0,05						

19	0,22	0,07							0,12	0,03	**Arabic 4**					
20	0,07	0,1							0,13	0,06						
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,55	0,11	0,53	0,16	0,1	0,12	0,13	0,06	0,29	0,07	0,4	0,07	0,13	0,05	0,21	0,15
2	0,54	0,09	0,09	0,49	0,3	0,09	0,59	0,15	0,14	0,06	0,19	0,08	0,3	0,06	0,04	0,04
3	0,1	0,19	0,12	0,09	0,31	0,11	0,15	0,16	0,04	0,02	0,27	0,04	0,09	0,03	0,26	0,02
4	0,05	0,05	1,72	0,22	0,11	0,24	0,71	0,17	0,05	0,02	0,32	0,02	0,04	0,04	0,19	0,69
5	0,07	0,06	0,1	0,13	0,1	0,15	0,16	0,17	0,46	0,06	0,08	0,06	0,06	0	0,37	0,03
6	0,06	0,03	1,12	0,13	0,13	0,15	0,06	0,15	0,06	0,05	0,26	0,2	0,83	0,05	0,07	0,21
7	0,07	0,58	0,07	0,17			0,12	0,06	0,03	0,28	0,15	0,39			0,48	0,04
8	0,27	0,21	0,08	0,11			0,12	0	0,08	0,09	0,07	0,25			0,06	0,07
9	0,07	0,33	0,09	0,29			0,07	0,07	0	0,03	0,07	0,05			0,34	0,11
10	0,16	0,1	0,78	0,04			0,34	0,81	0,06	0,02	0,12	0,42			0,05	0,07
11	0,2	0,61	0,11	0,23			0,1	0,45	0,08	0,7	0,18	0,13			0,13	0,04
12	0,15	0,06	0,15	0,23					0,1	0,05	0,07	0,2				
13	0,05	0,09	0,14	0,17					0,13	0,12	0,3	0,11				
14	0,15	0,03	0,16	0,06					0,16	0	0,05	0,17				
15	0,08	0,1							0,07	0,06						
16	0,35	0,22							0,13	0,06						
17	0,08	0,12														
18	0,07	0,14	**Arabic 5**						0,06	0,1	**Arabic 7**					
19	0,2	0,08							0,36	0,05						
20	0,05	0,09							0,18	0,06						
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,05	0,04	0,43	0,04	0,03	0,07	0,37	0,02	0,08	0,03	0,44	0	0,05	0,04	0,72	0,02
2	0,06	0,04	0,03	0,25	0,1	0,04	0,18	0,04	0,1	0,04	0,84	0,1	0,63	0,35	0,16	0,1
3	0,04	0,03	0,09	0,03	0,12	0,03	0,23	0,21	0,08	0,03	0,63	0,05	0,07	0,24	0,29	0,32
4	0,04	0,03	0,06	0,07	0,05	0,39	0,06	0,67	0	0	0,51	0,03	0,43	0,37	0,13	0,36
5	0,37	0,03	0,03	0,06	0,06	0,03	0,06	0,02	0,48	0,03	0,03	0,04	0,13	0,08	0,51	0,04
6	0,28	0,12	0,32	0,11	0,08	0,14	0,02	0,03	0,16	0,47			0,69	0,13	0,72	0,03
7	0,36	0,07	0,05	0,46			0,04	0,06	0,59	0,15	0,03	0,26			0,25	0,64
8	0,08	0,04	0,05	0,17			0,02	0,02	0,14	0,56	0,03	0,04			0,05	0,03
9	0,09	0,03	0,03	0,15			0,11	0,06	0,34	0,04	0,03	0,21			0,05	0,05
10	0,04	0,03	0,36	0,03			0,08	0,11	0,12	0,06	0,62	0,28			1,27	0,04
11	0,07	0,48	0,03	0,09			0,02	0,03	0,52	0,05	0,03	0,62			0,03	0,08
12	0,06	0,05	0,06	0,07					0,11	0,05	0,13	0,06				
13	0,04	0,22	0,09	0,05					0,1	0,04	0,08	0,48				
14	0,14	0,03	0,04	0,09					0,34	0						
15	0,03	0,04							0,08	0,11						
16	0,13	0,18							0,07	0,27						
17	0,06	0,15									**Arabic 8**					
18	0,04	0,03							0,08	0,12						
19	0,35	0,02	**Arabic 6**						0,92	0,04						
20	0,05	0,04							0,03	0,05	**BUT**					
	AND		**BUT**		**OR**		**SO**		**AND**		**PP**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	0,65	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,06	0,13	0,08	0,25	0,07	0,09	0,06	0,53	0,5	0,05	0,4	0,07	0,02	0,05	0,34	0,1
2	0,31	0,05	0,09	0,11	0,18	0,04	0,24	0,09	0,11	0,04	0,62	0,09	1,64	0,07	0,18	0,19
3	0,05	0,06	0,07	0,07			0,22	0,12	0,13	0,05	0,05	0,06	0,07	0,01	0,84	0,06
4	0,14	0,05	0,45	0,12	0,11	0,06	0,11	0,27	0,23	0,02	0,04	0,09	0,04	0,14	1,44	0,15
5	0,24	0,04	0,04	0,18	0,08	0,03	0,37	0,05	0,4	0,07		0,09	0,06	0,02	1,09	0,06
6	0,08	0,12	0,07	0,12	0,06	0,05	0,06	0,05	0,44	0	0,1		0,08	0,09	0,15	0,15

7	0,33	0,04	0,1	0,42		0,39	0,09	0,27	0,42	0,06	0,08		0,12	0,04
8	0,06	0,15	1,05	0,06		0,21	0,06	0,07	0,05	0,27	0,04		0,52	0,02
9	0,06	0,06	0,04	0,21		0,32	0,31	0,1	0,1	0,43	0,34		0,12	0,48
10	0,13	0,12	0,14	0,1		0,42	0,04	0,31	0,03	0,32	0,3		0,46	0,07
11	0,09	0,08	0,03	0,11				0,62	0,15	0,28	0,04		0,49	0,02
12	0,08	0,04	0,36	0,07				0,25	0,04	0,16	0,04			
13	0,11	0,12	0,32	0,07				0,26	0,14	0,11	0,03			
14	0,42	0,03	0,07	0,06				0,06	0,14		0,09			
15	0,3	0,05						1,26	0,06					
16	0,43	0,11						0,08	0,26	**Arabic 10**				
17	0,1	0,06	**Arabic 9**											
18	0,35	0,13												
19	0,03	0,04						0,16	1,12					
20	0,05	0,03						0,3	0,06					

Appendix 7: Measurements of *Spontaneous Speech*

Turkish 1

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0,11	0,03	0,44	0,04	0,07	0,04	0,52	0,11
2	0,04	0,38	0,45	1,26	0,09	0,05	0,53	0,06
3	0,7	0,81	0,75	0,11	0,08	0,39	0,52	0,19
4	0,05	0,18	0,61	0,05	0,06	0,03	0,42	0,5
5	0,45	0,26	0,08	0,37	0,38	0,13	0,2	0,81
6	0,66	1,32	0,03	0,13	0,38	0,17	0,48	2,06
7	0,2	0,11	0,68	0,16			0,54	0,81
8	0,12	0,06	0,57	0,19			0,37	0,33
9	0,56	0,15	0,41	0,06			0,56	0,44
10	0,03	0,34	0,55	0,14			0,43	0,1
11	0,03	0,06	0,62	0,16			0,29	0,28
12	0,08	0,88	1,11	1,14			0,14	0,72
13	0,05	0,1	0,11	0,6			0,4	0,27
14	0,17	0,57	0,08	0,41			0,4	0,05
15	0,58	0,08	0,08	0,06			0,6	0,74
16	0,08	0,34	0,03	0,05			0,22	0,87
17			0,5	0,3				

Turkish 2

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0,09	0	0,11	0,43	0,32	0,07	0,5	0,62
2	0,08	0,11	0,82	0,17	0,04	0,12	0,87	1,33
3	0,24	0,21	0,04	0,13	0,23	0,34	0,61	0,66
4	0,88	0,7	0,04	0,04	0,18	0,06	0,53	0,07
5	0,63	0,68	0,1	0,46	0,5	0,06	0,87	0,1
6	0,04	0,03	0,47	0,06	0,18	0,8	0,18	1,1
7	0,05	0	0,13	1,88	0,07	0,11	0,66	0,1
8	0,72	0,34	0,49	0	0,06	0,09	0,39	0,02
9	0,06	0	0,41	0,06			0,49	0,73
10	0,08	1,23	0,69	0,13			0,41	1,57
11	0,42	0,05	0,05	0,03			0,11	1,26
12	0,46	0,05					0,72	0,62
13	0,42	0,57					0,07	0,1
14	0,21	0,09						
15	0,69	0,03						
16	0,08	0,09						
17	0,17	0,03						
18	0,45	0,06						
19	0,2	0,43						
20	0,11	0,05						
	0,18	0,08						
	0,16	0,5						

Turkish 5

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0,48	2,37	0,49	0,61	0,19	0,03		
2	0,04	1,95	0,04	0,38	0,51	0,1		
3	1,05	1,04	1,03	0,11	0,28	0,08		
4	0,62	0,04	0,96	0,08	0,1	1,91		
5	0,06	0,99	1,11	0,08	0,91	0		
6	0,41	1,42	0,44	0,05	0,02	0,83		
7	2,54	0,04	1,4	0,05	0,08	1,21		
8	1,51	0,03	0,75	0,1	0,71	0,09		
9	0,62	0,09	0,6	0,08	0,05	0,06		
10	0,31	0,31	0,37	0,05	0,06	0,09		

Turkish 3

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0,11	0,51	0,43	0,03	0,2	0,07	0,15	0,11
2	0,08	0,41	0,1	0,09	0,13	0,02	0,11	0,07
3	0,12	0,4	0,97	0,1	0,13	0,76	0,04	0,17
4	0,04	0,74	1,58	0,16	0,16	0,1	0,06	0,29
5	0,06	0,07	0,05	0,08	0,07	0,12	0,2	0,08
6	0,04	0,04	0,05	0,06	0,14	0,07		
7	0,06	0,06	0,06	0,01	0,56	0,04		
8	0,08	0,08	0,02	0,09	0,08	0,08		
9	0,32	0,76	0,13	0,46	0,02	0,62		
10	0,07	0	0,4	0,03	0,02	0,03		
11	0,09	0,19	1,28	0,32	0,62	0,44		
12	0,42	0,24			0,26	0,06		

Turkish 4

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0,04	0,07	0,91	0,06	0,11	0,05	0,17	0,4
2	0,35	0,19	0,04	0,31	0,12	0,04	0,92	1,38
3	0,8	0,11	0,47	0,02	0,04	0,03	0,56	0,05
4	0,51	0,05	0,03	0,04			0,1	0,27
5	0,19	0,03	0,26	1,66				
6	0,82	0,1	0,45	0,07				
7	0,13	0,03	0,26	0,17				
8	0,12	0,03	0,57	0,1				
9	0,1	0,04	0,35	0,63				
10	0,29	0,2	0,32	0,03				
11	0,47	0,03						
12	0,24	0,63						
13	0,21	0,31						
14	0,35	0,19						
15	0,06	0,05						
16	0,25	0,03						
17	0,16	0,03						
18	0,28	0,19						
19	0,34	0,05						

Turkish 7

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	1,55	1,01	1,01	0,04	0,01	0,55	0,63	0,05
2	0,08	2,49	1,03	0,69	1,37	0,1	0,78	0,06
3	0,26	0,06	0,06	0,1	0,04	0,02	1,36	0,3
4	0,11	0,05	1,56	0,82	0,55	1,45		
5	0,17	0,08	0,38	0,49	0,04	0,02		
6	0,04	0,81			0,38	0,05		
7	0,09	0,33			0,04	0,02		
8	0,06	0,62						
9	0,44	0,05						
10	0,04	2,15						
11	0,17	0,08						
12	0,04	0,12						
13	0,05	0,16						
14	0,27	0,2						
15	0,4	0,32						
16	0,09	0,04						
17	0,01	0,94						

Turkish 8

11	0,29	0,02	0,38	1,37	0,28	0,05		
12	0,39	1,91	0,66	0,36				
13	0,06	0,63	0,4	0,09				
14	0,01	1,15	0,47	0,05				
15	1,24	0,03						
16	0,97	0,07						
17	1,1	1,35						

Turkish 6

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,26	0,82	0,83	0,61	0,21	0,09	1,29	0,05
2	0,11	0,3	0,72	1,73	0,06	0,1	0,15	0,26
3	0,04	0,04	0,44	0,13	0,14	0,2	0,1	0,25
4	1,05	0,08	1,27	0,05	0,18	0,14	0,37	0,05
5	0,42	1,06	0,09	0,08	0,04	0,03		
6	0,54	0	0,45	2,24	0	0,21		
7	0,05	0,03	1,04	0,08				
8	0,04	0,03	0,07	0,04				
9	0,95	1,16	0,36	0,44				
10	0,43	0,02	0,39	0,06				
11	0,07	0,02	0,92	0,49				
12	0,58	0,67	1,15	0,03				
13	0,06	0,19	0,65	0,03				
14			0,66	0,09				

Turkish 9

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,07	0,23	0,06	0,46	0,65	2,09	0,18	0,91
2	0,45	0,23	1,16	0,53	1,28	0,02	0,55	0,67
3	0,12	0,04	0,12	1,87	0,04	0,03	0,72	0,03
4	0,54	0,17	0,66	0,44	0,96	0,18	1,43	2,32
5	0,82	1,09	0,03	0,77	0,2	0,51	0,22	0,07
6	0,8	0,8	0,03	1,81	0,06	0,09	0,53	1,75
7	0,03	0,03	0,21	0,13			0,51	1
8	0,24	0,67	0,76	2,99			0,51	0,02
9	0,32	0,46	0,03	0,02			0,3	0,47
10	0,8	0,28	0,9	0,05			0,6	0,14
11	0,13	0,03	0,63	1,05			0,32	0,61
12	0,09	0,14	0,16	0,92			0,33	0,44
13	0,4	0,02						
14	0,34	0,77						

Swahili 1

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,11	0,07	0,22	0,14	0,55	0,18	0,54	0,07
2	0,47	0,07	0,07	0,24	0,1	0,15	0,26	0,15
3	0,19	0,11	0,09	0,14	0,18	0,15	0,39	0
4	0,24	0,05	0,1	0,14	0	0,13	0,39	0,07
5	0,45	0,04	0,12	0,14			0,3	0,11
6	0,15	0					0,54	0,12
7	0,23	0					0,32	0,09
8	0,1	0,07					0,49	0,05
9	0,17	0,07					0,41	0,06
10	0,05	0,04						
11	0,37	0,08						
12	0,1	0,07						
13	0,33	0						
14	0,26	0,04						
15	0,33	0,04						

Swahili 2

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,06	0,29	0,07	1,04	0,02	0,09	0,25	0
2	0,77	0,06	1,44	0,04	0,08	0,07	0,33	0,03
3	0,04	0,08	0,73	0,07	0,07	0,26	0,4	0,07
4	0,11	1,07	0,43	0,39	0,6	0,1	0,52	0,04
5	0,55	0,1	0,06	0,73	0,13	0,06	0,61	0,04
6	0,05	0,06	0,1	0,17				
7	0,47	0,81	0,37	0,12				
8	0,05	0,03	0,06	0,04				
9	0,12	0,77	0,42	0,04				
10	0,35	0	0,68	0,16				
11	0,05	0,04	0,05	0,34				
12	0,66	0	0,34	0,04				
13	0,04	0,12						
14	0,18	0,4						
15	0,75	0,04						
16	1,2	0,08						
17	0,02	0,16						
18	0,51	0,06						
19	0,11	0,36						
20	0,14	0,35						

Turkish 10

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,36	0,05	0,38	0,55	0,31	0,02	1,52	0,1
2	0,51	0,04	0,03	0,34	0,39	0,04	0,47	0,01
3	0,07	0,08	0,78	0,66	0,05	0,01	0,2	0,05
4	0,97	0,08	0,44	0,04	0,78	0	1,04	0,12
5	0,67	0,07	0,06	0,51	0,4	0,04	1,33	0,04
6	0,32	0,05	0,12	0,02	0,79	0,05	0,4	0,05
7	0,23	1,58	0,49	0,06	0,4	0,04		
8	0,11	0,24	0,1	0,02	0,36	0,08		
9	0,11	0,03	0,05	0,08	0,07	0,04		
10	0,2	0,03	0,23	0,1	0,03	0,06		
11	0,33	0,04	0,96	0,33	0,05	0,02		
12	1,58	0,04	0,35	0,03	0,02	0,06		
13	0,08	0,08	0,72	0,17				
14	0,68	0,01	0,28	0,02				
15	0,85	0						
16	0,05	0,04						

Swahili 3

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,09	0,04	0,3	0,07	0,03	0,06	0,19	0
2	0,59	0	0,29	0,06	0,37	0,05	0,15	0,43
3	0	0,06	0,81	0,04	0,03	0,06	0,67	0,05
4	0,45	0,09	0,38	0,04	0,06	0	0,6	0,38
5	0,12	0,06	0,61	0,03	0,05	0,05	0,23	0,06
6	0,38	0,06	0,51	0,15			0,54	0,05
7	0,26	0,05	0,24	0,12			0,36	0,04
8	0,41	0,04	0,6	0,13			0,19	0,04
9	0,44	0,03	0,45	0,04			0,74	0,04
10	0,57	0,11	0,05	0,08			0,53	0,07
11	0,69	0,74	0,55	0,28			0,33	0
12	0,09	0,03	0,24	0,03			0,31	0,17
13	0,34	0,03	0,18	0,06			0,46	0,02
14	0,45	0,04	0,92	0,59			0,3	0,05
15	0,3	0,04	0,48	0,17			0,3	0,04
16	0,18	0,59	0,2	0,34			0,65	0,09
17	0,24	0,09	0,3	0,05			0,35	0,21

	PP	PF	PP	PF	PP	PF	PP	PF
1	0,31	0,05	0,05	0,06	0,05	0,06	1,48	0,1
2	0	0,03	0,05	0,9	0,36	0,03	0,98	0,06
3	0,61	0,04	0,06	0,07			0,67	0,04
4	0,03	0,29	0,89	0,03			0,53	0,12
5	0,02	0,04	0,06	0,14			0,07	0,04
6	0,09	0,05	0,53	0,04			1,13	0,02
7	0,42	0,04	0,72	0,04			0,1	0,19
8	0,96	0,05	0,65	0,04			0,92	0,02
9	0,02	0,02	0,79	0,05			0,65	0,04
10	0	0,07					0,5	0,04
11	0	0,05					0,09	0,06
12	0,25	0,04					0,7	0,35
13	0,19	0,05					0,93	0,09
14	0,51	0,03						
15	0,23	0,04						
16	0,63	0,03						
17	0,45	0,04						
18	0,41	0,04						
19	0,27	0,41						
20	0,06	0,03						
	0,89	0,05						
	0	0,08						

Swahili 5

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0,06	0,07	0,21	0,18	0,13	0,23	0,15	0,31
2	0	0,21	0,28	0,04	0,14	0,09	0,17	0,54
3	0,16	0,08	0,74	0,13	0,68	0,4	0,55	0,28
4	0,04	0,06	0,58	0,12	0,38	0,05	0,08	0,06
5	0,07	0,11	0,24	0,73	0,07	0,1	0,04	0,06
6	0	0,08	0,85	0,18	0,04	0,19	0,08	0,12
7	0,18	0,44	0,14	0,26			0,8	0,12
8	0,15	0,43	0,17	0,21			0,59	0,06
9	0,1	0,52	0,08	0,08			0,62	0,05
10	0,05	0,54	0,71	0,03			0,2	0,2
11	0,11	0,1	1,01	0,6			0,11	0,21
12	0,11	0,18	0,34	0,15			0,32	0,09
13	0,12	0,08	0,73	0,11			0,67	0,09
14	0,62	0,09	0,72	0,1			0,92	0,32
15	0,07	0,08	0,52	0,07				
16	0,11	0,08						
17	0,08	0,05						
18	0	0,67						
19	0,06	0,17						
20	0,32	0,32						
	0,06	0,08						
	0,04	0,11						
	0,06	0,11						
	0,09	0,15						
	0,05	0,09						

Swahili 6

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0	0,12	0,42	0,18	0,13	0,07	0,32	0,05
2	0,01	0,07	0,23	0,3	0,22	0,07	0,12	0,15
3	0,06	0,06	0,15	0,32			0,67	1,33
4	0,03	0,09	0,26	0,4			0,25	1,21
5	0,22	0,49	0,11	0,53			0,19	0,04
6	0,06	0,11	0,7	0,17			0,69	1,38
7	0,33	0,09	0,08	0,82			0,51	0,05

18	0,08	0,81	0,54	0,15			0,63	0,21
19	0,47	0,11					0,41	0,14

Swahili 4

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0,1	0,39	0,71	0,06	0,09	0,36	0,06	0,11
2	0,49	0,19	0,21	0,37	0,05	0,08	0,68	0,22
3	0,32	0,15	0,69	0,47	0,19	0,05	0,19	1,27
4	0,5	0,39	0,06	0,51			0,22	0,44
5	0,12	0,71	0,11	0,04			0,23	0,49
6	0,06	0,1	0,14	0,09			0,14	0,89
7	0,1	0,29	0,88	0,03			0,6	0,33
8	0,65	0,06	0,5	0,15			0,69	0,07
9	0,16	0,44	0,14	0,1			0,18	0,22
10	0,61	0,05	0,26	0,22			0,79	0,44
11	0,05	0,07					0,19	0,44
12	0,07	0,1					0,34	0,71
13	0,15	0,18						
14	0,08	0,13						
15	0,06	0,08						
16	1,11	0,51						
17	0,11	0,09						
18	0,1	0,08						

Swahili 7

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0,49	0,12	0,1	0,06	0,15	0,14	0,21	0,07
2	0,62	0,7	0,12	0,07	0,45	0,59	0,4	0,23
3	0,39	0,23	0,72	0,22	0,1	0,11	0,31	0,2
4	0,32	0,03	0,43	0,06	0,48	0,17	0,32	0
5	0,07	0,49	0,09	0,08	0,04	0,06	0,5	0,03
6	0,27	0,04	0,27	3	0,4	0	0,14	0,46
7	0,08	0,04	0,42	0,54			0,39	0,03
8	0,16	0,03	0,26	0,05			0,25	0,04
9	0,1	0	0,29	0,06			0,63	0,31
10	0,26	0,18	0,37	0,05			0,9	0,48
11	0,43	0,1	0,23	0,03			0,17	0,23
12	0,72	0,94	0,65	0,06			0,48	0,04
13	0,34	0,25					0,43	0,33
14	0,25	0,04					0,59	0,57
15	0,5	0,1					0,3	0,03
16	0,15	0,62						
17	0,22	0,24						
18	0,28	0,19						
19	0,29	0						
20	0,54	0,04						
	0,38	0,75						
	0,69	0,1						
	0,38	0						
	0,27	0,03						

Swahili 8

	AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF
1	0,06	0	0,1	0,67	0,15	0,16	0,89	0,04
2	0,06	0,08	0,64	1,29	1,17	0,05	0,63	0,04
3	0,07	0,06	0,18	0,17	0,04	0,06	0,1	0,43
4	0,25	0	0,1	0,21	0,04	0,1	0,07	0,12
5	0,11	0,19	0,08	0,03	0,14	0,07	0,53	0
6	0,61	0,2	0,88	0,96	0,08	0,06	0,1	0,69
7	0,63	0,05	0,11	0,11	0,75	0,14	0,62	0,12
8	0,1	0,11	0,1	0,16			0,22	0,04

8	0,39	0,06	0,07	0,27			0,79	0,22
9	0,28	0,64	0,46	0,03			0,27	0,07
10	0,32	0	0,1	0,37				
11	0,21	0,19	0,1	0,36				
12	0,28	0,22	0,04	0,26				
13	0,24	0,07	0,07	0,39				
14	0,06	0	0,28	0,09				
15	0,09	0,06	0,23	0				
16	0,33	0,12	0,46	0,21				
17	0,12	0,05						
18	0,09	0,15						
19	0,04	0,23						

9	0,09	0,12	0,03	0,16			0,09	0,03
10	0,73	0,05	0,06	0,65			0,18	0,17
11	0,06	0,04	0,44	0,14			0,1	0,43
12	0,06	0,07	0,57	0			0,94	0,66
13	0,86	0,08	0,44	0,07			0,29	0,09
14	0,09	0,08	0,05	0,45			0,57	0,17
15	0,08	0,03	0,7	0,12			0,36	0
16	0,4	0,26	0,35	0,06			0,46	0,05
17	0,71	0,25	0,11	0,08				
18	0,16	0,21						
19	0,84	0						
20	0,43	0,03						
	0,1	0,14						
	0,62	0,04						
	0,15	0,13						
	0,09	0,61						
	0,13	0,07						

Swahili 9

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,22	0,76	0,12	1,16	0,06	0,05	1,2	0,16
2	0,65	0,18	0,09	1,83	0,45	0,06	0,85	0,09
3	0,14	0,09	0,27	0,53	0	0	0,51	0,16
4	0,62	0,55	0,75	1,45	0,11	0,09	0,42	0,12
5	0,09	0	0,58	0,06			0,78	0,11
6	1,32	0,04	0,52	0,09			0,47	0,75
7	0,16	0,13	0,05	0,09			0,14	0,15
8	0,18	0,05	0,12	0,07			0,53	0,05
9	0,07	0,16	0,93	0,62			0,15	0
10	0	0,08	0,13	0,84			0,16	0,43
11	0,12	0,96	0,16	0,22			0,57	0
12	0	0,1	0,16	0,15			0,07	0,13
13	0,18	0,2	0,27	0,54			0,8	0,11
14	0,13	0,15	0,91	0,24			0,93	0,04
15	0,07	0,54	0,07	0,08			0,09	0,59
16	0,65	0,36	0,12	0,13			0,59	0,03
17	0	0,54	0,75	0,61			0,68	0,14
18	0,12	0,93	0,8	0,08				
19	0,05	0,2	0,58	0,5				
20	0,05	0,56						
	0,03	0,18						
	0,11	0,09						

Swahili 10

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,62	0,22	0,13	0,45	0,37	0,17	0,38	0,06
2	1,04	0,12	0,39	0,18	0,4	0,15	0,57	0,13
3	0,04	0,08	0,07	0,65	0,15	0,08	0,06	0,43
4	0,1	1,77	0,06	0,27	0,08	0,09	0,1	0,44
5	0,07	0,59	0,09	0,08	0,04	0,13	0,19	0,06
6	0,34	0,05	1,6	0	0,84	0,33	0,54	0,16
7	0	0,09	0,05	0,3	0,1	0,05	0,11	0,32
8	0,33	0,39	0,09	0,09	0,1	0,07	0,84	0
9	0,04	0,5	0,33	0,88	0,09	0,14	0	0,34
10	0	0,43	0,14	0,26	0,62	0	0,55	0,27
11	0,04	0,15	0,04	0,34	0,38	0,53	1,02	0,14
12	0,2	0,44	0,6	0,55	0,15	0,08	0,1	0,45
13	0,61	0,11	0,06	0,29	0,61	0,03	0,15	0,28
14	0,07	1,19	0,44	0,21	0,43	0,07		
15	0,06	0,36	0,07	0,27				
16	0,46	0,07	0,08	0,08				
17	0,29	0,57	0,06	0,71				
18	0,44	0,11	0,12	0,34				
19	0,04	0,69	0,43	0,04				
20	0	0,15						
	0,65	0,11						
	0,07	0,4						
	0,85	1,1						

Hausa 1

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,08	0,51	0,2	1,3	0,07	0,22	0,78	0,04
2	0,1	0,93	0,62	0,1	0,11	0,11	0,99	0
3	0,17	0,06	0,1	0	0,21	0,05	0,52	0,07
4	0,1	0,11	0,99	0,13	0,13	0	0,77	0
5	0,24	0,03	0,42	0,06	0,55	0,06	0,69	0,15
6	0,43	0,09	0,75	0,18	0,61	0,06	0,08	0,04
7	1,01	0,08	0,21	0,09	0,37	0,06	0,12	0,74
8	0,05	0,12	0,04	0,04	0,1	0,07	0,6	0,04
9	0,98	0,36	0,05	0				
10	0,25	0,84	0,11	0,07				
11	0,04	0,03						
12	0,1	0,51						
13	0,8	0,35						
14	0,07	0,06						
15	0,06	0,16						

Hausa 3

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,7	0,15	0,09	0,62	0,19	0,81	0,66	0,08
2	0,66	0,48	0,08	0,05	0,37	0,07	0,78	0,12
3	0	0,16	0,08	0,93	0,11	0,05	0,43	0,05
4	0,38	0,1	0,2	0,13	0,23	0,08	0,41	0,08
5	0,4	0,34	0,08	0,04	0,05	0,1	0,43	0,08
6	0,28	0,1	0,66	0,08	0,07	0,12	0,38	0,05
7	0,3	0,34	0,87	0,43	0,14	0,07	0,34	0
8	0,55	0,1	0,75	0			1,16	0,18
9	0,07	0,06	0,37	0			0,32	0,07
10	0,06	0	1,17	0,2			0,52	0,03
11	0,48	0,64	0,36	0,06				
12	0,29	0,1	0,05	0,2				
13	0,19	0,27	0,25	0,07				
14	0,39	0,72	0,26	0,04				
15	0,46	0	0,22	0,17				

16	1,37	0,08						
17	0,93	0,1						
18								
19								
20								

Hausa 2

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,46	0,03	0,08	0,13	0,22	0,07	0,4	0
2	0,27	0,03	0,07	0,36	0,3	0,07	0,54	0,24
3	0,05	0,21	0,07	0,3	0,17	0,16	0,33	0,45
4	0,08	0,11	0,07	0,42	0,2	0,21	0,19	0,25
5	0,08	0,04	0,08	0,42	0,14	0,13	0,62	0,07
6	0,32	0,03	0,09	0,36	0,05	0,03	0,29	0,06
7	0,08	0,21	0,4	0,06	0,09	0,11	0,28	0,03
8	0,06	0,16	0,06	0,36	0,04	0,19	0,31	0,03
9	0,07	0,12	0,05	0,14	0,1	0,64	0,17	0,12
10	0,08	0,34	0,14	0,05	0,17	0,31	0,58	0,26
11	0,33	0,33	0,05	1,02	0,04	0,79	0,33	0,29
12			0,28	0,5	0,14	0,29	0,13	0,11
13			0,06	0,04			0,36	0,03
14			0,34	0,05			0,36	0,12
15			0,04	0,34			0,11	0,31
16			0,15	0,16				

Hausa 5

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,47	0,07	0,05	0,44	0,04	0,05	0,52	0
2	0,58	0	0,5	0,08	0,07	0	0,42	0,03
3	0,55	0	0,1	0,08	0,09	0,05	0,31	0,04
4	0,33	0,36	0,03	0,03	0,05	0	0,76	0
5	0,45	0,08	0,07	0,09	0,05	0,03	0,33	0
6	0,05	0,15	0,2	0,06			0,88	0
7	0,09	0	0,06	0,04			0,07	0,03
8	0,76	0,02	0,12	0,03			0,83	0,02
9	0,1	0,07	0,3	0,06			0,23	0,03
10	0,29	0,04	0,12	0,03				
11	0,06	0,07	0,94	0,06				
12	0,26	0,03	0,84	0,09				
13	0,05	0,2	0,16	0,03				
14	0,33	0,11	0,8	0,03				
15			0,44	0,1				
16			0,08	0,07				
17			0,18	0,06				
18			1,13	0,04				
19			0,27	0,05				

Hausa 6

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,04	0,08	0,07	0,09	0,08	0,05	0,26	0
2	0,05	0,06	0,36	0,58	0,08	0,09	0,69	0,06
3	0,07	0,04	0,04	0,05	0,08	0,05	0,14	0,1
4	0,08	0,04	0,98	0,27	0,04	0,05	0,03	0,22
5	0,09	0	0,88	0	0,03	0,03	0,24	0,15
6	0	0,08	0,08	0,07	0,03	0,04	0,22	0,03
7	0,07	0,04	0,06	0,07	0,04	0,08	0,3	0,03
8	0,1	0,05	0,08	0,19	0,03	0,07	0,08	0,19
9	0,39	0,03	0,05	0,23	0,03	0,09	0,17	0,06
10	0,03	0,05	0,21	0,03	0,12	0,07	0,13	0
11	0	0	0,05	0,03			0,24	0,1
12	0,09	0	0,07	0,03				

16	0,86	0,06	0,07	0,11				
17	0,39	0,03	0,81	0,47				
18	0,57	0	0,44	0,05				
19	0,68	0,04	0,34	0,07				
20	0,05	0,08						
	0,28	0,07						

Hausa 4

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,46	0,04	0,07	0,04	0,17	0,04	0,12	0,44
2	0,04	0,11	1,3	0,09	0,39	0,07	0,08	0,43
3	0,3	0,05	0,12	0,12	0,49	0,04	1,65	0,05
4	0,12	0,66	0,03	0,05	0,48	0,27	0,22	0,06
5	0,02	0,04	0,08	0,04	0,16	0,4	1,11	0,16
6	0,13	0,06	0,92	0,06	0,05	0,03	0,06	0,39
7	0,48	0,07	0,42	0,07	0,04	0,11	0,21	0,09
8	0,79	0,07	0,06	0,06	0,11	0,46	0,08	0,07
9	0,06	0,05	0,63	0,08	0,07	0,06	0,07	0,07
10	0,1	0,59	0,08	0,08	0,18	0,11	0,33	0,09
11	0,52	0,05	1,22	0,08	1,13	0,04	0,18	0,25
12	0,07	0,61	0,23	0,04	0,05	0,22	0,09	0,06
13	0,42	0,07	0,52	0,06	1,09	0,07	0,33	0,09
14	0,05	0,02	0,07	0,08			0,15	0,03
15	1,1	0	0,35	0,07			1,1	0,06
16	0,07	0,06	0,66	0,18			0,11	0,25
17	0,24	0,06	0,04	0,07			0,39	0,03
18	0,36	0,06					0,42	0,08
19	0,16	0,36					0,13	0,05
20	0,4	0,06						
	0,05	0,31						
	0,09	0,11						
	0,08	0,11						
	0,08	0,17						
	0,08	0,13						

Hausa 8

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,29	0	0,41	0,03	0	0	0,68	0,09
2	0,06	0,04	0,28	0,05			0,51	0,05
3	0,1	0,26	0,25	0,03			0,54	0
4	0,08	0,07	0,06	0,03			0,1	0,09
5	0,04	0,15	0,39	0,06			0,23	0,02
6	0,26	0,07	0,36	0,05			0,06	0,1
7	0,06	0,05	0,23	0,26			0,37	0,04
8	0,23	0,1	0,12	0,04			0,4	0,03
9	0	0,16	0,15	0,05			0,11	0,1
10	0,76	0,11	0,11	0,14			0,25	0,02
11	0,22	0,69	0,37	0,04			0,27	0,12
12	0,08	0,24	0,31	0,04			0,29	0,04
13	0,58	0,03	0,42	0,04			0,34	0,04
14	0,05	0,04					0,04	0,23
15	0,16	0,05					0,09	0,04
16	0,09	0,87					0,18	0,03
17	0,15	0					0,76	0,03
18	0,39	0,26					0,32	0,06
19	0,24	0,05					0,3	0,46
20							0,05	0,04

Hausa 9

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,06	0,71	0,92	0,32	0,05	0,05	0,08	0,18

13	0,06	0,07	0,05	0,1				
14	0,03	0,04	0,1	0,26				
15	0,08	0,08	0,05	0,03				
16	0,07	0,09	0,35	1,45				
17	0,04	0,03	0,83	0,09				
18	0,05	0,03	0,07	0,46				
19	0	0,06						
20	0,12	0,92						

Hausa 7

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,5	0,08	0,34	0,11	0,22	0,04	0,28	0,02
2	0,69	0,06	0,37	0,06	0,09	0,05	0,16	0,05
3	0,43	0,07	0,46	0,07	0,09	0,04	1,07	0,05
4	0,23	0,05	0,14	0,08			0,48	0,05
5	0,37	0	0,56	0,05			0,37	0,09
6	0,34	0,07					0,1	0,05
7	0,19	0,05					0,26	0,05
8	0,41	0,06					0,23	0,05
9	0,33	0,06					0,45	0
10	0,15	0,08					0,18	0,06
11	0,12	0					0,27	0,05
12	0,25	0,31					0,07	0,03
13	0,35	0,17					0,36	0,05
14	0,3	0,3					1	0
15	0,04	0,05					0,46	0,05
16							0,37	0
17							0,36	0,03
18							0,53	0,06
19							1,08	0,03

Arabic 1

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,37	0,03	0,26	0,05	0,07	0,08	0,32	0,07
2	0,09	0,03	0,16	0,03	0,25	0,06	0,19	0,05
3	0,42	0,06	0,06	0,05	0,04	0	0,1	0,07
4	0,06	0	0,12	0,04	0,04	0,09	0,42	0,03
5	0,31	0,06	0,65	0,08	0,07	0,05	0,16	0,07
6	0,23	0,06	0,05	0,29	0,04	0,15	0,25	0,04
7	0,19	0	0,05	0,04	0,05	0,03	0,49	0,11
8	0,92	0,03	0,06	0,1	0,04	0,11		
9	0,41	0,06	0,04	0,03	0,04	0,12		
10	0,05	0,2	0,09	0,04	0,05	0,13		
11	0,37	0,03	0,37	0,12	0,06	0,03		
12	0,18	0,1	0,26	0,05				
13	0,09	0,03	0,05	0,09				
14	0,19	0,04	0,2	0,07				
15	0,25	0,03	0,12	0				
16	0,04	0,19	0,16	0,05				
17	0,06	0,03						
18	0,24	0,04						
19	0,21	0,03						
20								

Arabic 2

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,03	0,08	0,1	0,05	0,16	0	0,95	0,08
2	0,08	0,1	0,98	0,07	0,4	0,03	0,61	0,34
3	0,1	0,61	0,33	0,34	0,08	0,07		
4	0,05	0,06	0,4	0,06	0,08	0,05		
5	0,52	0,09	0,28	0,04	0,03	0,04		

2	0,05	0,05	0,32	0,19	0,96	0,09	0,07	0,08
3	0,04	0,32	0,61	0,08	0,07	0,05	0,22	0,5
4	0,09	0	0,65	0,5			0,09	0,04
5	0,06	0,11	0,12	0,05			0,12	0,8
6	0,09	0,04	0,07	0,38			0,82	0,11
7	0,05	0,09	0,2	0,15			0,31	0,62
8	0,12	0,04	0,33	0,06			0,1	0,34
9	0,04	0,03	0,11	0,05			0,09	0,22
10	0,3	0,07	0,13	0,07			0,1	0,33
11	0,05	0,04	0,07	0,51			0,18	0,14
12	0,25	0					0,11	0,35
13	0,08	0,04					0,18	0,65
14	0,25	0,04					0,05	0,41
15	0,24	0,06					0,21	0,91
16	0,06	0,06					0,18	0,15
17	0,17	0,06					0,13	0,1
18	0,18	0,07						
19	0,08	0,58						
20	0,05	0,04						
	0,15	0,4						

Hausa 10

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,39	0,14	0,3	0,26	0,61	0,06		
2	0,25	0,07	0,66	0,1	0,48	0		
3	0,16	0	0,12	0,07	0,1	0,07		
4	0,3	0,03	0,26	0,05	0,05	0,1		
5	0,68	0	0,43	0,04	0,4	0,05		
6	0,09	0,04	0,33	0,07	0,62	0,12		
7	0,38	0	0,26	0,04	0,09	0,04		
8	0,13	0,04	0,06	0,06	0,06	0		
9	0,24	0,04	0,57	0,05	0,15	0,3		
10	0,55	0,05	0,87	0,1	0,11	0,07		
11	0,07	0,04	0,91	0,13	0,09	0,04		
12	0,56	0,06	0,11	0,57				
13	0,4	0,12	0,35	0,06				
14	0,3	0,03	0,47	0,04				
15	0,37	0,3						
16	0,7	0,07						
17	0,33	0,05						
18	0,07	0,05						
19	0,24	0,06						
20	0,11	0,05						
	0,25	0,04						

Arabic 3

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,79	0,23	0,05	0,07	0,05	0,07	0,53	0,08
2	0,43	0,11	0,36	0,06	0,06	0,1	0,09	0,08
3	0,27	0,06	0,78	0,32	1,23	0,13	0,5	0,05
4	1,17	1,29	0,35	0,08			0,41	0
5	0,58	0,1	0,25	0,07			0,33	0,02
6	0,45	0,03	0,24	0,04			0,78	0,03
7	0,28	0,08	0,93	0,06			0,11	0,09
8	0,23	0,03	0,5	0,28			0,08	1,02
9	0,56	0,23	0,65	0,08			0,09	0,53
10	0,33	0,04					0,57	1,25
11	1	0,48					0,3	0,41
12	0,11	0,05					0,43	0,06
13	0,92	0,46					1,32	0,69
14	0,17	0,27						

6	0,2	0,75	0,07	0,04	0,06	0,07		
7	0,04	0,93	0,16	0	0,33	0,08		
8	0,2	0,03	0,2	0	0,04	0,03		
9	0,04	0,06	0,36	0,34	0,04	0,05		
10	0,08	0,03	0,13	0,07	0,17	0,34		
11	0,49	0,78	0,2	0,14	0,14	0,12		
12	0,37	0,09			0,06	0,37		
13	0,33	0,07						
14	0,26	0,05						
15	0,06	0,29						
16	0,07	0,05						
17	0,05	0,04						
18	0,37	0,06						

Arabic 4

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,07	0,69	0,22	0,03	0,34	0,86	1,58	0,05
2	0,15	0,04	0,04	1,33	0,06	0,36	0,19	0,22
3	0,05	0,23	0,05	0,15	0,12	0,07	0,29	0,05
4	0,34	0,04	0,05	0,41	0,06	0,05	0,09	0,08
5	0,44	0,12	0,12	0,4	0,03	0,21	0,37	0,06
6	0,17	0,03	0,06	0,03	0,28	0,51	0,38	0,04
7	0,51	0,17	0,24	0,05	0,39	0,06	0,32	0,06
8	0,06	0,76	0,66	0,22	0,19	0,82	0,54	0,08
9	0,25	0,03	0,25	0,27	0,06	0,04		
10	0	0,43	1,3	0,06	0,36	0,2		
11	0,12	0,05			0,05	0,05		
12	0,29	0,59						
13	0,36	0,05						
14	0,07	0,08						
15	0,43	0,03						
16	0,17	0,05						
17	0,07	0,12						

Arabic 6

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,43	0,08	0,06	0,03	0,9	0,63	0,15	0,44
2	0,72	0,12	0,52	0,89	0,04	0,03	0,18	0,08
3	0,72	0,02	0,6	0,51	0,42	0,39	0,07	0,06
4	0,04	0,1	0,07	0,48	0,11	0,1	0,08	0,19
5	0,62	0,58	0,48	0,04	0,32	0,34	0,14	0,06
6	0,08	0,78			0,05	0,11	0,27	0,04
7	0,67	0,16			0,06	0,38	0,66	0,13
8	0,25	0,07			0,04	0,56	0,12	0,05
9	0,04	0,04			0,06	0,66	0,44	0,04
10	0,04	0,05			0,56	0,95	0,1	0,03
11	0,07	0,48			0,04	0,04	0,3	0,17
12	0,09	0,08					0,13	0,06
13	0,22	0,05					0,57	0,08
14	0,38	0,04						
15	0,05	0,04						

Arabic 7

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,05	0,04	0,06	0,13	0,04	0,02	0,91	0,17
2	0,3	0,05	0,03	0,03	0,04	0,06	0,5	0,05
3	0,5	0,21	0	0,03	0,36	0,04	0,38	0,06
4	0,11	0,07	0,35	0,06	0,05	0,05	1,16	0,04
5	1,17	0,08	0,25	0,02	0,07	0,04	0,46	0,04
6	0,58	0,38	0,26	0,03	0,06	0,06	0,6	0,1
7	0,03	0,06	0,13	0			0,77	0,13

15	0,43	0,51						
16	0,39	0,05						
17	0,15	0,24						
18	0,35	0,19						
19	0,21	0,26						

Arabic 5

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,29	0,05	0,04	0,03	0,21	0,16	0,33	0,03
2	0,36	0,07	0,07	0,07	0,1	0,04	0,48	0
3	0,05	0,07	0,93	0,06	0,07	0,33	0,78	0,11
4	0,33	0,05	0,55	0,02			0,56	0,12
5	0,04	0	0,06	0,06			0,63	0
6	0,06	0,06	0,46	0,03			0,42	0,03
7	0,12	0,04	0,46	0,06			0,38	0,06
8	0,05	0,09	0,05	0,08			0,43	0,02
9	0,68	0,22	0,48	0,09			0,46	0,05
10	0,1	0,19	0,93	0,08			0,39	0,16
11	0,4	0	0,21	0,03			0,26	0,05
12	0,04	0,07	0,41	0,04			0,27	0,24
13	0,33	0,03					0,05	0,09
14	0,11	0,58					0,42	0,02
15	0,45	0,04						
16	0,06	0,04						

Arabic 8

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0	0,1	0,04	0,04	0,06	0,08	0,59	0
2	0,21	0,39	0,23	0	0,11	0,06	0,81	0,02
3	0,49	0,06	0,66	0,18	0,04	0,05	0,47	0
4	0	0,08	0,49	0,03	0,39	0	1,05	0,02
5	0,05	0	0,04	0,68	0,11	0,12	0,33	0,02
6	0,93	0,03	0,05	0,03	0,02	0,04	0,51	0,02
7	0,15	0,05	0,4	0,05	0,03	0,13		
8	0,56	0,01	0,76	0,04	0,06	0,17		
9	0,08	0	0,32	0,07	0,44	0,06		
10	0,02	0,14						
11	0,32	0,03						
12	0,86	0,02						

Arabic 9

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,06	0,59	0,05	0,32	0,45	0,86	1	0,06
2	0,57	0,33	0,04	0,04	0,36	0,29	0,06	0,03
3	1,52	0,02	0,79	0,06	0,3	0,84		
4	0,58	0,04	1,15	0,1	0,06	0,05		
5	0,04	0,95	0,78	0,21	0,04	0,53		
6	0,06	0,75	0,4	0,06				
7	0,02	0,04						
8	0,03	0,03						
9	0,1	1,31						

Arabic 10

	AND		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,52	0,08	1,56	0,08	0,07	0,03	0,27	0,18
2	0	0,05	0,71	0,21	0,07	0,03	1,18	0
3	0,07	0,08	0,06	0,1	0,94	0,33	0,18	0,07
4	0,01	0,11	0,06	0,37	1,49	0,17		
5	0,04	0,1	0,13	0,21	0,16	0,23		
6	0,98	0,08	0,07	0,21	0,02	0,16		
7	0,34	0,55	0,09	0,85	0,05	0,14		

8	0,12	0,03	0,36	0	0,26	0,04
9	0,22	0,05	0,31	0,06	0,91	0,33
10	0,24	0,02	0,38	0,09	0,47	0,07
11	0,05	0,03	0,14	0,05		
12	0,15	0,04	0,89	0,03		
13	0,08	0,06	0,4	0,02		
14	0,08	0,03	0,19	0,06		
15	0,06	0,03	0,12	0,78		
16	0,17	0,04				
17	0,25	0,06				
18	0,58	0,11				

8	0,07	0,04	0,59	0,04	0,19	0,39
9	0,14	0,07	1,02	0,69	1,19	0,17
10	0,12	0,29	0,15	0,28	0,12	0,16
11	0,82	0,07	0,1	0,12	0,6	0,3
12	0,09	0,07				
13	0,03	0,04				
14	0	0,2				
15	0,17	0,15				

Appendix 8: Measurements of *Read Speech* in Speakers' L1

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF
1	0,29	0,18	0,12	0	0,04	0,09	0,14	0,08	0,31	0,02	0,75	0	0,31	0,03	0,11	0,02
2	0,15	0,03	0,06	0,38	0,22	0	0,58	0,02	0,4	0,04	0	0,14	0,09	0,04	0,85	0,03
3	0,25	0,06	0,04	0,03	0,28	0,02	0,06	0,04	0,02	0	0,29	0,04	0,59	0,03	0,39	0,06
4	0,06	0	0,43	0,06	0	0,04	0,54	0,07	0,09	0,09	0,48	0,02	0,35	0,04	0,52	0,06
5	0,14	0,03	0,2	0,02	0,38	0,03	0,34	0,04	0,35	0,05	0,32	0,08	0	0,55	0,48	0,05
6	0,44	0	0,14	0	0,35	0,03	0,51	0,06	0,21	0,04	0,28	0,02	0,2	0,07	0,12	0,05
7	0,46	0,04							0,38	0,02			0,21	0,04		
8	0	0,07		**Turkish 1**					0,12	0,03		**Turkish 4**				

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF
1	0,38	0,04	0,45	0,04	0,04	0,04	0,11	0,04	0,14	0,03	0,22	0,07	0,04	0,06	0,09	0
2	0,04	0,04	0,05	0,5	0,05	0,07	0,42	0,06	0,03	0,05	0,06	0,1	0,01	0,03	0,19	0,03
3	0,21	0,02	0,1	0,04	0,24	0,06	0,35	0,03	0,04	0,08	0,04	0,05	0,03	0,07	0,14	0,02
4	0,07	0,04	0,22	0,05	0,03	0,03	0,4	0,09	0,05	0	0,13	0,02	0,11	0	0,15	0,1
5	0,11	0,03	0,13	0,05	0,06	0,06	0,22	0,05	0,1	0,04	0,07	0,06	0,02	0,04	0,14	0,06
6	0,41	0	0,14	0,01	0,4	0,05	0,43	0,06	0,04	0,02	0,05	0,06	0,33	0,06	0,05	0,03
7	0,4	0			0,29	0,05			0,03	0,01			0,14	0,07		
8	0,02	0,04		**Turkish 2**					0,02	0,04		**Turkish 5**				

	AND		BUT		OR		SO			AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	
1	0,41	0	0,47	0,04	0,03	0,04	0,62	0,03	0,37	0	0,95	0	0,1	0,11	0,6	0,12	
2	0,24	0,06	0,24	0,08	0,03	0,06	0,43	0,05	0,57	0,01	0,1	0,57	0,43	0,04	0,21	0,08	
3	0,29	0,01	0,36	0,16	0,32	0,05	0,42	0,04	0,1	0,08	0,34	0	0,31	0,06	0,08	0,05	
4	0,26	0,04	0,58	0	0,26	0,03	0,25	0,18	0	0,06	0,1	0,41	0,12	0,75	0,36	0,07	
5	0,05	0,04	0,17	0,42	0,02	0,04	0,15	0,05	0,48	0,06	0	0,04	0,29	0,08	0,07	0,4	
6	0,62	0,05	0,71	0,03	0,44	0,09	0,55	0,04	0,06	0,1	0,56	0,07	0,21	0,01	0,08	0,24	
7	0,36	0,02			0,21	0,05			0,03	0,07		**Swahili 3**					
8	0,11	0,02		**Turkish 3**													

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF
1	0,15	0	0,72	0,6	0,54	0,11	0,58	0,43	0,35	0	0,2	0	0	0	0,56	0
2	0	0,1	0,07	0	1,51	0,06	0,06	0,02	0,04	0,01	0,05	0,04	0,45	0,04	0,08	0
3	0,03	0,06	0,03	0	1,08	0,74	0,08	0,03	0,73	0,05	0,07	0,58	0,06	0,07	0,1	0
4	0	0,16	0	0,09	0,34	0,1	0,05	0	0	0,04	0,06	0,08	0	0	0,09	0,03
5	0,52	0,04	0,07	0,11	0,17	0,02	0,17	0,16	0,03	0,06	0,04	0,03	0	0	0,09	0,04
6	0,02	0,09	0,48	0,05	0,06	0	0,22	0,36	0,24	0,05	0,09	0,05	0,05	0	0,11	0,03
7	0,28	0,44		**Swahili 1**					0,04	0,05		**Swahili 4**				

	AND		BUT		OR		SO		AND		BUT		OR		SO	
	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF	PP	PF
1	0,5	0	0,05	0,36	0,46	0,12	0,53	0,31	0,06	0	0,44	0	0,05	0,07	0,17	0,15
2	0	0,19	0,45	0,06	0,43	0,06	0,04	0,27	0	0,07	0,06	0,05	0,43	0,05	0,05	0
3	0,49	0,06	0,06	0,39	0,07	0,24	0,08	0,05	0	0,05	0,04	0,04	0,16	0,14	0,05	0,04
4	0,43	0,06	0,07	0,09	0,09	0,07	0,1	0,06	0,11	0,04	0,06	0,04	0,04	0,03	0,05	0,02
5	0,56	0	0,15	0,04	0,05	0,04	0,68	0,03	0	0	0,03	0	0,03	0,02	0,21	0,22
6	0,33	0,05	0,39	0,05	0,14	0,02	0,1	0,06	0	0,05	0,13	0,04	0,05	0,07	0,03	0,02

7	0,07	0,05			**Swahili 2**				0,35	0,03			**Swahili 5**			
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,07	0,04	0,17	0,06	0,05	0,01	0,59	0,9	0,31	0,03	0,19	0,15	0,23	0,4	0,74	0,62
2	0,05	0	0,48	0	0,16	0,05	0,35	0,3	0,06	0,02	0,07	0,69	0,19	0,6	0,33	0,29
3	0,43	0,88	0,06	0,06	0,5	0,2	0,04	0,03	0,64	0,86	0,06	0,09	0,07	0,52	0,29	0,11
4	0,06	0,04	0,61	0	0,25	0,03	0,11	0,02	0,16	0,04	0,15	0,98	0,85	0,51	0,03	0,55
5	0,06	0,04	0,2	0,02	0,05	0,03	0,4	0,11	0,06	0,06	0,07	0,37	0,05	0,15	0,04	0,03
6	0,07	0,04	0,07	0,05	0,13	0	0,31	0,05	0,05	0,05	0,09	0,57	0,43	0,38	0,04	0,1
					Hausa 1								**Hausa 4**			
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,04	0,03	0,03	0,04	0,04	0,01	0,04	0,05	0,05	0,04	0,05	0,07	0,05	0,01	0,06	0,04
2	0,04	0	0,05	0	0,08	0,04	0,54	0,25	0,07	0	0,05	0	0,06	0,04	0,03	0,09
3	0,04	0,04	0,03	0,04	0,05	0,03	0,04	0,04	0,05	0,02	0,05	0,04	0,06	0,04	0,05	0,05
4	0,07	0,05	0,04	0	0,04	0,01	0,03	0,03	0,04	0,35	0,08	0	0,08	0,02	0,04	0,04
5	0,05	0,03	0,03	0,04	0,07	0,04	0	0,02	0,04	0,03	0,05	0,04	0,25	0	0,07	0,07
6	0,03	0,02	0,04	0,03	0,03	0,05	0,03	0,05	0,58	0,09	0,06	0,05	0,13	0	0,05	0,04
					Hausa 2								**Hausa 5**			
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,08	0,1	0,44	0,38	0,18	0,03	0,17	0,1	0,06	0,07	0,06	0,04	0,03	0,05	0,08	0,06
2	0,05	0	0,3	0,01	0,04	0,03	0,15	0,28	0,07	0,1	0,08	0,06	0,21	0,51	0,07	0,06
3	0,06	0,04	0,14	0,07	0,08	0,02	0,17	0,08	0,07	0	0,05	0,06	0,06	0,06	0,07	0
4	0,18	0,04	0,63	0,07	0,08	0	0,08	0,04	0,17	0,03	0,05	0,05	0,03	0,11	0,06	0,06
5	0,04	0,06	0,52	0,25	0,2	0	0,35	0,03	0,07	0,03	0,06	0,04	0	0,09	0,07	0,44
6	0,3	0,09	0,32	0,03	0,29	0	0,25	0,09	0,01	0,1	0,17	0,07	0,1	0,08	0,05	0,05
					Hausa 3								**Arabic 3**			
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,05	0,03	0,09	0,04	0	0,06	0,08	0,05	0,18	0,06	0,06	0,07	0,19	0,05	0,27	0,06
2	0,22	0,07	0,04	0,07	0,03	0,03	0,06	0,05	0,07	0,04	0,06	0	0,06	0,04	0,07	0
3	0,04	0,06	0,06	0,05	0,05	0,07	0,07	0,04	0	0	0,07	0,07	0,05	0	0,3	0,03
4	0,06	0,09	0,06	0,07	0,04	0,07	0,05	0,06	0,07	0,03	0,08	0,05	0,29	0,04	0,17	0,05
5	0,03	0,03	0,05	0,04	0,05	0,1	0,1	0,07	0,06	0,03	0,41	0	0,07	0	0,24	0,02
6	0,04	0,06	0,07	0,04	0,03	0,04	0,08	0,04	0	0,02	0,11	0,06	0,04	0,06	0,07	0,06
					Arabic 1								**Arabic 4**			
	AND		**BUT**		**OR**		**SO**		**AND**		**BUT**		**OR**		**SO**	
	PP	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**	**PP**	**PF**
1	0,04	0,05	0,05	0,05	0,05	0,09	0,12	0,04	0,07	0	0,03	0	0,08	0,02	0,27	0,04
2	0,03	0,06	0,26	0,02	0,05	0,06	0,24	0,03	0,12	0,04	0,07	0	0,09	0,03	0,08	0,04
3	0,03	0	0,1	0,03	0	0	0,04	0,04	0,04	0	0	0,05	0,07	0,09	0,05	0,05
4	0,03	0,05	0,12	0	0	0,05	0,27	0,05	0,08	0,03	0,15	0,03	0,07	0,03	0,08	0,05
5	0,13	0,03	0,06	0,04	0,06	0	0,27	0,04	0,08	0,03	0,39	0,03	0,02	0,03	0,19	0,05
6	0,02	0,03	0,06	0	0,04	0,05	0,27	0	0,02	0,02	0,13	0	0,04	0,04	0,29	0,04
					Arabic 2								**Arabic 5**			

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