

**Aspects of the Phonology of English Loanwords in
Jordanian Urban Arabic: A Distinctive Feature, Moraic, and
Metrical Stress Analysis**

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Submitted in accordance with the requirements for the degree of
Doctor of Philosophy

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December, 2015

The candidate confirms that the work submitted is her own and that appropriate credit has been given where reference has been made to the work of others.

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Acknowledgements

I would like to express my thanks to my supervisor, Dr Barry Heselwood, and co-supervisor, Prof. James Dickins, for their guidance. I would like to express my heartfelt gratitude to my mum and dad for their sincere prayers, unfailing love, care, support, and encouragement. I would also like to thank my sisters and brothers for their moral support, love, and help. This work is dedicated to my beloved mum and dad.

Abstract

The aim of this study is to explore which Jordanian-Urban-Arabic-speakers use English loanwords more and how those loanwords get adapted. Two research questions were addressed in the study: Firstly, what phonological repair strategies do English loanwords undergo in the speech of Jordanian-Urban-Arabic-speaking female university students? Secondly, is there an association between frequent use of English and the use of English loanwords and phonological repair strategies in the speech of the respondents?

A verbal questionnaire was used to collect the data from two groups of respondents; respondents who specialize in English and those who do not. The data consist of transcripts of audio-recordings of 60 respondents. The data were analysed in the framework of three theories: Odden's (2005) presentation of Distinctive Feature Theory, Hayes' (1989) Moraic Theory, and Hayes' (1995) Metrical Stress Theory. The first theory dealt with segmental issues in the data, the second theory helped analyse the moraic structures of the data, and the third helped capture the metrical structures of the data and lexical stress shift.

The findings show that the fashion in which the phonological repair strategies of syncope, epenthesis, glottal stop [ʔ] prosthesis, closed syllable shortening, de-clustering, vowel lengthening, vowel shortening, gemination, and word primary stress shift occur in loanwords has been clearly defined in the Phonological Repair Principle (PRP). According to the PRP, which has been proposed in the present study, repairs occur at the segmental level, which is defined by the Prosodic Hierarchy (PH) as the lowest phonological level, in favour of satisfying phonological constraints at higher phonological levels in the PH.

It has been found that frequent use of English and the use of both loanwords and the strategies of consonantal substitution and epenthesis are correlated. There is a clear difference in the percentages of the pronunciations of the loanwords and the use of the strategies in the speech

of the two groups; the respondents who specialise in English are more likely to use the loanwords and to maintain English phonemes and final clusters in the loanwords than the respondents who do not. According to the Substitution Optimality Principle (SOP), which has been proposed in the study, the strategy of consonantal substitution applies in a predictable fashion: a consonantal phoneme constitutes an optimal substitute if it shares more phonological features with the foreign one than does any other consonantal phoneme; redundant phonological features do not count. In this way, the optimal substitute for the foreign consonantal phoneme has been clearly defined. The study has drawn on a number of distinctive-feature-based rules, and moraic and metrical rules, which are related to the strategies that the loanwords undergo. The findings of the present study have been discussed in relation to other previous work on loanword phonology, and evaluation of the present study and previous research literature has been provided. The findings have added to the literature of loanword phonology and helped fill gaps. Recommendations for further studies have been suggested.

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List of Phonemic Symbols

I. List of Jordanian Urban Arabic Phonemic Symbols

1. /t/: voiceless plain dental plosive.
2. /t̤/: voiceless emphatic dental plosive.
3. /k/: voiceless velar plosive.
4. /q/: voiceless uvular plosive.
5. /ʔ/: voiceless glottal plosive.
6. /b/: voiced bilabial plosive.
7. /d/: voiced plain dental plosive.
8. /d̤/: voiced emphatic dental plosive.
9. /f/: voiceless labiodental fricative.
10. /s/: voiceless plain alveolar fricative.
11. /s̤/: voiceless emphatic alveolar fricative.
12. /ʃ/: voiceless post-alveolar fricative.
13. /x/: voiceless velar fricative.
14. /ħ/: voiceless pharyngeal fricative.
15. /h/: voiceless glottal fricative.
16. /z/: voiced plain alveolar fricative.
17. /z̤/: voiced emphatic alveolar fricative.
18. /ʒ/: voiced post-alveolar fricative.
19. /ɣ/: voiced velar fricative.
20. /ʕ/: voiced pharyngeal varies between fricative and approximant.
21. /m/: bilabial nasal.
22. /n/: alveolar nasal.
23. /l/: alveolar lateral.
24. /r/: alveolar trill.
25. /w/: labial-velar glide.
26. /j/: palatal glide.
27. /i/: high front short vowel.
28. /u/: high back rounded short vowel.

29. /a/: low central short vowel.
30. /i:/: high front long vowel.
31. /u:/: high back rounded long vowel.
32. /ɑ:/: low front long vowel.
33. /e:/: mid front long vowel.
34. /o:/: mid back rounded long vowel.

II. List of British English Phonemic Symbols:

1. /p/: voiceless bilabial plosive.
2. /t/: voiceless alveolar plosive.
3. /tʃ/: voiceless post-alveolar affricate.
4. /k/: voiceless velar plosive.
5. /b/: voiced bilabial plosive.
6. /d/: voiced alveolar plosive.
7. /dʒ/: voiced post-alveolar affricate.
8. /g/: voiced velar plosive.
9. /f/: voiceless labiodental fricative.
10. /v/: voiced labiodental fricative.
11. /θ/: voiceless interdental fricative.
12. /ð/: voiced interdental fricative.
13. /s/: voiceless alveolar fricative.
14. /z/: voiced alveolar fricative.
15. /ʃ/: voiceless post-alveolar fricative.
16. /ʒ/: voiced post-alveolar fricative.
17. /h/: voiceless glottal fricative.
18. /m/: voiced bilabial nasal.
19. /n/: voiced alveolar nasal.
20. /ŋ/: voiced velar nasal.
21. /r/: voiced alveolar median approximant.
22. /l/: voiced alveolar lateral approximant.
23. /j/: voiced palatal glide.

24. /w/: voiced labial-velar glide.
25. /i:/: high (close) front long vowel.
26. /e/: mid front short vowel.
27. /ɪ/: high front short vowel.
28. /æ/: low (open) front short vowel.
29. /ʌ/: low central short vowel.
30. /ə/: mid central short vowel.
31. /ɜ:/: mid central long vowel.
32. /ɑ:/: low back long vowel.
33. /ɒ/: low rounded back short vowel.
34. /ɔ:/: mid rounded back long vowel.
35. /ʊ/: high rounded back short vowel.
36. /u:/: high rounded back long vowel.

List of Abbreviations and Symbols

MSA	Modern Standard Arabic
JUA	Jordanian urban Arabic
[]	conjunction of features in Distinctive Feature Theory
#	word boundary
∅	it is used in the focus or in the structural change of a rule. "As the focus, it means that the segment described to the right of the arrow is inserted in the stated context; and as the structural change, it means that the specified segment is deleted" (Odden, 2005: 158)
.	syllable boundary (syllable break)
{ }	junctions; segments which are A or B or C
o	any number of segments with the features stated, from zero to an infinite sequence of them
α, β, γ	the same value
C	consonant
V	vowel
*	unaccepted or illicit
/ /	represent phonemic transcription
< >	represent spelling
⟨ ⟩	represent a peripheral constituent
()	represent a foot
[]	represent phonetic transcription
§	section
syl	syllabic
son	sonorant

cons	consonantal
cont	continuant
del.rel	delayed release
lat	lateral
nas	nasal
voi	voiced
c.g.	constricted glottis
s.g	spread glottis
ant	anterior
cor	coronal
dist	distributed
hi	high
lo	low
RTR	retracted tongue root
Π	phonological phrase
ω	phonological word
F	foot
σ	syllable
μ	mora
–	heavy (bimoraic) syllable
˘	light (monomoraic) syllable
masc.	masculine
fem.	feminine
sing.	singular
pl.	plural

CSS	closed syllable shortening
ERR	End Rule Right
x	stressed
•	unstressed
C'	degenerate syllable
~ as in [ʔ]	creaky voiced
[h]	breathy voiced glottal fricative
'	primary stress
,	secondary stress
:	long
E	English
Non-E	non-English
C _i C _i	identical consonants
C _i C _j	non-identical consonants
<ā>	spelling of /a:/
<ī>	spelling of /i:/
<ū>	spelling of /u:/

Chapter 1

Introduction

This introductory chapter provides the reader with the rationale for the study and a brief description of the linguistic situation in Jordan. It presents the research questions and significance of the study. It outlines the main points which are discussed in each chapter in this work.

1.1 Preliminary

There has been a great interest recently among phonologists (e.g. Singh, 1985; Paradis and Lacharité, 1997; Alber and Plag, 2001; Herd, 2005; Adler, 2006; and Kang, 2011) as to how the nativization of loanwords occurs in the recipient language. Why are the English words *caramel* and *flash* adapted as /kara'me:l/ and /fla:f/ in Jordanian Urban Arabic¹? Why does primary stress in the English words *benzene* /'benzi:n/ and *satellite* /'sætəlaɪt/ shift to the ultimate syllable in the English loanwords /ban'zi:n/ and /sata'lait/ in JUA while it does not in the English loanwords /'hi:tar/ 'heater' and /'fri:zar/ 'freezer'? Why is the epenthetic short vowel [i] inserted to the left of /b/ in [sib're:] 'spray' and [sib'rait] 'Sprite' and not to the right in JUA? Why is the singleton /l/ in English *balloon* adapted with a geminate in /bal'lo:n/ in JUA? Why is the English phoneme /tʃ/ adapted as /ʃ/ in JUA and not, for example, as /ʒ/? The answer is that each language has its own phonological system in which loanwords are adapted to conform to the phonemes, phonological structures (i.e. moraic, phonotactic) and word stress patterns of that language. For example, the way that JUA reacts to the English input forms /ru:'ti:n/ 'routine', /'benzi:n/ 'benzene', and /'kɒkteɪl/ 'cocktail' as /ru:'ti:n/, /ban'zi:n/, and /kuk'te:l/, respectively, reveals that stress-placement in JUA is determined by syllable weight and moraic structure (see § 4.13 below).

¹ JUA, henceforth.

There has been a debate in loanword adaptation over whether loanwords are adapted in the nativization-through-perception scenario which is referred to as the perceptual stance model (e.g. Silverman, 1992; Yip, 1993, Kenstowicz, 2007; Peperkamp and Dupoux, 2003; Kang, 2003) or in the nativization-through-production scenario which is called the phonological stance model (e.g. Hyman, 1970; Danesi, 1985; Lacharité and Paradis, 2005; Paradis and Prunet, 2000; Paradis and Lacharité, 2011). The present study follows the phonological stance model, as it is consistent with the finding that borrowers are speakers who have access to L2 grammar (e.g. Poplack et al., 1988a), and it shows compatibility with research in related disciplines such as sociolinguistics (e.g. Poplack et al., 1988a) (see § 4.9 below).

1.2 The Linguistic Situation in Jordan

Sustained linguistic contact between Arabic and English started in 1920, with the arrival of the British mandate in Jordan, after four centuries (1516-1918) of Ottoman rule in Jordan (Suleiman, 1985). Procházka (2012) states that after the end of the First World War, the Ottoman Empire disintegrated and the Arabic-Turkish contact in most of the former provinces of the empire reached an abrupt end; as a result, the use of Turkish words in all Arabic registers decreased rapidly.² According to Sawaie (2007), Turkish loanwords in Jordanian Arabic were either in the field of military or administration, and they are no longer used in Jordanian society. Turkish loanwords have been substituted with Jordanian Arabic words in recent years, such as the Turkish

² Procházka (2012: 4) states that most Turkish loanwords in Arabic fell into the following semantic domains: administration, government, and city council such as *dönüm* > *dūnum* 'a square measure', army and war like the word *tabur* > *ṭābūr* 'battalion, queue', crafts and tools such as *takım* > *ṭaqm* 'set of tools', house and household like *bakraç* > *bakraj* 'kettle', clothes and accessories like *kundura* > *kundura* 'heels', and food like *hıyar* > *xijār* 'cucumber'.

loanword /ʃa'wa:ri/ which is substituted with the Jordanian word /fur'sa:n/ 'cavalry'.

The British mandate in Jordan was exclusively military, and the only contact which was really noticeable was between a few Arab soldiers who served in the armed forces and the members of the British army (Suleiman, 1985: 79). Therefore, he adds, the British administration had limited contact with Jordanian society due to the fact that the number of British personnel was small, and only a few of them knew Arabic. Manifestations of the contact between English and Arabic have started to appear in different fields of life since the British mandate. One of the manifestations was to do with the introduction of cinemas and English-language books and magazines, as well as newspapers, such as *The Jordan Times* and *The Star*³, which are issued in English. The British Broadcasting Corporation (BBC) through the World Service also has had an effect on the phenomenon of lexical borrowing (Butros, 1963).

English loanwords entered Jordanian Arabic through media, schools, colleges, and universities. A series of compulsory English courses is taught in Jordanian kindergartens and through each of the twelve grades at school⁴. The English courses focus on the four basic English skills of reading, writing, speaking and listening, in addition to English grammar. The courses start at easy level in the kindergarten and the first grade, and the level of the courses becomes more advanced in consecutive grades. In most private schools, English is the principle medium of formal learning; however, Arabic is used as a medium of instruction in teaching two or three courses including Arabic language and Islamic Studies.

³ The Jordan Times is an English-language daily newspaper which has been published by the Jordan Press Foundation since October 26, 1975. The Star is an English-language weekly newspaper which has been published by the Jordan Press and Publishing Company since 1993.

⁴ Studying English in public schools in Jordan used to begin at the age of 10 until the end of the 1990s since when it has started at the age of 5.

The census of the ministry of education in Jordan for the year 2014 show that the number of public schools in Jordan is 3549, of private schools is 1055, and of private kindergartens is 1657, and there are no public kindergartens. The number of students in public schools is 1,174,493 and it is 552,855 in private schools. The number of students in private kindergartens is 104.80. The number of Jordanian schools which follow the British IGCSE is 43 (and 6518 students) and the number of schools that follow the American HSD is 16 (and 2872 students), and there are 16 schools which follow more than one programme.

There are two compulsory English courses, English 99 and English 101, which all university students are required to study regardless of their fields of study. These two courses focus on the basic English grammar and reading comprehension. English is the medium of formal learning in the departments of English Language and Literature in all Jordanian universities. Other schools like Business, Science, Engineering and Technology, Medicine, Nursing, Pharmacy, Dentistry, Rehabilitation Studies use both English and Arabic. Some lecturers in these schools switch to Arabic to clarify some unclear ideas or to give instructions to students. Some students use Arabic when they ask questions or make comments in classes. However, Arabic is the medium of formal learning in the department of Arabic and other schools like Arts, Islamic Studies, Law, Physical Education, Fine Arts and Design, International Studies, Archaeology and Tourism, and Agriculture.

Over the past three decades, American English has had its effect on JUA through the introduction of the Internet and information technology, mainly the introduction of social networking like Twitter and Facebook, and smart phones. Jordanian universities have encouraged students to pursue their postgraduate studies in the States by providing scholarships to students. The launch of American restaurants such as KFC, McDonalds, Starbucks, and many others in big Jordanian cities like Amman, Zarqa, Irbid, and Aqaba has enhanced the phenomenon of lexical borrowing from English.

In Sawaie (2007), it is related that in 1949 the annexation of the West Bank by the Jordanian monarch lead to significant changes not only in the population number, social, economic, and political sectors, but also in the linguistic situation in Jordan. The linguistic contact started between Jordanian people and Palestinian newcomers who were forced to move to Jordan in the late forties. The reflex /ʔ/ is an exclusively urban feature which started to appear in the speech of Jordanian speakers with the arrival of Palestinians (especially those from urban cities like Jerusalem, Jaffa, and Hebron).

The linguistic features which were adopted from the Palestinian urban dialect into Jordanian urban dialect are the following:

1. The voiceless glottal /ʔ/ as in /ʔa'di:m/ 'old'; however, the voiceless uvular /q/ is used in religious terms such as /qur'ʔa:n/ 'the Holy Quran', the Holy Quran recitation, and proper nouns such as /ʔal'qa:hira/ 'Cairo'.
2. The dialectal variant /d/ in some words as in /de:l/ 'tail'.
3. The dialectal variant /z/ as in /'ʔiza/ 'if'.
4. The dialectal variant /ɖ/ as in /ɖill/ 'shadow, shade'.
5. The dialectal variant /t/ as in /'ta:lit/ 'third'.
6. The dialectal variant /s/ as in /ʔa'sabbit/ 'I fasten'.
7. The dialectal variant /d/ as in /'dajjiʔ/ 'tight'.
8. The dialectal variant /z/ as in /maz'bu:t/ 'exactly'.
9. The dialectal variant /ʒ/ as in /'ʒa:mʕa/ 'university'.

1.3 Thesis Structure

This section outlines in brief the main points which are discussed in each chapter of this work.

I. Chapter one:

Chapter one provides the reader with the rationale for the study and a brief description of the linguistic situation in Jordan. It presents research questions, significance of the study, and thesis structure.

II. Chapter two:

Chapter two differentiates between lexical borrowing and code-switching. It presents a review of previous studies which have been conducted in the field of loanword phonology. It provides some evaluation of what has been done so far in the literature in regard to loanword phonology.

III. Chapter three:

Chapter three comprises two main parts. The first part presents the phonology of JUA: a description of consonantal and vocalic phonemes, gemination, and phonotactics (syllable structure and permissible bi-consonantal initial and final clusters). The second part presents a description of British English consonantal and vocalic phonemes, English syllable structure, English permissible consonantal sequences in onset and coda positions, and English word primary stress rules.

IV. Chapter four:

Chapter four consists of two main parts: methodology and theoretical framework. The first part presents population and study sample, research ethics, data collection, data analysis, and the rationale for the theoretical framework. It also discusses the criteria for selecting the respondents of the study and the reason for choosing a verbal questionnaire as a method for collecting the data. The second part presents the theoretical framework of the study which consists of Odden's (2005) presentation of Distinctive

Feature Theory⁵, Hayes' (1989) Moraic Theory⁶, and Hayes' (1995) Metrical Stress Theory⁷.

V. Chapter Five:

Chapter five presents data analysis. It consists of two main parts. The first part presents descriptive statistics of the relationship between frequent use of English and the use of English loanwords in the speech of two groups of JUA-speaking female university students: English group and non-English group (the respondents who use English as a medium of formal learning and the respondents who use Arabic as a medium of formal learning, respectively). The second part presents a qualitative analysis of phonological repair strategies that the loanwords undergo in JUA: consonantal substitution, syncope, epenthesis, glottal stop [ʔ] prosthesis, closed syllable shortening, de-clustering, vowel lengthening, vowel shortening, gemination, and word primary stress shift. It also presents descriptive statistics of the association between the frequent use of English and the use of JUA consonantal substitutes and the epenthetic short vowel [i] in the loanwords in the speech of the two groups.

VI. Chapter Six:

The findings of the study are reported in chapter six and they are analysed in relation to previous research. This chapter presents evaluation of the study, implications, and suggestions for further research.

⁵ Distinctive Feature Theory originated in the work of Trubetzkoy and Jakobson in the 1920s and 1930s, which was developed for English by Chomsky and Halle (1968) in *The Sound Pattern of English* (SPE). In this research I have adopted Odden's (2005) model which he adapted from Chomsky and Halle's (1968) *Sound Pattern of English*.

⁶ Moraic Theory was first formalised in Hyman (1985) and further developed in Hayes (1989).

⁷ Metrical Stress Theory was first introduced by Liberman (1975), and then developed in the works of Liberman and Price (1977), and Hayes (1981, 1984, 1995).

1.4 Rationale for Study

The phenomenon of English lexical borrowing in Arabic has been one of the topics that the linguistic literature (e.g. Sa'id, 1967; Suleiman, 1985; Hussein and Zughoul, 1993; Hafez, 1996; Al-Saqqaf, 2006; Ibrahim, 2006) focuses on in Arabic-speaking communities over the years. Having been myself a student at a Jordanian university and a university teacher for a few years has given me a big chance to communicate with university students. From my communication, I observed that university students in Jordan especially females use English loanwords in their daily communication. Then I started to have more interest in the phonological phenomena and started to dig into the literature of loanword phonology. I found that many of the phonological phenomena, such as de-clustering and word stress shift⁸, which I observed in loanwords in the speech of university students have not been studied yet, at least in Arabic-speaking communities. I found that the literature (e.g. Sa'id, 1967; Suleiman, 1985; Hussein and Zughoul, 1993; Hafez, 1996; Al-Saqqaf, 2006; Ibrahim, 2006) still has had unanswered phonological issues and some gaps which need to be filled, as the following paragraphs show.

Suleiman (1985) found that Yarmouk university students substitute the JUA phonemes /b/ and /f/ for the English phonemes /p/ and /v/, respectively. Does this mean that all university students pronounce English loanwords with JUA consonantal substitutes? From my communication with university students, I observed that there are students, especially those who specialise in English, who maintain the English phonemes /p/ and /v/ in their English loanwords although they adapt the moraic structure and stress patterns of their loanwords into their own Jordanian Arabic dialect, while other students substitute the JUA phonemes /b/ and /f/ for the English phonemes /p/ and /v/, respectively.

Sa'id (1967) and Suleiman (1985) found that the English phoneme /v/, for example, is rendered as /f/ in English loanwords in Jordanian Arabic because it is the closest sound to the English one. This is a good finding;

⁸ See sections 5.2.6 and 5.2.10 below. For other phonological phenomena, see chapter five below.

however, they did not provide a theoretical account to show if 'closest' is determined on phonetic or phonological grounds, and what makes the phoneme /f/ the optimum substitute for the English phoneme /v/ and not any other Jordanian Arabic phoneme. Suleiman (1985) also found that Yarmouk university students use the English loanwords /disk/ 'disc' and /'filim/ 'film'. The question arises as to why /disk/ 'disc' is rendered with a final cluster while /'filim/ 'film' is rendered with no final cluster. At this point, I decided to find the factor that plays a role in the occurrence of this phenomenon.

Another phonological issue that has been left vague in the literature (e.g. Suleiman, 1985; Hafez, 1996) is to do with singletons and geminates in foreign loanwords in Arabic dialects, in general, and in Jordanian Arabic, in particular. Hafez (1996) found that the French word *dentelle* 'lace' was adapted with a geminate in Egyptian Arabic as /dantilla/. She attributed this adaptation to orthography, where pronunciation was influenced by the spelling of the French word. However, if this had been the case, then the French word *passport* 'passport' in her work would have been rendered with a geminate, as well. However, it was rendered with a singleton as /basbo:r/. She did not show what criteria were followed for rendering the latter loanword with a singleton rather than with a geminate (see § 2.2 below). Are there any Arabic phonological constraints that play a role in the phonological repair that the loanwords /dantilla/ 'lace' and /basbo:r/ 'passport' undergo?

Most importantly, the literature on loanword phonology in Arabic-speaking communities lacks any study that deals with phonological repair strategies that loanwords undergo when native-language affixes are added, as in /ʔil- + ʃe:f/ 'the + chef' > [ʔij]ʃe:f 'the chef. The prosodic repair strategies which deal with moraic structures of, affixed and unaffixed loanwords and, loanwords in phrases and sentences, as in /'rbiħit + 'sku:tar/ 'won + 1st person. sing. possessive suffix + a scooter' > ['rbiħtis 'ku:tar] 'I won a scooter', have not been studied yet. The prosodic repair strategies which deal with metrical structure of suffixed and unsuffixed loanwords, as in /'faltar + -hum/ 'filter + 3rd person. pl. possessive suffix' > /fil'tarhum/ 'their filter',

have not been studied yet, either. Therefore, a study needs to be conducted to help fill these gaps.

1.5 Significance of Study

As far as I know, this study is the first in its scope in Arabic-speaking communities that provides a moraic, metrical-stress, and distinctive-feature analysis of the phonological repair strategies that affixed and unaffixed English loanwords, and loanwords at phrasal and sentential levels, undergo in JUA. The findings of this study will add more to the literature of loanword phonology; they will help fill gaps that have been left in the literature of loanword phonology in Arabic (e.g. Sa'id, 1967; Suleiman, 1985, Hafez, 1996). The adaptation of moraic structure, phonotactics, and word stress patterns in the loanwords reveal a lot about the phonological system of JUA. In other words, the phonological processes that the loanwords undergo in JUA furnish evidence for the phonological constraints that JUA places on output forms. This in turn will add more to the literature of Moraic Theory and Metrical Stress Theory. This study will be a starting point for other researchers to look at loanwords in other forms of Jordanian Arabic, e.g. Jordanian Rural Arabic and Jordanian Bedouin Arabic.

1.6 Research Questions

The respondents who do not study English might be expected not to use as many English loanwords. The respondents who do use English a lot by virtue of studying English might be expected not to adapt English loanwords by using phonological repair strategies because they use, and have frequent exposure to, English in classes. The following questions will be addressed in the course of this research.

Primary Research Question:

1. What phonological repair strategies do English loanwords undergo in the speech of Jordanian-Urban-Arabic-speaking female university students?

Secondary Research Question:

2. Is there an association between frequent use of English and the use of English loanwords and phonological repair strategies in the speech of the respondents?

1.7 Conclusion

This chapter provided the reader with the rationale behind the conducting of this study and highlighted the gaps and unanswered questions that have been left in the literature. It presented the reader with a brief background on the linguistic situation in Jordan, and familiarised him/her with the linguistic development that has occurred in Jordan since 1920. In addition to a brief discussion of the structure of the thesis, it articulated the research questions and explained the significance of the study.

The next chapter provides the reader with a review of previous studies that have been conducted in the field of loanword phonology. This review will help provide some expectation of how to deal with segments or structures in English loanwords which are illicit in JUA. It also provides some evaluation of previous research showing strengths and flaws in what has been done so far in the literature in regard to loanword phonology.

Chapter 2

Literature Review

This chapter differentiates between lexical borrowing and code-switching. It also provides the reader with a review of previous studies that have been conducted in the field of loanword phonology. A loanword refers to a foreign word in which its phonemic shape is imported with more or less phonemic substitution (Haugen, 1950). An example of a loanword is the English loanword /winʃ/ 'winch' in Egyptian Arabic, where the English phoneme /ʃ/ is adapted as /f/ (Hafez, 1996).

2.1 Definition of Lexical Borrowing

In this section I will discuss the definitions of lexical borrowing and code-switching to avoid possible terminological confusion. To begin with, Myers-Scotton (2006) defines code-switching as alternating between two languages in the same conversation (cf. Haugen, 1956; Poplack and Meechan, 1998b). This definition does not specifically identify if the words or sentences that are involved in the conversation show consistency with or deviation from the grammatical or phonological norms of the language of their provenance. For Poplack (1993), code-switching is to juxtapose sentences or sentence fragments, in which each of them shows consistency with the morphological, syntactic, and phonological rules of the language of its origin⁹. It may occur at sentential, inter-sentential, and tag levels, and it may be flagged¹⁰ or smooth. Poplack's definition is more useful than Myers-Scotton's, as it covers all the features that a code-switching situation might have. An

⁹ It might be still foreign-accented, though.

¹⁰ 'Flagged' means to use certain expressions like 'as we say in English' to draw attention to the word.

example of a single-word code-switching is the English word *hypothetical* in the sentence /hal-suʔa:l dʒiddan haɪpuθatikal/ 'this question is very hypothetical' in the speech of Iraqi Arabic speakers (Abu-Haidar, 1988: 51).

Before defining the term 'lexical borrowing', let us show how accurate the use of the term 'borrowing' is. Haugen (1950) believes that the metaphor implied in the term 'borrowing' is vague, since the lender is not aware when borrowing happens, and the borrower can hardly give the borrowed words back. I would define the term 'borrowing' as semi-copying because not all the phonemes or morphemes in the foreign word are copied when the word is incorporated in the recipient language, and the borrowed words would be called semi-copied lexical items or semi-copies. However, in the literature review I will use the term 'lexical borrowing' to avoid any terminological confusion.

In Haugen (1950: 212) the term 'lexical borrowing' refers to "the attempted reproduction in one language of patterns previously found in another." For Haugen (1950), this definition involves 'reproduction', so there must be a comparison between the original pattern and its imitation. He adds that when a native speaker observes that the borrowed word is different from the model, there must be partial learning due to the interference of some factors which he assumes to be the patterns of the speaker's language which were established previously. Treffers-Daller (1999) states that the problem with Haugen's definition of the term 'lexical borrowing' is that the notion of 'patterns' is rather vague and it is not clear what other elements beyond the word level are included. On the contrary, Myers-Scotton (2002) agrees with Haugen; she states that by 'pattern' Haugen means lexical elements, not grammatical patterns, as it is obvious in his data analysis that he uses the term 'pattern' to refer to content words.

I agree with Myers-Scotton on the point that 'pattern' means content words in Haugen's definition; however, I add to what Myers-Scotton mentions that the term 'pattern' also covers separate segments of the lexical word, as Haugen (1950) states that the distinction between importation and substitution not only applies to the loanword as an undivided pattern, but also to the different parts which constitute that loanword, since those parts

may receive different treatment. The current study deals mainly with lexical borrowings and particularly with loanwords rather than code-switches, as English borrowed words have gained great currency in the Jordanian society especially those loanwords which have no Jordanian Arabic translation equivalent words such as [ˈfɪlɪm], [fɪtəˈmiːn], and [skaɪb] (for loanwords which have no translation equivalent words, see appendices C and D). In addition, the phonological system which is dominant in the case of loanwords is the system of the target language (JUA), and this appears when a loanword like /riˈsiːvər/ ‘receiver’ is pluralised as /risiːvəˈrɑːt/ ‘receivers’ in JUA; if the word /riˈsiːvər/ ‘receiver’ had been a code-switch, it would have been pluralised as /risiːvə(r)z/ ‘receivers’.

2.2 Loanword phonology

Over the last few decades, the phenomenon of lexical borrowing has attracted the attention of phonologists whose main interest is to explore phonological repair strategies that loanwords undergo. Haugen (1956) states that each language has its own limited set of phonemes, and through learning their own language, speakers get trained to evoke a response to this set of sounds. As a result, when speakers are exposed to another language, the speakers of that language will at first have similar responses or even none at all, and the only way for the speakers to distinguish them both from each other and from the sounds of their own language is to learn them gradually. In order to predict the sounds that a speaker is likely to substitute in each case, a complete analysis of the sound system and the sounds sequences of the speaker’s language is needed (Haugen, 1950).

According to Haugen (1956), when speakers of the receiving language take in some words from the donor language, they substitute the phonemes of their own language, but acquire some of the distributions of the donor language, and although such speakers show fluency and grammatical accuracy when they speak a donor language, they may have only one phonemic system; as a result, they have what is called ‘foreign accent’. Haugen (1950) states that when a speaker acquires more of the new

language, it becomes less necessary for them to interpret the habits of the new language in terms of their own, and these habits gradually begin to be imported into their own language. Sankoff (2001: 9) adds “the longer it has been since a foreign word was introduced into the borrowing language, the more the pronunciation is to have been nativized [sic].” The linguistic status of the borrowed items remain not fixed for some time after speakers have borrowed them, and “each borrower may achieve his own compromise replica, with more or less fidelity to the model according to his wishes or his ability” (Haugen, 1956: 55). Accordingly, loans show different alternative forms (Weinreich, 1953).

Myers-Scotton (2006) adds that the more speakers there are, among recipient language speakers, who are fluent in the donor language, the more closely the native-sound pronunciation of the borrowed words is approximated, such as in the case of English which has spread all over the world as an international language resulting in more speakers having become aware of the English sound system and pronouncing borrowed words in a way that approximates how English natives would do it. Haugen (1969) states that it is not necessary for a borrowed word to be taken with all its sounds, forms, and meanings together, as for speakers of the borrowing language to do so would involve a complete shift of language, which most of them avoid by turning to substituting some of their own language habits.

Loanwords usually contain foreign phonemes or phonological structures that the recipient language does not permit. Illicit phonemes or structures are treated in two different ways. Herd (2005) states that speakers of the recipient language either modify the ill-formed phoneme in such a way that it satisfies the phonotactic or phonemic constraints of their native language or they import it without modifying it, and thus it enriches the inventory of their own native language (cf. Paradis and Lacharité, 2011). However, it only enriches the native language if all its speakers have access to the new phoneme.

In Hafez (1996), for example, the French words *diplôme* /diplɔ:m/ ‘diploma’ and *police* /pɔ:li:s/ ‘police’ are rendered as /dablo:m/ and /buli:s/, respectively, in Egyptian Arabic, where the French phoneme /p/ becomes /b/.

The English words *gentleman* and *jacket* are adapted as /gintilma:n/ and /gakitta/, respectively, where English /dʒ/ becomes /g/, in the same recipient language. These findings have contributed to the literature of loanword phonology by exploring that Egyptian Arabic /b/ and /g/ are the ideal consonantal substitutes; however, Hafez has not provided a theory-based account of why those Egyptian Arabic phonemes constitute the ideal replacements to the foreign phonemes. Similarly, in Suleiman (1985) the English phonemes /p/ and /v/ become /b/ and /f/, respectively, as in /bla:star/ 'plaster' and /fi:za/ 'visa' in the speech of Jordanian Yarmouk University students whose formal learning is in English and other Arab students from other Arab universities whose formal learning is in Arabic. Suleiman states that the Jordanian students are more likely to use English loanwords than the students from other Arab universities (cf. Sa'id, 1967). However, he has not provided a theory-based account of those adaptations. The question arises here as to why the Jordanian phonemes /b, f/ are considered the optimal substitutes for the English phonemes /p, v/, respectively, and not any other Jordanian Arabic phonemes.

Gemination is one of the phonological repair strategies that loanwords undergo in languages where geminates are permitted. For example, Hafez (1996) found that the singleton /l/ in the French words *villa* /vi:læ/ 'villa' and *manivelle* /mæni:vel/ 'crank handle' are geminated in Egyptian Arabic and thus rendered as /villa/ or /filla/ and /manafilla/, respectively. The geminate consonant /t/ in the Italian word *fattura* /fættu:rə/ 'invoice' is rendered as a singleton in the Italian loanword /fatu:ra/ 'invoice' in Egyptian Arabic. Hafez attributes the adaptation of the word *villa* into /villa/ or /filla/ to orthographic reasons, whereas the word *manivelle* into /manafilla/ to the fact of being close to an Egyptian Arabic word pattern (as in the Egyptian Arabic word [ʃalabijja] 'fem. adj. hard-working'; personal observation). However, the singleton which is preserved in the loanword /basbo:r/ 'passport' and the adaptation of the geminate consonant /t/ in the Italian input form into a singleton in the Italian loanword /fatu:ra/ 'invoice' have been left unexplained.

If orthography had been the reason behind gemination in the loanword /villa/ or /filla/ 'villa' in Egyptian Arabic, then words like *passeport*

'passport' and *fattura* 'invoice' would have been adapted into Egyptian Arabic with geminates rather than singletons unless there are phonological reasons that hinder the occurrence of this adaptation. The loanword /villa/ or /filla/ 'villa' shares the same word pattern with the Egyptian Arabic word /giddu/ 'grandfather', so gemination in this loanword would be attributed to the fact that it shares the same word pattern CVC_iC_iV (where the last two consonants are identical) with Egyptian Arabic words, as well. The questions arise as to why some singletons are geminated in Egyptian Arabic while others are not, and why some geminates are rendered as singletons. Hafez has failed to provide a theory-based account for those issues, these borrowing patterns remain confusing.

Epenthesis is considered the predominant choice for languages to repair illicit word initial clusters, as in Hindi (Singh, 1985), Cantonese (Yip, 1993), Egyptian Arabic (Hafez, 1996; based on my observation of her data), Fula (Paradis & LaCharité, 1997) and Hawaiian (Adler, 2006). However, it is not clear if epenthesis is cross-linguistically the preferred phonological process over deletion for repairs of consonantal clusters in a word-final position. For example, epenthesis is used as a repair strategy for illicit word-final consonantal clusters in Gĩkũyũ¹¹ /ɣekəʊjəʊ/ (Mwihaki, 2001) and Sesotho¹² (Rose and Demuth, 2006). Deletion is used as the repair of choice for illicit word-final consonantal clusters in Vietnamese (Barker, 1969) and Burmese (Chang, 2009). Notable is the fact that both Vietnamese and Burmese prefer monosyllabic morphemes.

The literature shows several cases where languages combine both epenthesis and deletion to repair word-initial onset clusters as in Polynesian languages (Herd, 2005) and Hawaiian (Adler, 2006). For example, Polynesian languages such as Maori and Tahitian lack /s/ in their inventories, and thus delete /s/ in /s/-initial clusters in their loanwords, while they resort to epenthesis to repair all other clusters (Herd, 2005). Another

¹¹ Gĩkũyũ is a major Bantu language spoken in Kenya.

¹² Sesotho is a Bantu language spoken in Lesotho and South Africa.

example is from Tahitian where the English words *president* and *stocking* are adapted as *peretiteni* by changing /s/ into /t/ and *totini* by /s/-deletion, respectively (Herd, 2005). However, in Hawaiian there is variation between epenthesis and /s/-deletion in /s/-initial clusters, as in the English word *speak* which is adapted as /kə'pikə/ by epenthesis (and changing /s/ into /k/) and /'pikə/ by /s/-deletion (Adler, 2006). The literature on epenthesis and deletion helps provide some expectation of how malformed clusters in loanwords might be repaired in JUA.

Paradis and LaCharité (1997) state when it comes to the adaptation of non-native consonantal clusters, epenthesis is generally preferred to deletion. For Kang (2011), many of those languages which resort to deletion to resolve illicit consonant clusters are creole languages where only clusters of /s/ + stop are repaired in this way. For example, the /s/-nasal cluster in the English word *snake* is retained in the English-based creole Sranan and is rendered as [sneki], while the /s/-stop cluster in the English word *story* is repaired and rendered as [tɔ:rɪ] (Alber and Plag, 2001). Finnish is one non-creole language where all consonants, except for the one which immediately precedes the vowel in the input form, are deleted. For example, the borrowed Swedish word *stol* 'stool' is rendered as [tu:lɪ] in Finnish, and the borrowed Russian word *krest* 'cross' becomes [ristɪ] in Finnish (Karttunen, 1977).

Paradis and LaCharité (1997) proposed the Preservation Principle, which dictates that segmental material should be preserved in consonantal clusters as much as possible, as long as preservation is within the limits of the Threshold Principle. The Threshold Principle was proposed by Paradis and LaCharité (1997: 385); it suggests that "(1) all languages have a tolerance threshold to the amount of repair needed to enforce segment preservation. (2) This threshold is the same for all languages: two steps (or two repairs) within a given constraint domain." The domain in this principle is a consonantal cluster. Paradis and LaCharité (1997) added that if the threshold was set at less or more than two repairs in a language, then the second part of the principle, which states that all languages use two repairs

within a constraint domain, would be considered parametric¹³ in that language. This occurs because, for Paradis and LaCharité (1997: 385), “languages have a limited budget for adapting ill-formed phonological structures and [...] the limit for the budget is universally set at two steps, beyond which a repair by 'demolition' may apply”. In other words, consonantal clusters undergo deletion if and only if preserving the segment is too costly in terms of the Threshold Principle.

For Paradis and LaCharité (1997), repair in the Preservation Principle involves either insertion or deletion of content (e.g. features) or structure (e.g. links between features and various levels of structure) in illicit clusters. In other words, insertion or deletion in clusters might occur at two levels: segmental or syllabic. Both repairs lead to constraint satisfaction; however, insertion has an advantage over deletion, as it simultaneously satisfies the language’s constraint and preserves the segmental material of the input maximally. Since the position of a cluster is not important in the Preservation Principle, I will provide examples of loanwords with clusters regardless of the positions of the clusters in three different languages. To begin with, the French word *filtre* /filtʁ/ ‘filter’ is adapted as [filitir] in Fula¹⁴, where the short vowel [i] is inserted to resolve the illicit bi-consonantal cluster in a word-final position; deletion would result in some of the phonemes in the input being absent (Paradis & LaCharité, 1997: 407). From my observation of the loanword [filim] ‘film’ in Suleiman (1985), epenthesis is used in Jordanian Arabic to resolve the illicit final bi-consonantal cluster /-lm/ in the English word *film*. Only one repair occurs in the cluster¹⁵.

In Hafez (1996), the English loanwords [ʔizbirait] ‘Sprite’ and [ʔizbire:] ‘spray’ in Egyptian Arabic undergo four steps to resolve illicit initial tri-

¹³ ‘Parametric’ means that it is no longer common to all languages; in other words, ‘parameter’ refers to what handles differences among languages (Chomsky, 1995).

¹⁴ Fula is a language spoken in west and central Africa.

¹⁵ The loanword /filim/ ‘film’ is quoted from Suleiman (1985); however, the explanation and analysis provided here are mine.

consonantal clusters¹⁶. The output forms show that the loanwords undergo both segmental and syllabic repairs: the English phoneme /s/ becomes /z/ and the phoneme /p/ becomes /b/. The glottal stop /ʔ/, along with the short vowel [i], is inserted prosthetically, so that the phoneme /z/ constitutes a coda to the derived syllable .ʔiz. The epenthetic short vowel [i] is inserted to the right of the second consonant in the sequence /-spr-/, which is rendered as /-zbr-/. This is due to the fact that Egyptian Arabic is a CV dialect according to Kiparsky's classification of Arabic dialects (see § 4.12.6.2 below).

Findings on Fula and Jordanian Arabic agree with what the two parts of the Threshold Principle predict; however, findings on Egyptian Arabic seem to conflict with the Threshold Principle, as the cluster /spr-/ undergoes four repairs which is too costly in terms of the principle. Although the process of preserving the segments in the cluster /spr-/ in the loanwords in Egyptian Arabic is too costly in terms of the principle, deletion will not be considered a resort to resolve the illicit cluster in Egyptian Arabic as the Threshold Principle predicts. This makes us sceptical about the eligibility of Paradis and LaCharité's (1997) maximum two-repair threshold, beyond which deletion occurs, to be a universal ceiling.

As the examples from Fula, Jordanian Arabic, and Egyptian Arabic above show, the epenthetic short vowel [i] is inserted to the left of the second consonant in the cluster /-lm/ in Jordanian Arabic, while the same epenthetic vowel is inserted to the right of the second consonant in the clusters /-ltʁ/ and /spr-/ in Fula and Egyptian Arabic, respectively. The crucial question arises here as to why the epenthetic short vowel [i] is inserted to the left of the second consonant in Jordanian Arabic whereas the short vowel [i] is inserted to the right of the second consonant in Fula and Egyptian Arabic. One of the intentions of the present study is to fill this gap and provide a phonological theory-based account of this issue.

¹⁶ The loanwords /ʔizbira:jt/ 'Sprite' and /ʔizbire:/ 'spray' are quoted from Hafez (1996); however, the explanation and analysis provided here are mine.

The following two studies show the significance of distinctive features in the process of loanword adaptation in languages. Herd (2005) proposes that both Hawaiian and New Zealand Maori lack sibilants; therefore, their English loanwords which have the English sibilants /z/ and /ʒ/ are adapted to /h/ in New Zealand Maori and to /k/ in Hawaiian Maori although /h/ and /k/ are part of the phonemic inventories of both languages. The crucial difference between Hawaiian and New Zealand Maori is that Hawaiian Maori maintains a contrast between /h/ and /ʔ/, as a result, the feature [+spread glottis] (s.g.) is contrastively specified to the segment /h/ and thereby it shows a mismatch with English sibilants in English input forms, while New Zealand Maori does not maintain a contrast between /h/ and any other glottal sound and thus the feature [+spread] is not contrastively specified to the sound /h/. At the same time, in New Zealand Maori, /t/ contrasts with /k/ where the latter sound is contrastively specified for the feature [+dorsal] creating a mismatch with English sibilants.

Similarly, Arsenault (2009) proposes that all Indo-Aryan languages maintain a contrast between dental and retroflex stops; therefore, in their English loanwords, English alveolar stops with the features [+anterior, -distributed] are consistently adapted as retroflex stops with the features [-anterior, -distributed], rather than dental stops [+anterior, +distributed]. For example, English loanwords like taxi and doctor are adapted as /t̪æksi/ and /d̪ak̪t̪ər/, respectively, in Hindi (Koshal, 1978; cited in Arsenault, 2009). The observed English loanword adaptations preserve the [-distributed] feature of the English words, but they give up the [+anterior] feature, this is due to the fact that the feature [±distributed] is phonologically active in the borrowing languages and the feature [±anterior] is not (Arsenault, 2009).

2.3 Conclusion

This chapter provided definitions of lexical borrowing and code-switching. It discussed findings of previous studies which have been conducted in the field of loanword phonology. It provided some evaluation of previous research; it presented what has been done so far in the literature and what

has been left unanswered. The next chapter presents the phonology of JUA and British English. The main Jordanian Arabic dialect which will be used in the data analysis is JUA due to the fact that the respondents in the study are native speakers of JUA. I have to present relevant aspects of the phonological system of JUA in order to provide an explanatory account of the repairs that English loanwords undergo. Presenting the phonology of any language has to be done within a theoretical framework. Three theories have been adopted in the analysis of the data: Odden's (2005) presentation of Distinctive Feature Theory, Hayes (1989) Moraic Theory, and Hayes (1995) Metrical Stress Theory (see sections 4.11, 4.12. 4.13 below).

Chapter 3

Phonology of JUA vs. British English

Chapter three consists of two parts. The first part provides the reader with a background on the phonological system of JUA. The second part presents the phonological system of British English¹⁷.

3.1 Phonology of JUA

This section presents consonantal and vocalic phonemes, and phonotactic system, of JUA.

3.1.1 Consonantal Phonemes

The following table presents consonantal phonemes of JUA.

¹⁷ British English is considered the source language from which English loanwords are borrowed into JUA (see § 4.4 below).

Table 3.1 Place and Manner of Articulation of Consonants in JUA

		Bilabial	Labiodental	Labial-velar	Interdental		Dental		Alveolar		Post-alveolar	Palatal	Velar	Uvular	Pharyngeal	Glottal
					Plain	Emphatic	Plain	Emphatic	Plain	Emphatic						
Plosive	-vd						t	ṭ					k	q		ʔ
	+vd	b					d	ḍ								
Fricative	-vd		f						s	ṣ	ʃ		x		ħ	h
	+vd								z	ẓ	ʒ		ɣ		ʕ	
Affricate	-vd															
	+vd															
Nasal		m							n							
Lateral									l							
Trill									r							
Glide				w							j					

The following list provides a phonetic description of JUA consonantal phonemes, some JUA words, and schematic illustrations of the vocal tract configuration during the articulation of JUA consonantal phonemes.

(3.1)

1. /t/: voiceless plain dental plosive, produced with the tip of the tongue against the back of the upper teeth. Its degree of stricture¹⁸ is complete closure. It occurs initially as in /ti:n/ 'figs', medially as in /'mrattab/ 'tidy', and finally as in /'rasat/ 'it anchored'.
2. /t̤/: voiceless emphatic dental plosive, produced with the tip of the tongue against the back of the upper teeth and a constriction of open approximation between root of the tongue and the back wall of the pharynx, and its degree of stricture is complete closure. It occurs initially as in /t̤i:n/ 'mud', medially as in /'baṭal/ 'hero', and finally as in /baṭṭ/ 'masc. ducks'.
3. /k/: voiceless velar plosive, made with the tongue back (or dorsum) raised towards the soft palate (velum). Its degree of stricture is complete closure. It occurs initially as in /'kahif/ 'cave', medially as in /'Ṣikir/ 'turbid', and finally as in /'malik/ 'king'.
4. /q/: voiceless uvular plosive, made with the tongue back (or dorsum) raised towards the uvula. Its degree of stricture is complete closure. It occurs initially as in /qur'ʔa:n/ 'Holy Quran', medially as in /ma'qa:l/ 'article', and finally as in /'dimafiq/ 'Damascus'.
5. /ʔ/: voiceless glottal plosive, made at the glottis – the space between the vocal folds which are located at the larynx. Its degree of stricture is complete closure. It has two allophones: a complete-closure [ʔ], the canonical allophone, which occurs initially as in ['ʔalam] 'pen' and finally as in ['naʔaʔ] 'he grew up' and a creaky voice [ʔ̤] occurring medially as in ['saʔal] 'he asked'.

¹⁸ Degree of stricture means the approximation between the articulators at the narrowest point in the vocal tract.

6. /b/: voiced bilabial plosive, made at the lips. Its degree of stricture is complete closure. It occurs initially as in /'ba:b/ 'door', medially as in /'xubiz/ 'bread', and finally as in /dubb/ 'bear'.
7. /d/: voiced plain dental plosive, produced with the tip of the tongue against the back of the upper teeth. Its degree of stricture is complete closure. It occurs initially as in /dubb/ 'bear', medially as in /ʔa'di:m/ 'old', and finally as in /sadd/ 'dam'.
8. /d̤/: voiced emphatic dental plosive, produced with the tip of the tongue against the back of the upper teeth and retracting the root of the tongue, and its degree of stricture is complete closure. It occurs initially as in /d̤e:f/ 'guest', medially as in /ra'di:ʕ/ 'infant', and finally as in /'buyuð/ 'hatred'.
9. /f/: voiceless labiodental fricative, made with the upper teeth against the lower lip. Its degree of stricture is close approximation. It occurs initially as in /fi:l/ 'elephant', medially as in /sa'fi:nih/ 'ship', and finally as in /ri:f/ 'the countryside'.
10. /s/: voiceless plain alveolar fricative, made at the alveolar ridge, and its degree of stricture is close approximation. It occurs initially as in /sa'fi:nih/ 'ship', medially as in /'nisbih/ 'proportion', and finally as in /ʃamis/ 'sun'.
11. /ʃ/: voiceless (emphatic) alveolar fricative, made at the alveolar ridge and the root of the tongue retracted, and its degree of stricture is close approximation. It occurs initially as in /'ʃabir/ 'patience', medially as in /'waʃif/ 'description', and finally as in /'raʔiʃ/ 'dance'.
12. /ʃ/: voiceless post-alveolar fricative, made just behind (post) the alveolar ridge. Its degree of stricture is close approximation. It occurs initially as in /ʃamis/ 'sun', medially as in /ra'ʃi:q/ 'slim', and finally as in /ri:ʃ/ 'feathers'.
13. /x/: voiceless velar fricative, made with the tongue back (or dorsum) raised towards the velum. Its degree of stricture is close approximation. It occurs initially as in /'xubiz/ 'bread', medially as in /'buxul/ 'stinginess', and finally as in /'ʔabix/ 'cooking'.
14. /ħ/: voiceless pharyngeal fricative, produced by constricting the muscles of the neck and contracting the pharynx retracting the

epiglottis. Its degree of stricture is close approximation. It occurs initially as in /ħu:t/ 'whale', medially as in /'riħliħ/ 'journey', and finally as in /'ribiħ/ 'profit'.

- 15./h/: voiceless glottal fricative, made at the glottis. Its degree of stricture is close approximation. It has two allophones: voiceless glottal fricative [h] which occurs initially as in [ħamm] 'worry', and breathy voiced [ħ] which occurs medially as in ['sahar] 'vigil' and finally as in [ra'fa:ħ] 'welfare'.
- 16./z/: voiced plain alveolar fricative, made at the alveolar ridge. Its degree of stricture is close approximation. It occurs initially as in /za'ra.fih/ 'giraffe', medially as in /'riziʔ/ 'livelihood', and finally as in /ruzz/ 'rice'.
- 17./z̤/: voiced emphatic alveolar fricative, made at the alveolar ridge. Its degree of stricture is close approximation. It occurs initially as in /'z̤arif/ 'circumstance', medially as in /ʕa'z̤i:m/ 'great', and finally as in /ʕu'ka:z̤/ 'name of a market'.
18. /ʒ/: voiced post-alveolar fricative, made just behind (post) the alveolar ridge. Its degree of stricture is close approximation. It occurs initially as in /'z̤abal/ 'mountain', medially as in /'ʕiʒil/ 'calf', and finally as in /'buruʒ/ 'tower'.
- 19./ɣ/: voiced velar fricative, made with the tongue back (or dorsum) raised towards the velum. Its degree of stricture is close approximation. It occurs initially as in /'ɣe:mih/ 'cloud', medially as in /'ʃuɣul/ 'work', and finally as in /'ʃamay/ 'gum'.
- 20./ʕ/: voiced pharyngeal sound which varies between fricative and approximant, made by constricting the muscles of the neck and contracting the pharynx and retracting the epiglottis, but generally not enough to produce much turbulence in the airstream. Its degree of stricture is close approximation. It occurs initially as in /ʕe:n/ 'eye', medially as in /'ruʕub/ 'fear', and finally as in /ra'bi:ʕ/ 'spring'.
- 21./m/: voiced bilabial nasal, made at the lips, velum lowered to open the velo-pharyngeal port (VPP) and air exits through the nose. Its degree of stricture is complete closure. It occurs initially as in /'ma:ddih/

'material', medially as in /'ramil/ 'sand', and finally as in /ʕamm/ 'uncle'.

22. /n/: voiced (plain) alveolar nasal, produced with the tip of the tongue against the alveolar ridge, velum lowered to open the velo-pharyngeal port (VPP) and air exits through the nose. Its degree of stricture is complete closure. It occurs initially as in /'nisir/ 'eagle', medially as in /ma'na:rah/ 'lighthouse', and finally as in /di:n/ 'religion'.
23. /l/: voiced plain alveolar lateral, made with the tongue sides and tip against the alveolar ridge, at least one side has to free to allow airflow. Its degree of stricture is open approximation lateral. Essentially it is a single phoneme, and typically pronounced light like English /l/ in /li:f/ 'leaf' and in the JUA word /le:l/ 'night', though it has a more dark pronunciation in the environment of emphatic consonants, as in /ʕa'la:h/ 'prayer'. However, there is also a specifically dark variant /l/, which can be regarded as a marginal phoneme. This occurs with respect to original JUA words only in /ʔa'l'la:h/ 'God', and forms derived from this form (Watson, 2002; Alhawary, 2011), although it is also used in some recent borrowings as in /ʔa'l'ma:nja/ 'Germany'. Light /l/ occurs initially and finally as in /le:l/ 'night' and medially as in /'balad/ 'country', while dark /l/ occurs only medially as in /ʔa'l'la:h/ 'God'.
24. /r/: voiced plain alveolar trill, made at the alveolar ridge. Its degree of stricture is complete closure alternating with close approximation, which can be called 'intermittent closure' (Catford 1977: 128). It occurs initially as in /sirr/ 'secret', medially as in /ba'ri:d/ 'post', and finally as in /ħurr/ 'free'.
25. /j/: voiced palatal glide, made with the tongue body raised up to the hard palate or the roof of the mouth. Its degree of stricture is open approximation. It occurs initially as in /ja'mi:n/ 'right, medially as in /ʔaj'ja:m/ 'days', and finally as in /rajj/ 'irrigation'.
26. /w/: voiced labial-velar glide, made at the lips and simultaneously at the velum. It has two simultaneous strictures of open approximation. It occurs initially as in /'walad/ 'boy', medially as in /'mawrid/ 'resource', and finally as in /'saruw/ 'cypress'.

3.1.2 Vocalic Phonemes

The following table presents JUA vocalic phonemic inventory.

Table 3.2 JUA Vocalic Phonemic Inventory

Short Vowels		Long Vowels	
i	u	i:	u:
		e:	o:
a		a:	

The following figure presents the phonemic inventory of JUA vowels based on my auditory analysis.

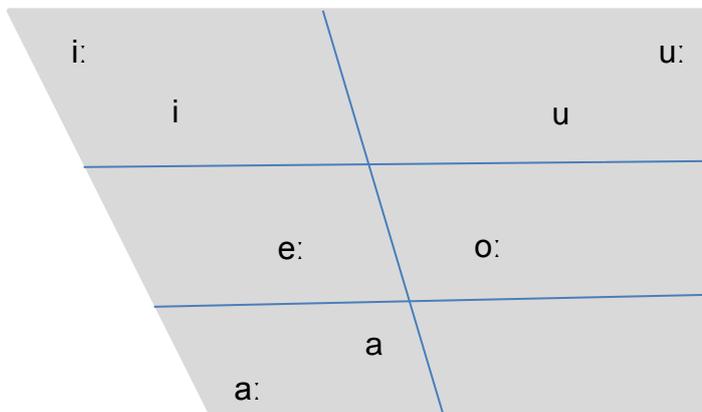


Figure 3.1 The phonemic inventory of JUA vowels

The following list provides phonetic descriptions of JUA vocalic phonemes alongside some JUA words. The figures below show schematic illustrations of the vocal tract configuration during the articulation of JUA short vowels.

(3.2)

1. /i/: high front short, as in /biss/ 'tomcat', its degree of stricture is open approximation.
2. /u/: high back rounded short, as in /murr/ 'bitter', its degree of stricture is open approximation.
3. /a/: low central short, as in /'ʔakbar/ 'bigger', its degree of stricture is open approximation.
4. /i:/: high front long, as in /ʕi:d/ 'feast', its degree of stricture is open approximation.
5. /u:/: high back rounded long, as in /ʕu:d/ 'stick', its degree of stricture is open approximation.
6. /a:/: low front long, as in /na:s/ 'people', its degree of stricture is open approximation.
7. /e:/: mid front long, as in /be:t/ 'house', its degree of stricture is open approximation.
8. /o:/: mid back rounded long, as in /mo:t/ 'death', its degree of stricture is open approximation.

The JUA monophthong /e:/ is a reflex of MSA /aj/ as in /bajt/ which is rendered as /be:t/ 'house' in JUA, and the monophthong /o:/ is a reflex of MSA /aw/ as in /mawt/ which is rendered as /mo:t/ 'death' in JUA. (cf. Al-Wer, 2007). In Al-Wer (2007: 509), the MSA diphthongs /aj/ and /aw/ are used before /j/ and /w/, respectively, in Jordanian dialectal Arabic as in /'majjil/ 'drop by' and /'ʔawwal/ 'first'. They are used in the comparative form of adjectives that begin with /j/ and /w/ as in /'ja:bis/ 'dry' > /'ʔajbas/ 'drier' and /'wa:siʕ/ 'wide' > /'ʔawsaʕ/ 'wider'. They are also preserved in the words /law/ 'if', /ʔajj/ 'any', and /fajj/ 'shade'.

3.1.3 Gemination

Gemination refers to "the doubling of the same consonant within a word pattern" (Al-Ani & Shamma, 1980: 47). JUA has two types of gemination: lexical gemination which occurs within a word boundary as in /ha'dijjih/ 'gift'

and post-lexical gemination which occurs across words boundaries as in /ʃaʒar rafi:ʔ/ 'thin trees'. However, English has only post-lexical gemination as in *bad##dog*.

Ryding (2005) states that gemination occurs in MSA (applicable to JUA, as well) for three reasons. Firstly, it results from a lexical root containing a consonant which is doubled in the root as in the root ʕ-m-m for /ʕamm/ 'uncle'. Secondly, it is a result of a derivational process which changes the meaning of a word, as in the verb stem /'daras/ 'he studied' and the derived form /'darras/ 'he taught'. Finally, gemination occurs when a coronal-initial word is prefixed with the definite article /ʔil-/ 'the', as in /ʔil- + ʃamis/ > [ʔijʃamis] 'sun', where the consonant /ʃ/ is geminated and the // of the /ʔil-/ 'the' is not pronounced.

3.1.4 The Definite Article /ʔil-/ 'the'

The definite article /ʔil-/ 'the' is a prefix that is attached to nouns in JUA to make them definite. Since part of the data analysis deals with prefixed loanwords with the definite article /ʔil-/ 'the', this section covers two different views in regard to the definite article /ʔil-/ 'the' and which view JUA follows. For the first view (e.g. Haywood and Nahmad 1965; Wright, 1967), the definite article /ʔil-/ 'the' is spelled with glottal stop (hamzat waʃl) and pronounced when it occurs in utterance-initial position as in /ʔil'baħir/ 'the sea'. When the definite article /ʔil-/ 'the' occurs medially through post-lexicalization, the glottal stop (hamzat waʃl) drops out in pronunciation, as in /'maktab + ʔilba'ri:d/ > ['maktabil ba'ri:d] 'the post office'. However, the glottal stop (hamzat waʃl), together with its accompanying vowel, drops out in pronunciation when it is preceded by a vowel-final utterance, as in /wi + ʔilba'ri:d/ > [wil ba'ri:d] 'and the post office' (for more details, see § 4.12.6.3 below).

In the second view, Coetzee (1998) and Gadoua (2000) (cited in Coetzee, 2007) argue that the glottal stop (hamzat waʃl) of the definite article /ʔil-/ 'the' is not part of the underlying form, but rather it is inserted prosthetically when it occurs phrase-initially to avoid having words that begin

with bi-consonantal clusters. This is because initial bi-consonantal clusters are not permitted in Classical Arabic, MSA and some Arabic dialects. However, JUA follows the traditional view because initial bi-consonantal cluster is permitted, as in /kta:b/ 'book' and /'mʕallim/ 'teacher'.

JUA follows the first view. If JUA followed the second view, then the insertion of the glottal stop (together with the accompanying vowel) would result in an illicit form with a tri-consonantal sequence, as in the word /kta:b/ 'book' which would wrongly surface as *[ʔilk'ta:b] 'the book' when it is preceded by the prefix /l-/ 'the'. To avoid having an illicit tri-consonantal sequence, the underlying form /l- + kta:b/ would surface as [lik'ta:b] by inserting the short vowel [i] to the left of the second consonant /k/. In this case, there would be no need to insert the glottal stop prosthetically as the alterantive view claims. However, this is not the case in JUA, as the underlying form /ʔil- + kta:b/ surfaces as [ʔilikta:b] 'the book' by inserting the short vowel [i] to the left of the second consonant in the sequence /-lkt-/.

The definite article /ʔil-/ 'the' is pronounced as /ʔil-/ when it is followed by one of the JUA non-coronal consonants which are known as letters of the moon (/b, k q ʔ f x ɣ ɧ ʕ h m w j/), as in /ʔil- + 'baʕal/ > [ʔil'baʕal] 'the hero'. The /ʔil-/ 'the' is pronounced as /ʔiC-/ 'the', where C must be a coronal consonant. When the /ʔil-/ 'the' is attached to a coronal-consonant-initial utterance, the /l/ of the definite article /ʔil-/ 'the' is not pronounced and the initial coronal consonant in the following utterance is geminated. This type is followed by one of the JUA coronal consonants which are known as letters of the sun (/t ʈ d ɗ s ʕ z ʒ ʒ ʃ l n r/) as in /ʔil- + 'ʕamis / > [ʔiʕʕamis] 'the sun'.

3.1.5 JUA Phonotactics

This section presents JUA phonotactics (i.e. the permissible combinations of sounds in JUA). It consists of two sub-sections where the first sub-section presents JUA syllable structure, and the second sub-section discusses JUA permissible consonantal clusters (i.e. two adjacent consonants in the same syllable at a word-initial and/or final position).

3.1.5.1 JUA Syllable Structure

Syllable in JUA consists of obligatory onset (what precedes the peak), peak (the vowel), and a further optional prosodic unit, the coda (what follows the peak). For example, the JUA word /'binit/ 'girl' has two syllables: .bi. and .nit. where the first syllable consists of the onset /b/ and the peak /i/, and the second syllable consists of the onset /n/, the peak /i/, and the coda /t/. All JUA consonants can occur initially, medially, and finally. A syllable in JUA must begin with a consonant; it is not permitted for a syllable to begin with a vowel.

Initial bi-consonantal clusters are permitted in JUA, as in /'mʕallim/ 'masc. teacher' while final bi-consonantal clusters occur only in the case of a pseudo geminate (i.e. two identical consonants in a word-final position), as in /ʕamm/ 'uncle'. Word-medial bi-consonantal sequences occur only across syllables, as in /mif.'ta:ħ/ 'key'. Tri-consonantal clusters are not permitted in a word-initial position and word-final position. However, they occur across syllables only in suffixed words which comprise a stem ending with a pseudo geminate and a consonant-initial suffix, as in /ʕamm + -ha/ 'uncle + 3rd person. sing. fem. possessive suffix' > [ʕammha] 'her uncle' (for details, see § 4.12.4 below).

The following list presents types of syllables in JUA, where G means that the preceding vowel or consonant is geminated.

(3.3)

- a. CV: the syllable .bi. in the JUA word /'binit/ 'girl'.
- b. CVV or CVG¹⁹: the syllable .ka:. in the JUA word /'ka:tib/ 'writer'.
- c. CVC: the syllable .mak. in the JUA word /'maktab/ 'office'.
- d. CVVC: the syllable .bu:m. in the JUA word /bu:m/ 'owl' and the syllable .ma:d. in the JUA word /'ma:ddih/ 'material'.
- e. CVCG: the syllable .ʕamm. in the JUA word /ʕamm/ 'uncle'.

¹⁹ The <VV> in <CVV> stands for a long vowel.

- f. CVVCG: the syllable .ʃa:dd. in the JUA word /ʃa:dd/ 'active participle of stretch'.
- g. CCVC: the syllable .mʃal. in the JUA word /'mʃallim/ 'masc. teacher'
- h. CCVG: the syllable .mḥa:. in the JUA word /'mḥa:rib/ 'warrior'.
- i. CCVVC: the syllable .kta:b. in the JUA word /kta:b/ 'book'.
- j. CCVCG: the syllable .bʃidd. in the JUA word /bʃidd/ 'he is counting'.

3.1.5.2 JUA Permissible Consonantal Clusters

This section presents permissible consonantal clusters at the initial and final positions of a word in JUA.

3.1.5.2.1 JUA Permissible Initial Consonantal Clusters

JUA allows a bi-consonantal cluster in a word-initial position. The following table presents the initial consonantal clusters that are permitted in JUA. The first column presents the first consonant (C1) in the consonantal cluster and the first row presents the second consonant (C2) within the same cluster in the word-initial position. Pluses in the table indicate that the consonantal cluster is permissible and minuses indicate that the consonantal cluster is not. For example, /tk-/ and /tq-/ are permissible consonantal clusters in a word-initial position; however, /ʃt-/ and /ʃk-/ are not.

Table 3.3 JUA Permissible Initial Consonantal Clusters

	t	ʈ	k	q	ʔ	b	d	ɖ	f	s	ʃ	x	ɣ	h	z	ʒ	ʒ	ɣ	ɕ	m	n	l	r	j	w
t	-	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
ʈ	-	-	-	+	+	+	-	-	+	-	-	-	+	+	-	-	-	-	-	-	-	+	+	+	+
k	+	-	-	-	-	+	-	-	+	-	-	-	-	+	-	-	-	-	-	+	+	+	+	+	+
q	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ʔ	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+
b	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+
d	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+	+
ɖ	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-
f	+	+	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	+	+	-	-
s	+	-	+	+	+	+	+	-	+	-	-	-	+	+	+	-	-	+	-	+	+	+	+	+	+
ʃ	-	+	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	+	-	+	+	-
x	-	+	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	+	+
ɣ	-	-	+	-	-	+	-	-	-	+	+	-	-	-	+	-	+	-	-	+	-	+	+	-	+
h	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-
z	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-
ʒ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-
ʒ	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+
ɣ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
ɕ	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	+	-	+	-
m	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+
n	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+
l	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+
r	-	+	-	-	-	+	-	-	+	-	+	-	+	-	+	-	+	-	-	+	-	-	-	+	+
j	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-

For JUA words with permissible clusters in a word-initial position, see appendix H (the source of these words is my personal observation of JUA speakers).

3.1.5.2.2 JUA Permissible Final Consonantal Clusters

JUA allows a bi-consonantal cluster in a word-final position only when the two consonants are identical (i.e. pseudo geminate). The following table presents the final consonantal clusters that are permitted in JUA. The first column presents the first consonant (C1) in the consonantal cluster and the first row presents the second consonant (C2) within the same cluster at the word-final position. Pluses in the table indicate that the consonantal cluster is permissible and minuses indicate that the consonantal cluster is not. For example, /-t̪t̪/ is a permissible consonantal cluster in a word-final position; however, /-t̪t/ is not.

Table 3.4 JUA Permissible Final Consonantal Clusters

For JUA words with permissible clusters in a word-final position, see appendix H (the source of these words is my personal observation of JUA speakers).

Section 3.1 presented the consonantal and vocalic phonemes of JUA and permissible consonantal clusters in JUA. This section discussed two different views of the definite article /ʔil-/ 'the' and showed the view that JUA follows and the reasons for following that view. It also presented two types of germination in JUA: lexical and post-lexical germination along with some JUA words showing the difference between the two types.

3.2 Phonology of British English

This section presents the consonantal and vocalic phonemic inventories of British English.

3.2.1 Consonantal Phonemes

This section presents the consonantal phonemes of British English. The following table presents the phonemic inventory of British English consonants based on Cruttenden (2001).

Table 3.5 Phonemic Inventory of British English Consonants

		Bilabial	Labio-dental	Labial-velar	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	-vd	p				t			k	
	+vd	b				d			g	
Fricative	-vd		f		θ	s	ʃ			h
	+vd		v		ð	z	ʒ			
Affricate	-vd						tʃ			
	+vd						dʒ			
Nasal		m				n		ŋ		
Lateral						l				
Glide				w		r		j		

3.2.2 Vocalic Phonemes

This section presents British English vowels and diphthongs. The following figure presents British English vowels based on Cruttenden (2001).

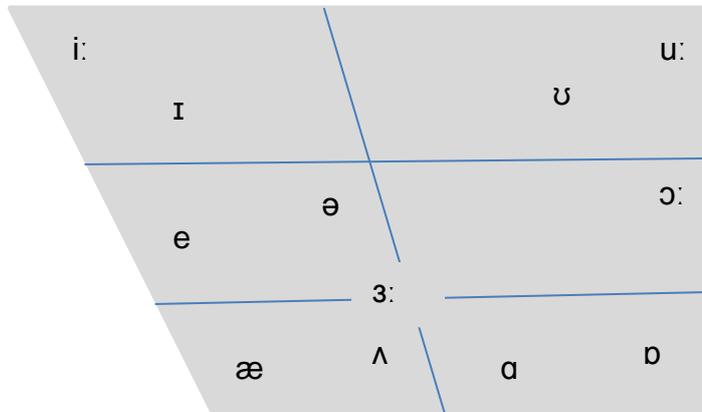


Figure 3.2 Phonemic Inventory of British English vowels

British English has eight diphthongs: /ɪə/ as in *beard*, /eə/ as in *scarce*, /ʊə/ as in *tour*, /eɪ/ as in *paid*, /aɪ/ as in *time*, /ɔɪ/ as in *voice*, /əʊ/ as in *load*, and /aʊ/ as in *loud*.

3.2.3 British English Phonotactics

This section presents syllable structure and permissible onset and coda consonantal sequences in British English.

3.2.3.1 British English Syllable Structure

Syllable in British English consists of an obligatory peak (the vowel) and further two optional units: the onset (what precedes the peak) and the coda (what follows the peak). The rhyme which minimally contains two segments and maximally three segments is divided into a peak and a coda (Staun, 2010).

A syllable in English can begin with a vowel or a consonant. English has both open syllables (syllables end with a vowel) as in the syllable structures V, CV, CCV, and CCCV and closed syllables (syllables end with a

consonant) as in VC, VCC, CVC, CCVC, CCCVCC, CCCVCCC, CVCC, CVCCC, CCCVC, CCVCC, and VCCC. All English consonantal phonemes can occur in initial, medial, and final positions of a word except /ŋ/ which cannot occur in word-initial position. The occurrence of /ʒ/²⁰ in word-initial position is rare, and the /h/ cannot occur in codas (Cruttenden, 2001). Bi- and tri-consonantal sequences are allowed in English initial, medial, and final positions of a word, as in *pray* /preɪ/, *spray* /spreɪ/, *distinctive* /dɪstɪŋktɪv/, *practice* /præktɪs/, *chips* /tʃɪps/, and *rings* /rɪŋz/.

3.2.3.2 British English Permissible Onset and Coda Consonantal Sequences

This section presents permissible onset and coda consonantal sequences in British English. The following table presents permissible onset consonantal sequences based on Staun (2010: 164-65), where the first column presents the first consonant (C1) in the onset consonantal sequence and the first row presents the second consonant (C2) within the same sequence. Minuses in the table indicate that the consonantal sequence is not permissible in English whereas pluses indicate that the consonantal sequence is permissible.

²⁰ Cruttenden (2001) states that the phoneme /ʒ/ can occur initially before /ɪ/ as in *gigolo*, /i:/ as in *gite*, /æ/ as in *jabot*, and /ɒ/ and /ɑ:/ as in *genre*. All of these words are foreign.

Table 3.6 English Permissible Onset Consonantal Sequences

	w	j	r	l	m	n	p	t	k
p	-	+	+	+	-	-			
t	+	- (US) + (UK)	+	-	-	-			
k	+	+	+	+	-	-			
b	-	+	+	+	-	-			
d	+	- (US) + (UK)	+	-	-	-			
g	-	+	+	+	-	-			
f	-	+	+	+	-	-			
θ	+	-	+	-	-	-			
ʃ	-	-	+	-	-	-			
s	+	- (US) + (UK)	-	+	+	+			
sp	-	+	+	+	-	-			
st	-	- (US) + (UK)	+	-	-	-			
sk	+	+	+	-	-	-			

The following list presents English words with permissible onset consonantal sequences.

(3.4)

1. Pewter /'pju:tə/, pray /preɪ/, place /pleɪs/.
2. Twitch /twɪtʃ/, tune (UK) /tju:n/, try /traɪ/.
3. Quiet /kwaɪət/, cube /kju:b/, cry /kraɪ/, claim /kleɪm/.
4. Bugle /'bju:gl/, bright /braɪt, blame /bleɪm/.
5. Dwell /dwel/, dew (UK) /dju:/, dream /dri:m/.
6. Ambiguous /æm'bigjuəs/, grass /grɑ:s/, glove /glʌv/.
7. Fuse /fju:z/, free /fri:/, flue /flu:/.
8. Thwart /θwɔ:t/, throw /θrəʊ/.
9. Shrug /ʃrʌg/.
10. Sweet /swi:t/, sue (UK) /su:/, slim /slɪm/, smoke /sməʊk/, snow /snəʊ/, spider /'spaɪdə/, stay /steɪ/, sky /skaɪ/.
11. Spume /spju:m/, spray /spreɪ/, splash /splæʃ/.
12. Student (UK) /'stju:dənt/, straw /strɔ:/.
13. Square /skweə/, skewer /skjuə/, scrap /skræp/.

The following table presents English permissible coda consonantal sequences based on Staun (2010: 168). The first column presents the first consonant (C1) in the coda consonantal sequence and the first row presents the second consonant (C2) within the same sequence. Pluses in the table indicate that the consonantal sequence is permissible whereas minuses indicate that the consonantal sequence is not.

Table 3.7 English Permissible Coda Consonantal Sequences

	p	t	tʃ	k	b	d	dʒ	f	θ	s	ʃ	v	z	m	n
p	-	+	-	-	-	-	-	-	+	+	-	-	-	-	-
t	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-
tʃ	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
k	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-
b	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-
d	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-
dʒ	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
g	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-
f	-	+	-	-	-	-	-	-	+	+	-	-	-	-	-
θ	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-
s	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-
ʃ	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
v	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-
ð	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-
z	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
ʒ	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
m	+	+	-	-	-	+	-	+	-	-	-	-	+	-	-
n	-	+	+	-	-	+	+	-	+	+	-	+	-	-	-
ŋ	-	-	-	+	-	+	-	-	+	-	-	-	+	-	-
l	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
r	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

The following list presents English words with permissible coda consonantal sequences.

(3.5)

1. Rapt /ræpt/, depth /depθ/, lapse /læps/.
2. Eighth /eɪtθ/, hats /hæts/.
3. Hatched /hætft/.
4. Act /ækt/.
5. Mix /mɪks/.
6. Robbed /rɒbd/, robs /rɒbz/.

7. Width /wɪdθ/, adze /ædz/.
8. Judged /dʒʌdʒd/.
9. Begged /begd/, begs /begz/.
10. Raft /rɑ:ft/, fifth /fɪfθ/, chefs /ʃeɪfs/.
11. Bathed /bɑ:θt/, smiths /smɪθs/.
12. Crisp /krɪsp/, list /lɪst/, mask /mɑ:sk/.
13. Mashed /mæʃt/.
14. Lived /lɪvd/, gloves /glʌvz/.
15. Sheathed /ʃi:ðd/, clothes /kləʊðz/.
16. Buzzed /bʌzd/.
17. Rouged /ru:ʒd/.
18. Lamp /læmp/, dreamt /dremt/, skimmed /skɪmd/, nymph /nɪmf/, tames /teɪmz/.
19. Rant /rænt/, bench /bentʃ/, land /lænd/, hinge /hɪndʒ/, tenth /tenθ/, pence /pens/, fans /fænz/.
20. Sink /sɪŋk/, hanged /hæŋd/, length /leŋθ/, brings /brɪŋz/.
21. Yelp /jelp/, felt /felt/, belch /beltʃ/, silk /sɪlk/, bulb /bʌlb/, filled /fɪld/, bulge /bʌldʒ/, elf /elf/, health /helθ/, false /fɔ:ls/, Welsh /welʃ/, delve /delv/, hills /hɪlz/, film /fɪlm/, kiln /kɪln/.
22. Scarp /skɑ:rp/ (US), part /pɑ:rt/ (US), arch /ɑ:rtʃ/ (US), park /pɑ:rk/ (US), herb /ɜ:b/ (US), card /kɑ:rd/ (US), urge /ɜ:dʒ/ (US), turf /tɜ:f/ (US), birth /bɜ:θ/ (US), purse /pɜ:s/ (US), harsh /hɑ:rf/ (US), curve /kɜ:v/ (US), parse /pɑ:rs/, firm /fɜ:m/, fern /fɜ:n/ (US).

3.3 Conclusion

This chapter provided the reader with information on the phonology of JUA and British English. It presented the consonantal and vocalic phonemes of JUA, germination and the definite article /ɹil-/ 'the' in JUA, JUA syllable structure, and permissible initial and final consonantal clusters in JUA. It provided schematic illustrations of the vocal tract configuration during the articulation of consonantal and vocalic phonemes in JUA. It also presented the consonantal and vocalic phonemes of English, English syllable structure,

and English permissible onset and coda consonantal sequences. The background on JUA and English phonology helps the reader get acquainted with the JUA and English phonological systems. This makes it easier for the reader to understand the data analysis later in chapter five.

The next chapter is divided into two parts: methodology and theoretical framework of the study. The first part provides the reader with a description of the population and sample of the study, research ethics, the design of the study, and the theoretical framework that was adopted. This part will help the reader familiarise themselves with the respondents of the study and the way the study was designed. This part will be of benefit also to other researchers, as the description of the respondents of the study and the information on the design of the study will help them create methods very similar to the ones that were used in this study to obtain analogous data.

Chapter 4

Methodology and Theoretical Framework

This chapter consists of two main parts: the methodology and the theoretical framework. The first part presents the population and study sample, data collection, and data analysis. The second part presents the theoretical framework of the study which comprises Distinctive Feature Theory, Moraic theory, and Metrical Stress Theory.

Part One: Methodology

4.1 Population and Study Sample

This study uses two groups of respondents sampled from two populations, as follows:

1. The first population consists of Jordanian female university students who are native speakers of JUA. They are from the department of English Language and Literature, where English is the medium of formal learning, at the university of Jordan. They attended schools where English was the medium of formal learning. They have a frequent exposure to English through using/doing any of the following: English-language software, English training courses, talking to native speakers of English or to bilinguals in Arabic/English, reading English books or magazines, listening to English-language music, watching English-language films, using English-language websites such as Facebook, Twitter, and YouTube, English-language DVDs. They do not use MSA in their daily oral communication; however, they use classical Arabic only when they read in the Holy Quran or in the Bible.
2. The second population consists of Jordanian female university students who are native speakers of JUA. They are from schools of Arts, Archaeology and Tourism, Law, Physical Education, International Studies, Fine Arts and design, and Agriculture, where

Arabic is the medium of formal learning, at the University of Jordan. They attended schools where Arabic was the medium of formal learning. They have a little or no exposure to English. They have not finished the two English compulsory courses (English 99 and English 101)²¹. They do not use MSA in their daily oral communication; however, they use classical Arabic only when they read in the Holy Quran or in the Bible.

A sample of 60 respondents was drawn from the two populations; 30 respondents from the first population and another 30 respondents from the second population. The sample which was drawn from the first population is called English group (E group, henceforth) and the sample which was drawn from the second population is called non-English group (non-E group, henceforth). The University of Jordan was contacted to seek permission to be undertaking research among their students. An Arabic version of the advertisement which had been designed for recruiting respondents of the study was sent to the schools/departments in question (see appendices A and B). In turn, a university education service officer circulated the advertisement to students²².

²¹ These two courses are one of the requirements of study at Jordanian universities; all students are required to study them regardless of their fields of study. The two courses focus on basic English grammar and reading comprehension.

²² It was not feasible to know which students speak JUA, who attended which schools, and who have a frequent or a little exposure to English, the advertisement was sent to all university students in the schools/departments in question (so that all students who satisfy those requirements had the chance to participate in the study). However, the population of the study consists of only students who could have responded to the advertisement; that is, they have all the characteristics of one of the two groups in my defined populations (see § 4.1 above).

4.2 Rationale for Study Sample

I chose those samples because from my communication with university students (having been myself a university student, and a university teacher, at a Jordanian university), I observed that the phenomenon of using English loanwords is very common among university students especially females. Female students in the departments of Arabic Language and Literature and Islamic Studies were excluded from the population of my study because students in these departments use, and get frequent exposure to, MSA and Classical Arabic in classes. MSA and Classical Arabic have phonological systems which are different from the phonological system of JUA. Excluding students at those departments helps keep the non-E group linguistically homogeneous.

Female students in the schools of Business, Science, Engineering and Technology, Medicine, Nursing, Pharmacy, Dentistry, Rehabilitation Studies were excluded from the population of my study, as well, due to the fact that both English and Arabic are used as mediums of formal learning in these schools. The use of English in these schools is not as frequent as that in the department of English Language and Literature. Male students who speak JUA and both male and female students who speak Jordanian Rural Arabic or Jordanian Bedouin Arabic were also excluded from the populations of my study to help keep the groups linguistically homogeneous and to adhere to the allotted space and time.

4.3 Research Ethics

An ethical approval was sought from PVAC and Arts joint faculty research ethics committee at the University of Leeds. Ethical approval was granted with the reference number PVAR 12-006, November 20, 2012 (see appendix F).

4.4 Pre-Data Collection

115 loanwords were collected from Jordanian websites (forums, online magazines, newspapers, online open market, online websites of shops, and online advertisements). The loanwords which I got from the Jordanian websites were print-screened and pasted in a Word document. The loanwords were classified according to their semantic functions into categories: accessories and cosmetics, clothes, colours, food, cars and transportation, professions, TV, radio, mobile phones, and PCs, buildings and institutes, office, and miscellaneous (see appendices C and D). The criterion for selecting loanwords from the online resources was to collect monosyllabic, di-syllabic and polysyllabic loanwords to ensure having a list of loanwords with different moraic structures and word stress patterns.

It was not feasible to find out how or when the loanwords entered JUA, as there are no Jordanian etymological dictionaries or dictionaries of loanwords in JUA. However, there are Arabic etymological dictionaries that list loanwords which were borrowed from Greek, Latin, Hebrew, Persian, Hindi, Syriac, Ethiopian languages, and Turkish²³. I checked the dictionaries *ʔalmuʕarrab min ʔalkalām ʔalʔaʕḏami ʕala ḥurūf ʔalmuʕḏam.* 'The Arabicized foreign words in a dictionary' by Abdu Rahim (1990) and *kitāb ʔalʔalfāḏ ʔalfārisijjah ʔalmuʕarrabah* 'The book of Persian Arabicized words' by Sheer (1988) to ensure that the loanwords in question were not borrowed from any of the languages mentioned above. I also checked the work of Hafez (1996) on French and Italian loanwords in Egyptian Arabic to ensure that none of the loanwords in question were borrowed from French or Italian through Egyptian Arabic²⁴. The loanwords /'sandal/ 'sandals' and /ʕa:'lo:n/ 'salon' were found to have been borrowed from Hindi, the loanwords /ʕi:k/ 'chic', /sar'vi:s, sar'fi:s/ 'service', /sij'wa:r/ 'hair dryer', /kwa:'fe:r/ 'hair dresser', /tilfiz'jo:n/ 'television', /ʕuf'fe:r/ 'chauffer', /ma'da:m/ 'madam', and

²³ The term 'Arabic' refers to all Arabic dialects that had contact with those foreign languages.

²⁴ French and Italian loanwords were borrowed into JUA through Egyptian Arabic TV series and films.

/dan'te:l/ 'lace' were borrowed from French through Egyptian Arabic, and the loanwords /bala'ko:nih/ 'balcony', /fa:'tu:rah/ 'invoice', /'bra:vu:/ 'bravo', /fa'ne:lla/ 'flannel', and /'stu:dju/ 'studio' were borrowed from Italian through Egyptian Arabic. These 15 loanwords were excluded from my list.

It was not also feasible to tell if the loanwords were borrowed from British or American English and whether they were borrowed through spoken or written material. I opt for the use of British English in this research, as the British English features in the loanwords outweigh the American ones. In general, spoken English in Jordan is neither American nor British; most of the vowels that are used there are more likely to sound like British English, and both /r/ and /t/ are used in spoken English and neither of them sound like American English /r/ and /t/. Loanwords like /'film/ 'film' and /'blafar/ 'blusher' were borrowed from British English, because the counterpart words in American English are *movie* and *blush*, respectively.

There are also a few vowels in the data which sound more like British English than American English. For example, the Jordanian online resources show that the vowels in the antepenult syllable in the loanword /fita'mi:n/ 'vitamin' was spelled <ي> /i/. The vowel in the ultimate syllable in the loanword /barasita'mo:l/ 'paracetamol' is spelled <و> /o:/²⁵. Those vowels sound more like British English rather than American English.

The letter <r> is maintained in transliteration into Arabic as <ر>. The presence of the letter <r> in written forms and the phoneme /r/ in spoken forms of loanwords in JUA might be due to one of three possibilities: Firstly, the loanwords might be borrowed via written material; secondly, the loanwords might be borrowed via spoken British English in-context material where the post-vocalic /r/ is pronounced; finally, they might be borrowed via spoken rhotic varieties of English such as American English, Scottish or Irish English. British English will be used consistently in the transcriptions of the

²⁵ The British English pronunciation of the words vitamin and Paracetamol are /'vɪt.ə.mɪn/ and /,pær.ə'si:.tə.mɒl/, respectively. The American English pronunciations of the same words are /'vaɪ.təmɪn/ and /,per.ə'si:.tə.mɑ:l/.

English input forms and the identifications of the distinctive features of English phonemes throughout the thesis.

4.5 Data Collection

For the purpose of the study, an Arabic version of a verbal questionnaire was prepared. The questionnaire has three parts: the first part consists of a consent form and an introduction which provides the respondents with some information on the purpose of the study and some instructions. It also has a pronunciation key of some consonants, vowels, and vowel marks (see §I in appendices C and D).

The second part consists of 100 multiple-choice questions. Each question has three answer choices. The questions were divided into three groups as follows:

Group One:

In the first group, the alternative *a* includes the JUA translation equivalent word (i.e. JUA word), the alternative *b* includes a pronunciation of an English loanword, and the alternative *c* includes *other, specify your answer* (see appendices C and D). The number of questions in this group is 53. I (being myself a native speaker of JUA) arrived at the variants in this group by reading written loanwords that I collected from the Jordanian websites. For example, I read the written loanword ستلايت *satalait* as /satalait/ 'satellite'. The JUA translation equivalent word for the English loanword /satalait/ is قمر اصطناعي *qamar ?iština:ʕi:* 'satellite'.

Group Two:

In the second group which comprises 39 questions, the alternative *a* includes the pronunciation of a loanword with JUA consonantal substitute, the alternative *b* includes the pronunciation of the loanword which maintains English phonemes, and the alternative *c* includes *other, specify your answer* (see appendices C and D). To get the variants in this group, I read written loanwords that I collected from the websites once with JUA consonantal

substitutes and once by maintaining English phonemes. For example, I read the written loanword فيزا *fīza* 'visa' as /fi:za/ 'visa' and then I read it by maintaining the English phoneme /v/ in the loanword /vi:za/ 'visa'.

Group Three:

In the third group, the alternative *a* includes the pronunciation of a loanword with the epenthetic short vowel [i], the alternative *b* includes the pronunciation of the loanword with a final cluster, and the alternative *c* includes *other, specify your answer* (see appendices C and D). There are 7 questions in this group. I arrived at the variants in this group by reading written loanwords that I collected from the websites once with a final cluster and once with the epenthetic short vowel [i]. For example, I read the written loanword فيلم *film* 'film' as /filim/ (with the epenthetic vowel) and /film/ (with a final cluster). Question 85 in the questionnaire does not belong to any of these three groups, as it does not undergo a consonantal substitution or epenthesis, and it does not have a JUA translation equivalent word (see appendices C and D).

The third part of the questionnaire consists of four main questions: in the first question the respondents were required to pronounce a list of loanwords in phrases/sentences. Their pronunciations were recorded and then transcribed by the researcher. In the second question they were required to add the prefix /ʔil-/ 'the' or suffixes (/i:/ '1st person sing. possessive suffix', /-ak/ '2nd person masculine sing. possessive suffix', /-ha/ '3rd person feminine sing. possessive suffix', and /-hum/ '3rd person plural possessive suffix) to the loanwords that they use and to pronounce them in phrases. In the third and fourth questions they were required to give the plural and dual forms of the loanwords in the list provided. The total of the sub-questions in the third part comprises 182.

The data were collected over a period of 10 weeks from June to August 2013. The recordings comprise roughly 22 hours where each recording varies in length between 20 and 25 minutes. I checked a respondent's passport or the national ID card to make sure that the respondent is Jordanian. To ensure that a respondent speaks JUA and not

any other Jordanian Arabic dialect, a short conversation in Arabic with each respondent was held beforehand. During the conversation a respondent was asked general questions about her field of study, why she chose it, and why she chose her university. Respondents were asked for their consent to participate in the study and to record their answers (the consent form was attached to the questionnaire (see §I in appendices C and D). Then, each respondent was handed a copy of the Arabic version of the questionnaire. The respondents were given 20 minutes to have a look at the questionnaire and familiarise themselves with the instructions and questions.

All respondents were told in advance that all their answers would be recorded for a research purpose. All the answers were recorded using a compact high-fidelity digital recorder. Two research assistants helped with the recordings. Respondents were asked to answer the questions in a loud clear voice in a quiet room. To ensure high-quality recordings, only the respondent and the researcher or the researcher's assistants were allowed to be in. Finally, all respondents were rewarded with JD5 (JD5 is equivalent to £4.70) for taking part in the study.

4.6 Rationale for Study Design

The questionnaire was chosen as a method for collecting the data because it can be carried out by the researcher or by researcher's assistants. A large amount of data can be collected from a large number of respondents in a relatively short space of time in comparison to other methods such as interviews. Questionnaires are more objective than, for example, interviews, as data are gathered in a standardised way by using close-ended questions. In close-ended questions a list of answer choices are provided where one of them includes the option (other, specify your answer). The data which are collected by using a questionnaire can be analysed more objectively than those collected by using other non-experimental methods. The recordings help capture the pronunciations of the loanwords and word primary stress patterns.

4.7 Preparing and Managing Data

This stage includes transforming the data into a structure that makes it easier for the researcher to have an access to the data and analyse them. The data were sorted into two tables: one of the tables comprises a list of 100 loanwords and the other table comprises a list of plural and dual forms of the loanwords, affixed loanwords, and loanwords in phrases/sentences (see appendix E). The data were transcribed by using the IPA (International Phonetic Alphabet) symbols (see the list of phonemic symbols on pages xv-xvi above). Glosses, phonemic transcription of the native English words, and English definitions have been provided; they were quoted from Cambridge Dictionaries Online (2013). The data were transcribed by the researcher; two types of transcriptions were used throughout the analysis of the data. Phonemic transcriptions were used to show the underlying representations of the loanwords; these transcriptions were necessary to show covert phonemes which do not surface. Broad phonetic transcriptions were also used to show the pronunciations of loanwords (i.e. loanwords at the surface level). The data were studied carefully by the researcher and classified into categories according to the phonological repair strategies that they undergo.

4.8 Data Analysis

Descriptive statistics were used to explore frequencies and percentages of loanwords and phonological repair strategies in loanwords in the speech of the two groups involved. The data were analysed from the perspective of Odden's (2005) presentation of Distinctive Feature Theory (see § 4.5 below), Hayes' (1989) Moraic Theory (see § 4.6 below), and Hayes' (1995) Metrical Stress Theory (see § 4.7 below) to explore the phonological repair strategies that the loanwords undergo in JUA. The authority for JUA phonology was my own native-speaker intuitions in conjunction with literature on various varieties of Arabic (see sections 3.1, 4.11.8, 4.12, and 4.13). A number of phonological rules were formulated, by using a number of distinctive features of consonantal phonemes, to present the phonological repairs that the loanwords undergo. Prosodic trees were used to present the moraic

structures of the loanwords, and Hayes' bracketed grids were used to present the metrical structure of, and word primary stress shift in, the loanwords.

The pronunciation of /r/ in the post-vocalic position in the loanwords has not been discussed as a consonantal repair (i.e. consonant insertion) due to the fact that the /r/ is found underlyingly in the English input forms.

4.9 Rationale for Theoretical Framework

This section presents the rationale behind adopting the three theories: Odden's (2005) presentation of Distinctive Feature Theory (cf. Odden, 2011), Hayes' (1989) Moraic Theory, and Hayes' (1995) Metrical Stress Theory in the analysis of data. Before going through these theories, I will present the two different views in regard to loanword phonology. There has been a debate in loanword adaptation over the question whether loanwords are adapted through phonetic approximation or phonology. In the phonetic approximation (e.g. Silverman, 1992; Yip, 1993, Kenstowicz, 2007; Peperkamp and Dupoux, 2003; Kang, 2003), loanwords are adapted by monolingual speakers or bilinguals who operate in their L1 mode, and thus they have no access to L2 phonemes and structures. Therefore, they adapt the foreign phonetic outputs and map them directly onto their L1 categories and structures without taking into account L2 categories and structures.

According to the phonological stance model (e.g. Hyman, 1970; Danesi, 1985; Lacharité and Paradis, 2005; Paradis and Prunet, 2000; Paradis and Lacharité, 2011), loanwords are adapted by bilingual speakers who operate in bilingual mode, and thus they have access to the categories (i.e. phonemes) and structures of L2. Bilingual speakers use L2 phonetic outputs only to have access to L2 phonemes and structures in order to transfer them into those of L1. L2 segment is replaced by L1 segment which is the closest phonologically in terms of distinctive features, which is not necessarily the segment which is the closest perceptually.

The different predictions of the two views can be illustrated by the case of English /r/ in Japanese. The phonetic approximation predicts that the English /r/ will be replaced by Japanese /w/, whereas the phonological stance predicts that the English rhotic /r/ will be adapted as a rhotic and thus be replaced by Japanese rhotic in English loanwords in Japanese (Best and Strange, 1992). The English rhotic /r/ is interpreted as a rhotic, as well, in other languages such as French, Spanish, and Italian – languages whose rhotics are phonetically different from the English rhotic (Paradis and Lacharité, 2005). The same is true of English /b, d, g/ which are adapted as /b, d, g/ in French, Italian, Spanish, and Portuguese in spite of significant Voice Onset Time (VOT) differences.

In the present work, I support the phonological view because it is compatible with research in related disciplines such as sociolinguistics (e.g. Poplack et al., 1988a). The phonological view is also consistent with the finding that borrowers (those who first borrow loanwords) are generally bilingual speakers in the sense that they have access to L2 grammar (e.g. Poplack et al., 1988a).

Back to the rationale behind adopting the three theories, in the analysis of the consonantal substitution (one of the phonological repair strategies) that the loanwords undergo in JUA, I will apply Odden's (2005) presentation of Distinctive Feature Theory, which he adapted from Chomsky and Halle's (1968) *Sound Pattern of English* (SPE). This is because the theory uses a universal set of features rather than segments or specific phonological rules; this makes it applicable to all natural languages. This theory is economical, as there is no need to list all sounds which share the same set of features in phonological rules. Odden (2005: 139) states that "the most important phonological use of features is that they identify classes of segments in rules."

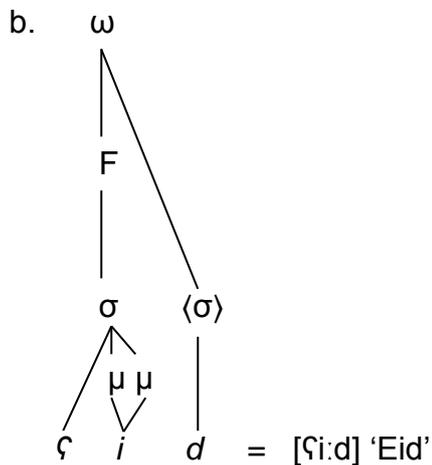
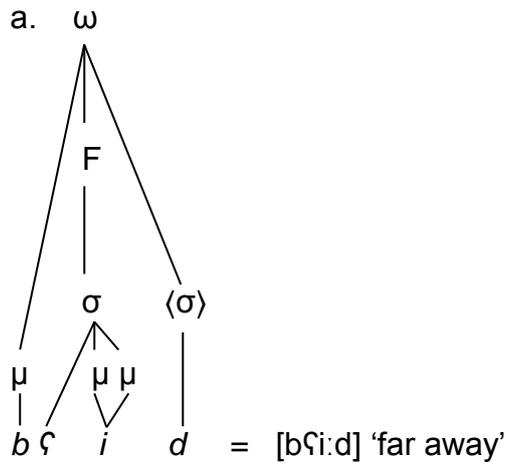
The focus of my study is to explore the way that the loanwords are articulated rather than perceived, thus Odden's presentation which mainly is to do with sound production and is proposed in articulatory terms rather than acoustic (e.g. Jakobson, Fant and Halle, 1952) is applicable to the present study. I adopted Odden's presentation of Distinctive Feature Theory in

preference to Autosegmental Theory because my concern is to account for the distinctive features that JUA consonantal substitutes share with English phonemes in the loanwords rather than tone, accent, or vowel harmony.

Section 4.11 provides the reader with the distinctive features of JUA and English phonemes. In order to provide an account of why a JUA consonantal phoneme is the optimal substitute for the English one, the distinctive features of the phonemes in both the English input form and the form in JUA should be part of the phonological rule. In the following few paragraphs, I will discuss the rationale behind applying Hayes' (1989) Moraic Theory in the analysis of a number of phonological repair strategies.

Moraic Theory was first formalised in Hyman (1985) and further developed in Hayes (1989). Hayes' (1989) Moraic Theory will be applied in the analysis of the phonological repair strategies of epenthesis, glottal stop [ʔ] prosthesis, syncope, closed syllable shortening, de-clustering, vowel lengthening, vowel shortening, and gemination that the loanwords undergo. What makes the moraic theory applicable to the data in this study is that moraic theory gives status only to segments which bear weight and potentially attract stress (Watson, 2002). The segment in the onset of a syllable does not have any effect on stress assignment, so the syllable with a bi- or tri-consonantal sequence in the onset such as /sp-/ or /spr-/ is not heavier than the syllable with a simple onset such as /s-/, while segments in the rhyme bear weight and attract stress, as in 4.1.1 (for definitions of the symbols used in the following prosodic tree, see § 4.12.2 below).

(4.1.1)

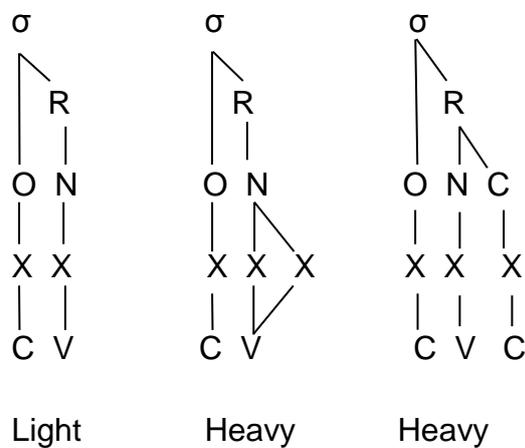


On the contrary, in skeletal slot models (CV theory and X-slot theory; e.g. McCarthy, 1979, 1981; Levin, 1985; among others) all segments are assigned equal status regardless of their weight (Watson, 2002). In the CV theory (McCarthy, 1979, 1981, among others), the skeleton is defined as a string of syllabic and non-syllabic slots. In X-slot theory (e.g. Levin, 1985, among others), the skeleton is posited as a sequence of empty slots labelled as Xs. The rhyme of a syllable plays the crucial role in defining the phonological weight of a syllable in X-slot theory in terms of the presence or absence of two skeletal positions in the rhyme of a syllable, as in 4.1.2 (Hayes, 1989: 253) below, where σ means syllable, O means onset, R means rhyme, N means nucleus, and C means coda.

prosodic structure in all languages regardless of a language's criterion of syllable weight (Hayes, 1989). For example, the syllables CVV and CVC are heavy in JUA while the syllable CV is light; however, both CV and CVC are deemed light in languages such as Lardil²⁶ and Malayalam while CVV counts as heavy (Elordieta, 2014), as in 4.1.3.

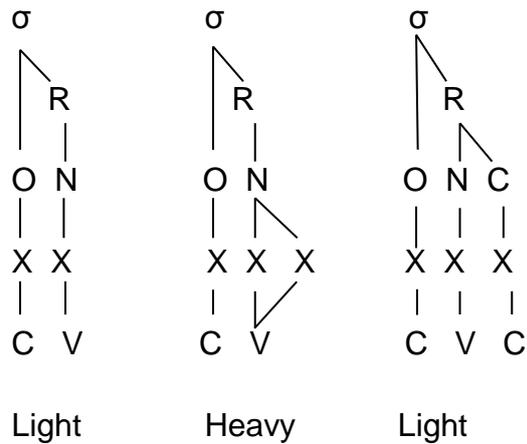
(4.1.3)

a. Syllables in JUA



²⁶ Lardil is a language spoken in the Wellesley Islands of Queensland in northern Australia.

b. Syllables in Lardil and Malayalam



Section 4.12 discusses mainly JUA moraic rules. However, it does not discuss the moraic rules of English, as there is no benefit of accounting for English moraic rules while this study is to do with English loanwords in the speech of JUA speakers. The question arises as to why Odden's presentation of distinctive feature theory should not be applied to the phonological repair strategies of epenthesis, glottal stop [ʔ] prosthesis, syncope, closed syllable shortening, de-clustering, vowel lengthening, vowel shortening, and gemination that the loanwords undergo.

In brief, Odden's presentation of the theory deals with distinctive features that are assigned to segments, while the phonological repairs which are mentioned above affect the whole structure of loanwords; in other words, they affect links and relational properties between segments. Odden's distinctive features cannot capture links or relational properties between segments in an utterance, and they cannot explain why such phonological repairs should occur as they do.

In regard to syllable division in the present study, Maximal Onset Principle (MOP) will not be applied in the syllabification, as moraic structure overrides surface syllable structure – what appears to be a syllable onset cluster of two consonants is actually a structure with a moraic consonant followed by an onset (weightless) consonant as in JUA /kta:b/ 'book'. Applying MOP in syllable division in the present study would violate JUA

constraints of phonotactics which require that onset in JUA consist of exactly one consonant (cf. McCarthy and Prince, 1990). For example the JUA word /'maktab/ 'office' is syllabified as /mak.tab/ rather than */ma.ktab/, as each onset must consist of only one consonant.

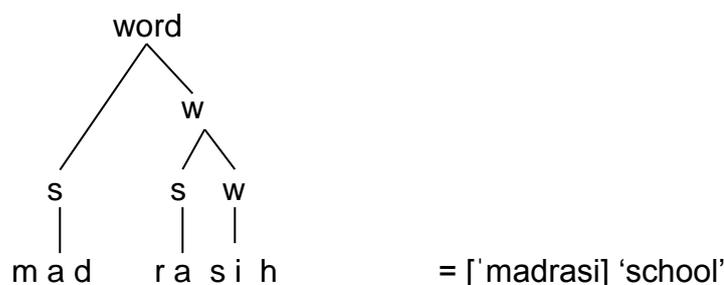
Hayes' (1995) Metrical Stress Theory will be applied mainly in the analysis of the word primary stress shift in the loanwords. Metrical Stress Theory was a response to Chomsky and Halle's (1968) proposal of a linear analysis that stress is segmental as is, for example, the feature [nasal]. Stress in the linear analysis is represented as a phonological distinctive feature, [+stress], assigned to a vocalic segment, [+syllabic], in a specific segmental context. To formulate phonological rules according to the linear analysis essential variables are used, and phonological rules may abbreviate a number of disjunctive sub-rules. However, the linear analysis of stress cannot be applied in this study for three reasons: Firstly, primary stress in JUA is determined by the number and length (weight) of a syllable. Accordingly, stress in JUA is not segmental, but rather an autonomous phonological entity. Secondly, phonological rules cannot capture the typological properties of stress (see the following paragraphs). Thirdly, "it cannot explain why the word stress patterns should be as they are" (Selkirk, 1984:18).

Now the question arises as to why Hayes' model should be adopted in preference to other earlier models of metrical stress theory. Hayes' (1995) Metrical Stress Theory is applicable to this study for four reasons: Firstly, this theory is in line with Hayes' moraic theory and both of them complement each other. Secondly, in contrast to other models (e.g. Liberman and Prince, 1977), for Hayes (1995), only the final consonant, not the final syllable, in the utterance is considered extrametrical. If the final syllable in the utterance was extrametrical, JUA words like /'binit/ 'girl' and /'baħir/ 'sea' would be rendered footless. Thirdly, bracketed grids are enriched with metrical constituency which helps capture word stress shifts which are required in morphologically inflected words (Kager, 1995). Finally, the metrical representation of word stress in Hayes' model has the ability to capture the typological properties of stress.

Stress has a number of typological properties; stress is culminative in the sense that every content word has at least one stressed syllable and there is one syllable in every word or phrase which is stronger than other syllables, and grammatical words are not usually assigned a stress (Lieberman and Prince, 1977). Stress is rhythmically distributed in the sense that stressed syllables tend to occur at equal distances (Selkirk, 1984). Stress is hierarchical in the sense that a stress language has multiple degrees of stress: primary, secondary, tertiary, and so on (Lieberman and Prince, 1977). Stress does not assimilate like sound features [nasal], [back], or [round]; that is, a syllable which attracts stress does not induce stress on the syllable which is immediately preceding or following (Hayes, 1995).

In the following few paragraphs, I will give a brief description of the earlier models of metrical stress theory and how they fail to capture some typological properties of stress. To begin with, metrical trees (Lieberman, 1975; Lieberman and Prince, 1977; Hayes, 1984) represent the relational property of stress through sister nodes, each of which is labelled strong-weak (sw) or weak-strong (ws), as in 4.1.4.

(4.1.4)

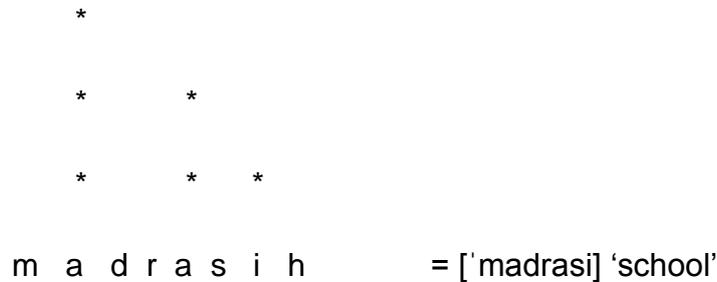


However, metrical trees fail to represent the alternating rhythm between strong and weak and clash²⁷ (Kager, 1995). Prince (1983) and Selkirk (1984) introduced the pure metrical grid to represent the rhythmic

²⁷ A clash is “a situation which occurs when adjacent syllables are stressed” (Kager, 1995: 369).

property of stress and they simplified the metrical tree by eliminating constituency into feet, as in 4.1.5.

(4.1.5)



In 4.1.5, level of prominence is represented by the height of the grid columns. For example, the first syllable in 4.1.5 is the most prominent. Rhythmic structure is represented by the horizontal distances between grid marks. However, Almozainy et al. (1985) show that as a result of constituency elimination, metrical grids fail to account for the direction of stress shift upon the deletion of a stressed vowel in data such as the Bedouin Hijazi Arabic words /sáħab/ 'he pulled' and /šhábat/ 'she pulled' which exhibit stress shift rightwards. To handle such data, bracketed grids were introduced (Helle and Vergnaud, 1987; Hayes, 1995).

There are two significant implications for the analysis of Almozainy et al (1985): Firstly, stress is not deleted on the deletion of a stressed vowel but rather it migrates into an adjacent vowel. Secondly, the dominance of the foot whose head is deleted helps predict the direction of stress shift. These conclusions are supported by data from other Arabic dialects such as San'ani Arabic (Watson, 2002; 2011:9) which exhibit stress shift rightwards on stressed vowel deletion within the foot, as in /xáfab/ and /xjábih/ 'a piece of wood', as in 4.1.6, where stress shifts from the syllable .xa. rightward to the syllable .fa. The symbol x stands for stress, the bullet • stands for no-stress, and the symbol \emptyset stands for deleted segments.

(4.1.6)

a.	(x)	b.	(x)	word
	(x •)		(x)	foot
	x x		x	syllable
	x a ʃ a b		x ø ʃ a b i h	

Section 4.13 below discusses mainly the metrical structure of JUA and JUA word stress placement rules. However, the section does not provide any analysis of English metrical structure, as there is no benefit of accounting for English metrical structure and word stress patterns while this study is to do with word stress placement in English loanwords in the speech of JUA speakers.

4.10 Summary

Part One of this chapter presented the methodology of the study. It provided the reader with a description of the population and sample of the study. It presented the research ethical approval. It showed the data collection techniques and justified the reasons for using a questionnaire as a method for collecting the data. It also presented the way that the data were analysed in the theoretical framework. Part Two of this chapter presents the theoretical framework.

Part Two: Theoretical Framework

This part presents the theoretical framework of the study. Odden's (2005) version of Distinctive Feature Theory is adopted to deal with consonantal substitution in the loanwords. Hayes' (1989) Moraic Theory is adopted to deal with, epenthesis, syncope, glottal stop [ʔ] prosthesis, closed syllable shortening, de-clustering, vowel lengthening, vowel shortening, and gemination. Hayes' (1995) Metrical Stress Theory is adopted to deal with word primary stress shift.

4.11 Distinctive Feature Theory

The following sections present distinctive features of both English and JUA consonantal phonemes.

4.11.1 Preliminary

Following Chomsky and Halle (1968), Odden (2005) presents generally accepted articulatory correlates of features²⁸; in other words, aspects of production that a feature relates to. The view of this theory is that there is a small set of universal properties, around two dozen, whose properties are phonetically based and used in phonological analysis. They make

²⁸ All features in Odden (2005) are based on articulatory properties except the feature [strident] which is based on acoustic properties.

predictions about possible phonemes in human languages²⁹. This theory works by having each feature assigned one of two values, either plus or minus, to a segment based on phonetic properties. So each sound either has the feature [+F_i] or lacks the feature [-F_i].

4.11.2 Major Class Features

To capture distinctions between consonants and vowels, there are three features within major class features as 4.11.1 shows.

(4.11.1)

- a. [syllabic] or [syl]: is a sound which forms a stressed peak in the syllable. All vowels are syllabic.
- b. [sonorant] or [son]: refers to “sounds produced with a vocal tract configuration in which spontaneous voicing is possible” (Odden, 2005: 137). Examples of sonorants in English are vowels, laterals, and approximants.
- c. [consonantal] or [cons]: refers to sounds produced in the oral cavity which have a major obstruction (Odden, 2005). Odden’s definition of the feature [consonantal] excludes the English phoneme /h/ and the JUA phonemes /h/, /h/, /ʔ/, and /ɕ/, as these phonemes are produced in the pharyngeal cavity rather than the oral cavity. Therefore, the definition should cover these phonemes as well by defining

²⁹ Hall (2001) distinguishes between phonological (i.e. distinctive) and phonetic features, stating what is classified as phonological is only those features which have the ability to capture a contrast, or have a distinctive function, in a natural language. In the Jakobsonian view (e.g. Jakobson, Fant and Halle, 1952), phonological features have a distinctive function in some languages and a non-distinctive function in others. For example, the feature [±burst] does not capture a contrast in any natural language; therefore, it is classified as a phonetic feature (Halle, 2001).

[consonantal] as sounds produced with a major obstruction in the oral cavity or pharyngeal cavity.

4.11.3 Place of Articulation

In Odden (2005) there are features which define the place of articulation for both vowels and consonants. The vocalic place features are presented in 4.11.2.

(4.11.2)

- a. [High] or [hi]: it refers to raising the body of the tongue from the neutral position, as in English /i:/, /u:/, /ɪ/, and /ʊ/.
- b. [low] or [lo]: it refers to lowering the body of the tongue from the neutral position, as in English /æ/, /ɒ/, /ʌ/, and /ɑ:/.
- c. [back]: it refers to retracting the body of the tongue from the neutral position, as in English /u:/, /ɒ/, /ʊ/, /ɔ:/, and /ɑ:/.
- d. [round]: it refers to protruding the lips, as in English /u:/, /ɒ/, /ʊ/, and /ɔ:/.

The features [high], [low], [back], and [round] are not used exclusively to define vowels, they can also be used to define consonants.

The features which define consonantal place of articulation are presented in 4.11.3.

(4.11.3)

- a. [coronal] or [cor]: it refers to raising the tip or blade of the tongue from the neutral position. Examples of coronal sounds in English are /t/, /d/, and /θ/.
- b. [anterior] or [ant]: it refers to sounds made with an obstruction at or in front of the alveolar ridge, as in English /p/, /t/, and /θ/.
- c. [distributed] or [dist]: it refers to sounds “produced with a constriction that extends for a considerable distance along the

- direction of air flow” (Odden, 2005: 142), as in English /ʃ/, /ʒ/, /tʃ/, and /dʒ/.
- d. Strident or [str]: it refers to sounds “produced with greater noisiness” (Odden, 2005: 142), as in English /f/, /v/, /s/, /z/, /ʃ/, /ʒ/, /tʃ/, /dʒ/.
 - e. Labial or [lab]: it refers to sounds “produced with the lips” (Odden, 2005: 162), as in English /p/, /b/, /m/, /w/, /f/, and /v/.
 - f. [retracted tongue root] or [RTR] is a place feature that is not mentioned in Odden, as it is not applicable to his English data. [RTR] is a feature invented by Rose (1996); it refers to drawing the tongue root backward, as in JUA /t̠/, /q/, and /d̠/.

4.11.4 Manner of Articulation

In Odden (2005) segment’s production can also be defined in terms of manner of articulation through the use of the following manner features, apart from the location of the segment’s constriction, as in 4.11.4.

(4.11.4)

- a. [continuant] or [cont]: it refers to sounds where “the primary constriction is not narrowed so much that airflow through the oral cavity is blocked” (Odden, 2005: 145). This term groups together fricatives and approximants.
- b. [delayed release] or [del.rel]: it refers to slowing the release of a total constriction, so that the stop portion is formed before the fricative. For example, the segment /tʃ/ contrasts with /dʒ/ in English where the features [+del.rel] and [-voice] are contrastively specified for the segment /tʃ/ and [+del.rel] and [+voice] are contrastively specified for the segment /dʒ/. English maintains a contrast between /ʒ/ with the features [-del.rel], [+distributed], [+voice] and /ʃ/ with the features [-del.rel], [+distributed], [-voice]. JUA maintains a contrast between /ʒ/ and /ʃ/, as well.
- c. [nasal] or [nas]: refers to lowering the velum allowing air to escape through the nose, as in English and JUA /n/ and /m/. However,

English combines the features [+nasal] and [-anterior] forming the phoneme /ŋ/ which JUA lacks.

- d. [lateral]: refers to lowering the mid section of the tongue at the side. Both English and JUA has the phoneme /l/.

4.11.5 Laryngeal Features

The following list presents laryngeal features.

(4.11.5)

- a. [constricted glottis] or [c.g.]: refers to constricting the vocal folds tightly, as in JUA /ʔ/ and /ʕ/.
- b. [voice] or [voi]: refers to vibration of vocal folds. For example, English maintains a contrast between the segment /f/ with the features [+continuant], [+anterior], [-coronal], [-voice] and the segment /v/ with the features [+continuant], [+anterior], [-coronal], [+voice]. Voice contrast is not found in JUA involving the upper teeth against the lower lip; only the segment /f/ with the features [+continuant], [+anterior], [-coronal] is found. Another example from English is where distinctive features capture a contrast between the /p/ with the features [-son], [-continuant], [+anterior], [-coronal], [-voice] and /b/ with the features [-son], [-continuant], [+anterior], [-coronal], [+voice]. However, JUA does not have voiced-voiceless pairs involving the upper lip against and lower lip; it only has /b/.

4.11.6 Distinctive Features and Redundancy

There are certain distinctive features which are predictable from the presence of other features; therefore, not all distinctive features of the phoneme need to be presented underlyingly (cf. Watson, 2002). The following are JUA rules of redundancy.

(4.11.6) JUA Rules of Redundancy

- a. [distributed] → [coronal]
- b. [RTR] → [back]
- c. [nasal] → [consonantal]
- d. [lateral] → [sonorant]
- e. [nasal] → [sonorant]
- f. [sonorant] → [voice]

The [distributed] phonemes are assigned [coronal] redundantly in JUA. The [back] is predictable from the presence of [RTR]. The feature [consonantal] is predictable from the presence of the feature [nasal], as JUA inventory does not have nasalised vocalic phonemes. The [lateral] phoneme is assigned the feature [sonorant] redundantly. The [nasal] phonemes are redundantly [sonorant], and [voice] is predictable from the presence of the feature [sonorant].

A feature can be redundant in relation to one set of features, but distinctive in relation to another. For example, the feature [voice] is necessary in distinguishing bilabials in English since English has /b/ and /p/. However, the same feature is considered redundant in representing the JUA phoneme /b/ since JUA has only one bilabial phoneme /b/. The feature [delayed release] is redundant when differentiating between the English phonemes /p/ and /t/, as both of them assign the same value for this feature. The same feature is considered contrastive when differentiating between the English phonemes /dʒ/ and /j/, as each phoneme assigns a different value for the feature [del.rel].

4.11.7 Distinctive Features of JUA Phonemes

This section presents distinctive features of JUA consonantal phonemes. The following table presents the distinctive features of JUA consonants. The asterisk (*) in the table below indicates that a feature is not applicable to a JUA consonant. The highlighted feature values are redundant.

Table 4.1 Distinctive Features of JUA Consonants

	t	ʈ	k	q	ʔ	b	d	ɖ	f	s	ʃ	x	ɣ	h	z	ʒ	ʒ	ɣ	ɕ	m	n	l	r	j	w	
syl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
son	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+
cons	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	
cont	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	
del.r el	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
lat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	
nas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	
voi	-	-	-	-	-	+	+	+	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	
c.g.	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	
ant	+	+	-	-	-	+	+	+	+	+	+	-	-	-	-	+	+	-	-	-	+	+	+	+	-	
cor	+	+	-	-	-	-	+	+	-	+	+	+	-	-	-	+	+	+	-	-	-	+	+	+	-	
dist	-	-	*	*	*	*	-	-	*	-	-	+	*	*	*	-	-	+	*	*	*	-	-	-	*	
str	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	+	+	+	-	-	-	-	-	-	-	
lab	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	
hi	-	+	+	+	-	-	-	+	-	-	+	-	+	-	-	-	+	-	+	-	-	-	-	+	+	
lo	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-	-	-	-	+	-	-	-	-	-	
back	-	+	+	+	-	-	-	+	-	-	+	-	+	+	-	-	+	-	+	+	-	-	-	-	+	
round	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	
RTR	-	+	-	+	-	-	-	+	-	-	+	-	+	+	-	-	+	-	+	+	-	-	-	-	-	

4.11.8 Distinctive Features of British English Phonemes

This section presents distinctive features of British English consonantal phonemes. The following table presents British English consonants based on Odden (2005). The distinctive features [constricted glottis] and [retracted tongue root] are applicable to JUA consonants, but not to English consonants. The feature [distributed] is only applicable to coronal consonants. The asterisk (*) in the table indicates that a feature is not applicable to the consonant. However, it is included as a distinctive feature in order to show similarities and differences between British English consonants and JUA consonants. The highlighted feature values are redundant.

Table 4.2 Distinctive Features of British English Consonants

4.11.9 Phonological Rule Formulation

The following list presents the symbols which are used in the phonological rule formulation based on Odden (2005).

(4.11.7)

1. Matrices []: they express a conjunction of features.
2. Hash #: it refers to a word boundary.
3. Null \emptyset : it is used in the focus or in the structural change of a rule. “As the focus, it means that the segment described to the right of the arrow is inserted in the stated context; and as the structural change, it means that the specified segment is deleted” (Odden, 2005: 158).
4. Dot .: it refers to a syllable boundary.
5. Braces { }: they express disjunctions; A or B or C.
6. Subscript-zero $_0$: it refers to any number of segments with the features stated, from zero to an infinite sequence of them.
7. Parentheses (): they refer to elements which might be present, but they are not required.
8. The Greek letters α, β, γ , etc.: they mean ‘the same value’.
9. The shorthand C: it refers to a consonant or [-syllabic].
10. The shorthand V: it refers to a vowel or [+syllabic].

The following is the general form of a phonological rule based on Odden (2005:157).

(4.11.8)

$$\begin{array}{c} \left[\begin{array}{c} \alpha F_i \\ \beta F_j \\ \vdots \end{array} \right] \\ \text{Focus} \end{array} \longrightarrow \begin{array}{c} \left[\begin{array}{c} \gamma F_k \\ \mu F_l \\ \vdots \end{array} \right] \\ \text{Structural change} \end{array} / \dots \left[\begin{array}{c} \theta F_m \\ \delta F_x \\ \vdots \end{array} \right] \text{---} \left[\begin{array}{c} \kappa F_y \\ \lambda F_l \\ \vdots \end{array} \right] \dots \\ \text{Trigger}$$

In this phonological rule $F_i, F_j, F_k \dots$ are features and $\alpha, \beta, \gamma \dots$ are plus or minus values. The matrix to the left of the arrow is the segment which

undergoes a change by the rule and it is called the focus or the target. The matrix which comes immediately to the right of the arrow provides a description of the way that the focus is changed. The remainder of the rule constitutes the trigger which shows the conditions outside of the focus (target segment) which play a significant role in the applying of the rule' (Odden, 2005). The following example shows how distinctive features are used to formulate phonological rules. The phonological rule in JUA which states that the first consonant in the initial bi-consonantal cluster becomes a coda for the preceding utterance when it is preceded by a vowel-final utterance is formulated as follows.

(4.11.9)

$$\#[-syl][-syl] \longrightarrow [-syl]\#[-syl] / [+syl]\# ___$$

For example, the JUA word /kta:b/ is preceded by the vowel-final utterance /wi/ 'and' in the phrase [wik 'ta:b] 'and a book'. The phoneme /k/ becomes a coda for the preceding syllable /wi/ 'and'.

4.11.10 Summary

Section 4.11-4.11.9 presented definitions of distinctive features. It provided the distinctive features of consonantal phonemes in British English and JUA. The distinctive features will be used to formulate phonological rules in the analysis of consonantal substitution in the loanwords in chapter five. The Feature Theory is segmental (i.e. it deals with separate segments). A non-segmental theory (i.e. Moraic Theory) is adopted to deal with non-segmental phenomena (i.e. links between segments). The following section presents the main aspects of the Moraic Theory. They provide the reader with information on word minimality and degenerate feet, extrametricality and semisyllables, extrasyllabicity, mora sharing, and syllable repair processes: syncope, epenthesis, closed syllable shortening, and de-clustering. These sections help the researcher analyse the data by providing a theory-based account for the phonological repairs that the loanwords undergo. It also

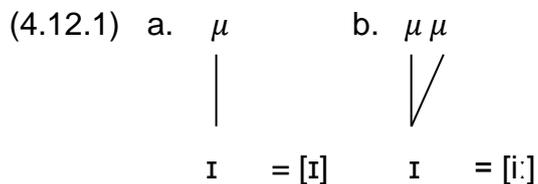
helps the reader have background information on the moraic rules and repair strategies that a syllable undergoes in JUA.

4.12 Moraic Theory

Sections 4.12- 4.12.7 present the main principles and parameters of Moraic Theory.

4.12.1 Overview

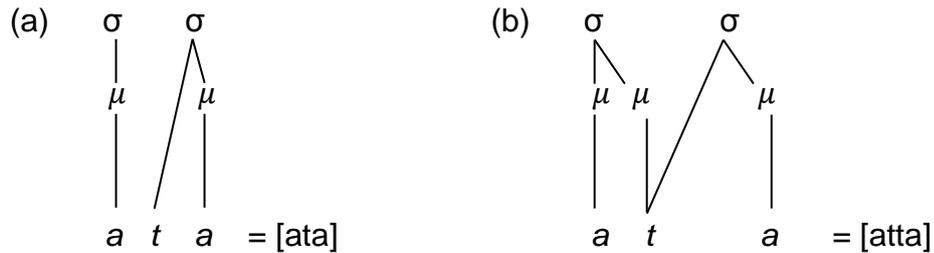
Moraic Theory was first formalised in Hyman (1985) and further developed in Hayes (1989). In Hayes (1989) and all other models of moraic theory (e.g. Hyman, 1985; Broselow, 1995), a short vowel is associated with a single mora while a long vowel is associated with two moras, as in (4.12.1), where μ = mora.



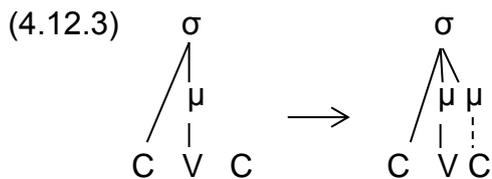
In Crystal (2008), a mora is a minimal unit in phonology that determines syllable weight. A mora in Moraic Theory presents the contrast between light and heavy syllables, where a light syllable has one mora and a heavy syllable two. It also counts as a phonological position where a long segment is presented as doubly linked in the prosodic tree (Hayes, 1989). The notion of mora counting stems from the observation that syllables in many languages exhibit a weight distinction between heavy (two-mora) syllables and light (one-mora) syllables. Since onsets do not count in weight distinction, counting the number of segments in a syllable cannot be used to present weight distinction. As a result, a mora, for Hyman (1985), is a weight unit which exists as an essential prosodic unit.

In Hayes (1989), geminate consonants are distinguished from single consonants by assigning geminates a single mora underlyingly and singletons no mora underlyingly, as in the hypothetical forms in (4.12.2).

(4.12.2)



Single consonants are underlyingly weightless; however, they must be assigned a mora when they occur in a coda position in a heavy syllable. Therefore, Weight-by-position rule is formulated by Hayes (1989) to assign a mora to a coda consonant in certain languages where CVC syllables count as heavy³⁰. Weight-by-position rule ensures that syllables have a maximum of two moras as in the rule schema in (4.12.3), where σ = syllable and μ = mora.



The rule schema in 4.12.3 shows that a single consonant is weightless (i.e. it does not receive a mora), unless it occurs in a coda

³⁰ Latin and Lardil (a language spoken in the Wellesley Islands of Queensland in northern Australia), for example, have different rules for assigning moraic structure (Hayes, 1989). In Latin the CVV and CVC syllables count as heavy and CV as light. However, in Lardil only CVV is heavy and both CVC and CV are light. Therefore, CVC is assigned two moras in Latin and one mora in Lardil.

position where it receives a mora by Weight-by-position rule represented by the dotted line. In JUA this rule is applied to a CVC syllable when it occurs in a word-internal position; however, the CVC counts prosodically as light when it occurs in a word-final position (see § 4.12.3 below; cf. Watson, 2002:57).

4.12.2 Word Minimality and Degenerate Feet

The prosodic hierarchy which is based on McCarthy and Prince (1990:3) in 4.12.4 presents the phonological word which dominates the foot (the next available prosodic category that functions as the head of the phonological word).

(4.12.4) Prosodic Hierarchy

Phonological Word	ω
Foot	F
Syllable	σ
Mora	μ

The prosodic hierarchy is read from top to bottom, so the units of metrical structure at an upper level only comprise underlying units from lower levels. I add to McCarthy and Prince's hierarchy the prosodic unit *Phonological Phrase* which consists of phonological words such as the JUA phonological phrase [ʔada'wa:t il'maɕbax] which comprises the two phonological words /ʔada'wa:t/ and /ʔil'maɕbax/ 'kitchen tools'. A phonological word is a unit of a metrical structure that consists of feet and makes up a phonological phrase, such as the JUA phonological word /ʔada'wa:t/ 'tools'.

Foot is an underlying unit of metrical structure which consists of syllable rhymes and is organised into constituents that make up a phonological word, such as the foot (ta:) in the JUA word /'kta:b/ 'book' (see

the moraic structure 4.12.11 below). In Hayes (1995), feet are classified as bounded and unbounded. Bounded feet consist of no more than two syllables and there is a restriction on stress distribution where stresses fall in a roughly equal distances. Unbounded feet are of no restricted size or stress distribution. An example of a language with bounded feet is Jordanian Arabic: the moraic trochaic foot ('bi.ni) in the word /'binit/ 'girl' comprises two moras (see moraic representation in 4.12.5.c below). Examples of languages with unbounded feet are French and Scots Gaelic (Rogers, 2013). An example from French is the unbounded foot (é.pu.vã.'ta:bl) in the word *épouvantable* 'frightful', where all the syllables of the word belong to a single foot.

Feet can be 'left-headed' where the leftmost rhyme is stressed or 'right-headed'³¹ where the rightmost rhyme is stressed. An example of a left-headed foot is the foot ('bi.ni) in the JUA word /'binit/ 'girl', where stress is assigned to the left node of the foot ('bi.ni). An example of a right-headed foot is the foot (ka.'ta) in the Cyrenaican Bedouin Arabic³² word /ka'tab/ 'he wrote', where stress is assigned to the right node of the foot (ka.'ta) (Watson, 2002: 86).

Syllable refers to an underlying unit of a metrical structure which comprises moras and is organised into constituents that make up feet such as the syllable .bi. in the JUA word /'binit/ 'girl'. Mora is the unit for measuring the syllable weight in the metrical structure, such as .bi.µ in the JUA word /'binit/ 'girl', where there are two moras (the short vowel /i/ in the syllable .bi. and the short vowel /i/ in the syllable .nit).

In McCarthy and Prince (1990), Arabic (applicable to JUA as well) is a quantity-sensitive³³ language as far as stress is concerned; therefore, the

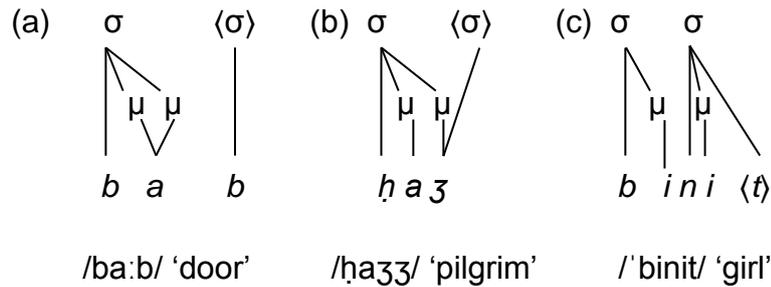
³¹ Left-headed feet are called trochees and right-headed are called iambic feet or iambs.

³² Cyrenaican Bedouin Arabic is an Arabic dialect used in the eastern coastal region of Lybia.

³³ Quantity-sensitive (Q-sensitive) means that syllable weight influences how stress feet are assigned within a phonological word.

minimal word must be a foot of two moras and an incomplete syllable³⁴. The two moras can occur in a single heavy syllable³⁵ or be distributed between two light syllables. Examples of minimal words from JUA are presented in 4.12.5.

(4.12.5)



In 4.12.5.a the phonological word /ba:b/ 'door' has one foot which comprises the syllable .ba: and the extrasyllabic consonant /b/ (for extrasyllabicity, see § 4.12.4 below). The foot consists of two moras (the long vowel /a:/). The word /ħaʒʒ/ 'pilgrim' in 4.12.5.b comprises a foot of two moras (the short vowel /a/ and the consonant /ʒ/ by Weight-by-Position rule) and the extrasyllabic consonant /ʒ/. In 4.12.5.c the word /'binit/ 'girl' has one foot which comprises two syllables .bi. and .ni. and the extrametrical consonant /n/ (for extrametricality, see § 4.12.3 below). The foot has two moras (the short vowel /i/ in the leftmost syllable and the short vowel /i/ in the rightmost syllable).

A few sub-minimal words (i.e. content words which do not achieve the requirements of minimal content word when they occur without suffixation)

³⁴ For McCarthy and Prince (1990), an incomplete syllable is a consonant by the Onset Rule. The Onset Rule says that all syllables are required to begin with a consonant.

³⁵ The single heavy syllable in JUA can be either a CVV syllable or a CVC syllable where the last C and the incomplete syllable (consonant) are identical.

were borrowed from MSA into JUA (see list 4.12.6 below). The question arises as to how to deal with sub-minimal elements which are left over at the end of a string. Sub-minimal elements which “survive to the surface” are described as degenerate feet by Hayes (1995, 87). Languages differ in the way that they treat degenerate feet: if there is an absolute ban on degenerate feet in a language, a sub-minimal element at the end of a footed string is left unfooted. If degenerate feet are allowed in a language, the sub-minimal element will be footed and stressed.

The way that a language treats degenerate feet is closely related to the size of the minimal content word in a language, as it is required that every word comprise at least one foot (Hayes, 1995). If sub-minimal content words are allowed in a language, then stressable degenerate feet within disyllabic or polysyllabic words may be allowed³⁶. There is an absolute ban on degenerate feet in JUA. A few sub-minimal content words without suffixation were borrowed from MSA into JUA; however, they were expanded to satisfy the size of the JUA minimal content word, as in 4.12.6.

(4.12.6)

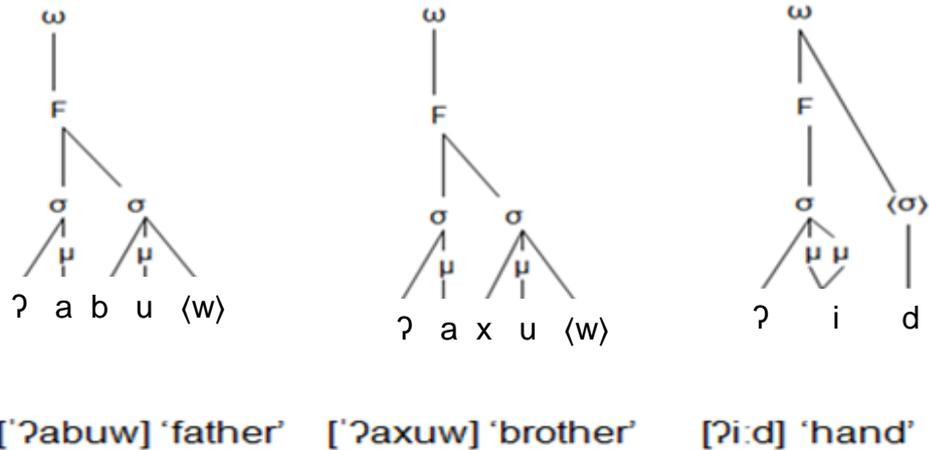
MSA > JUA

- a. /ʔab/ > [ˈʔabu] ‘father’
- b. /ʔax/ > [ˈʔaxu] ‘brother’
- c. /jad/ > [ˈʔi:d] ‘hand’

³⁶ An example of a language which allows stressable degenerate feet in strong position only (in limited prosodic environments) is San’ani Arabic (an Arabic dialect used in San’aʔ, the capital of Yemen in the south of the Arabian Peninsula). An example of a stressable degenerate foot in San’ani is the foot (ˈta) in the disyllabic word /ˈtama:m/ ‘okay’ (Watson, 2002: 90).

The following are the prosodic representations of the JUA words [ʔabuɰ] ‘father’, [ʔaxuɰ] ‘brother’, and [ʔi:d] ‘hand’. The analysis is original; there is no source for it.

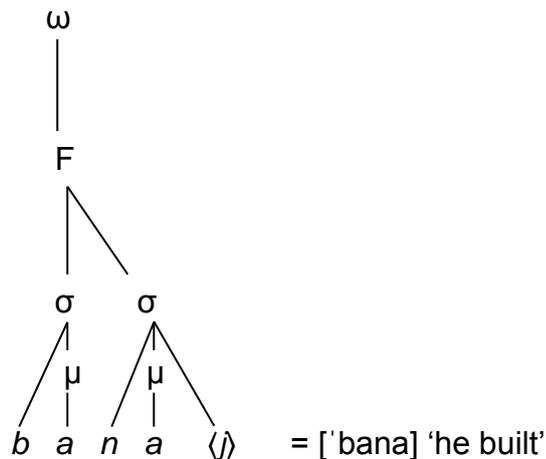
(4.12.7)



The phonological word /ʔabuɰ/ ‘father’ consists of one foot (ʔa.buɰ). The foot comprises two light syllables. The consonant /w/ is extrametrical (for extrametricality, see § 4.12.3 below). The word /ʔaxuɰ/ ‘brother’ comprises one foot (ʔa.xuɰ) which consists of two light syllables .ʔa. and .xuɰ. The consonant /w/ is extrametrical. The word /ʔi:d/ ‘hand’ consists of one foot (ʔi:) which comprises one heavy syllable .ʔi:. The consonant /d/ is extrasyllabic (for extrasyllabicity, see § 4.12.4 below).

A constraint in JUA requires that a content word end with a consonant underlyingly if unaffixed. This constraint does not apply if the word is affixed. For example, the unaffixed JUA words [bana] ‘he built’ and [riba] ‘usury’, for example, end with the consonants /j/ and /w/, respectively, in the underlying representations. The following prosodic representation presents [bana] ‘he built’.

(4.12.8)

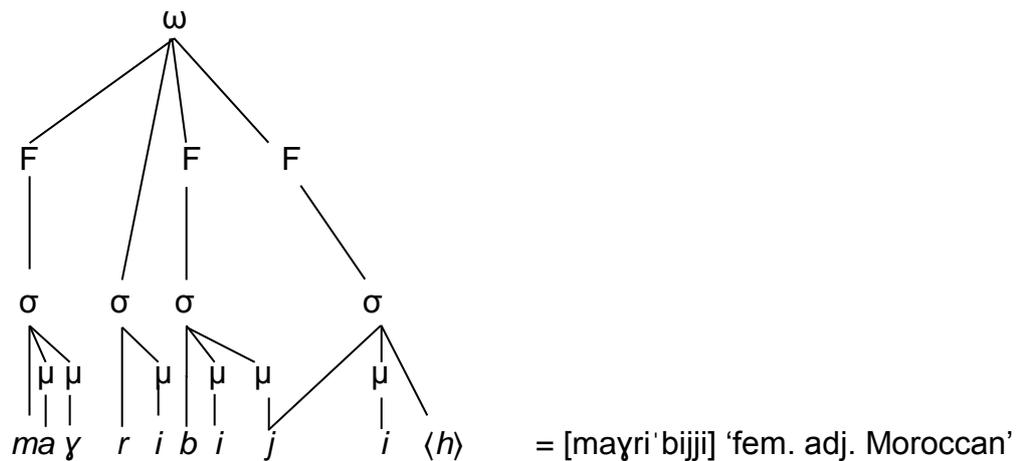


The phonological word /'banaj/ 'he built' from the root /b n j/ 'build' consists of one foot which is constructed over the two light syllables .ba. and naj. The foot (bana) comprises two moras (the two short vowels /a/). The consonant /j/ is extrametrical (for extrametricality, see § 4.12.3 below).

Examples of suffixed words which end with consonants underlyingly are /kta:b + -uh/ 'book + 3rd person sing. masc. possessive suffix' > ['kta:bu] 'his book' and /kta:b + -hum/ 'book + 3rd person pl. possessive suffix' > ['kta:bhum] 'their book'. Examples of suffixed words which end with vowels underlyingly are /kta:b + i:/ 'book + 1st person sing. possessive suffix' > ['kta:bi] 'my book', /kta:b + -ha/ 'book + 3rd person sing. fem. Possessive suffix' > ['kta:bha] 'her book', and /kta:b + -na/ 'book + 1st person pl. possessive suffix' > ['kta:bna] 'our book' (see § 4.13.4.3 below).

The suffixed JUA word [mayri'bijji] 'fem. adj. Moroccan' ends with the consonant /h/ underlyingly in /mayri'bijjih/, as the following prosodic representation shows.

(4.12.9)

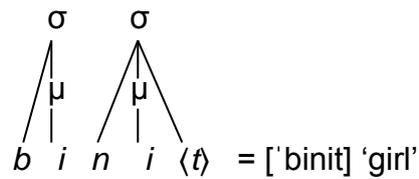


A foot is constructed over the bimoraic heavy syllable .may. The monomoraic syllable .ri. is skipped because it neither constitutes a foot on its own nor forms a foot with the following bimoraic syllable. A second foot is constructed over the bimoraic syllable .bij. A third foot is constructed over the syllable .jih. constituting a peripheral foot, as the extrametrical consonant /h/ is contained within the foot (jih) (for extrametricality, see § 4.12.3 below).

4.12.3 Extrametricality and Semisyllables

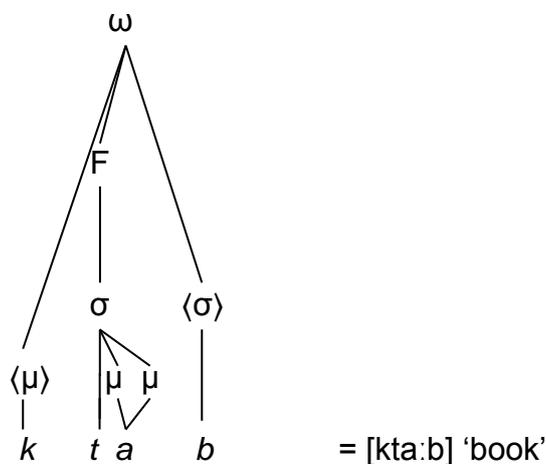
Extrametricality was first introduced in Metrical Stress Theory (e.g. Liberman and Prince, 1977) and subsequently was invoked in other works (Prince, 1983; Hayes, 1979, 1982, 1995) to deal with the fact that syllables must consist of more segments in a word-final position than in a word-internal position to act as heavy. To cope with this, Hayes (1995) proposed that final consonants are extrametrical in a number of languages. In Metrical Stress Theory, extrametricality is restricted to peripheral elements, and extrametrical elements are considered invisible to stress rules. Extrametricality is subject to the Peripherality Condition, i.e. a constituent may be extrametrical only if it is at the left or right edges of its domain (Hayes, 1995). To represent consonant extrametricality, the peripheral consonant is placed in angled brackets, as in 4.12.10.

(4.12.10)



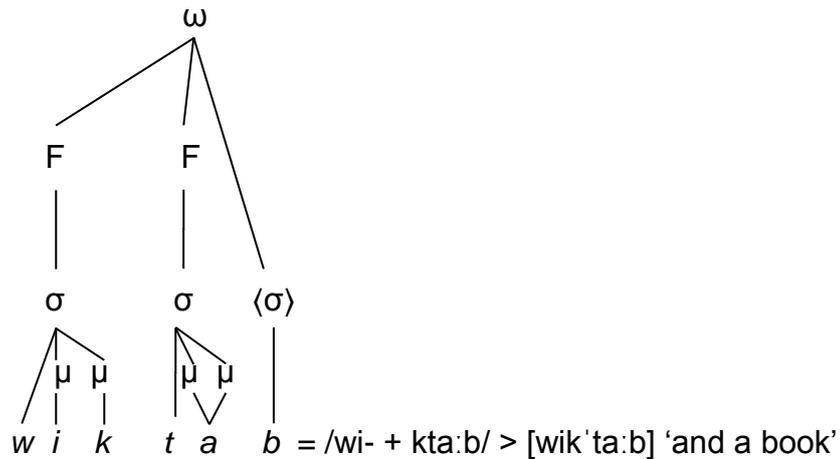
In 4.12.10 the final consonant is syllabified in the rightmost syllable. However, it fails to be assigned a mora through Weight-by-Position rule due to its extrametrical status. Therefore, the rightmost syllable .nɪt. in which the extrametrical consonant /t/ is syllabified counts as light (monomoraic) and not heavy (bimoraic) (Hayes, 1995). In the following example, the /k/ in /kta:b/ 'book' is analysed as an extrametrical mora, one that is not linked to any syllable.

(4.12.11)



When the consonant /k/ in /kta:b/ 'book' becomes intrametrical, either by prefixation or at a postlexical level, it remains moraic and must become fully integrated into a complete syllabic structure as in 4.12.12. The conjunction /wi-/ 'and' precedes the word /kta:b/ 'book', and they form together the phonological word /wik'ta:b/ 'and a book', the /k/ becomes the second mora for the preceding derived syllable /wik/.

(4.12.12)



The phonological word in 4.12.12 consists of two feet. The leftmost foot comprises two moras (the short vowel /i/ and the consonant /k/). The rightmost foot consists of two moras (the long vowel /a:/). The consonant /b/ is extrasyllabic.

When CVC occurs word-finally, the rightmost consonant is analysed as extrametrical in JUA. This makes a word-final CVC invisible to stress rules and thus is equivalent in weight to a non-final CV (Hayes, 1995), as in 4.12.13.

(4.12.13)

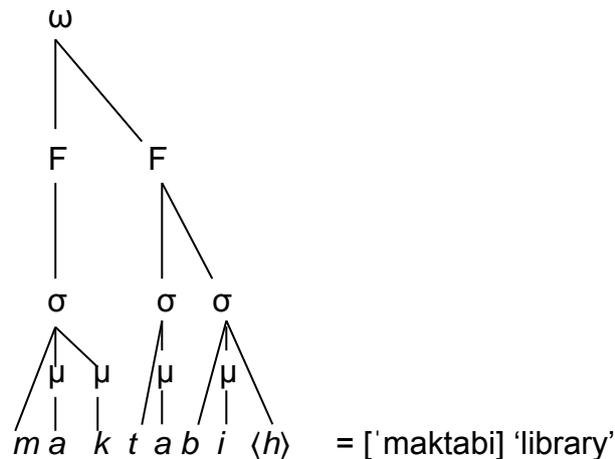
Final Position	=	Non-Final Position	
a. CV	=	CV	light
b. CV⟨C⟩	=	CV	light
c. CVC⟨C⟩	=	CVC	heavy
d. CV:	=	CV:	heavy
e. CV:⟨C⟩	=	CV:	heavy

A word-internal CVC syllable may be assigned stress in the antepenult position as in the JUA word [ˈmadrasɪ] ‘school’ or in the penult position as in [makˈtabhʊm] ‘their masc. office’. However, a CVC syllable in

a word-final position fails to be assigned stress in JUA, as in ['maktab] 'office', where the penult rather than the ultimate attracts stress.

There are cases where a word layer rule selects a non-final foot for the main stress. In such cases, the peripheral foot is considered extrametrical; however, the extrametrical consonant does not deprive the foot of its peripherality as it is contained within the foot and not between the foot and the right edge of the word (Hayes, 1995). For example, in the JUA word /'maktabih/ 'library, the peripheral rightmost foot (ta.bih) is rendered extrametrical and thus it is invisible to stress rules. See the following prosodic representation of the JUA word ['maktabi] 'library', where the underlying extrametrical ⟨h⟩ is peripheral but it is contained within the extrametrical foot (ta.bih).

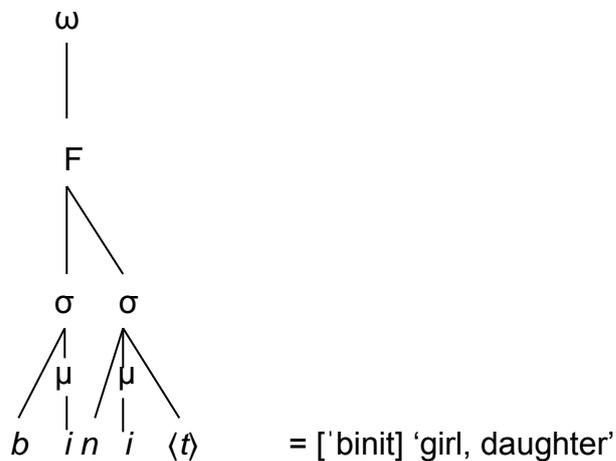
(4.12.14)



In Hayes (1995) foot extrametricality is subject to the Nonexhaustivity Condition. Nonexhaustivity Condition ensures that extrametricality does not apply in the case that the peripheral foot is the only foot in the word and where extrametricality would render the whole domain of stress rules extrametrical. For example, the JUA word /'binit/ 'girl or daughter' comprises a bimoraic foot which consists of two light syllables .bi. and .nit. The peripheral foot (bi.nit) constitutes the only foot in the word; therefore, foot extrametricality is blocked from applying, and the main stress is assigned to

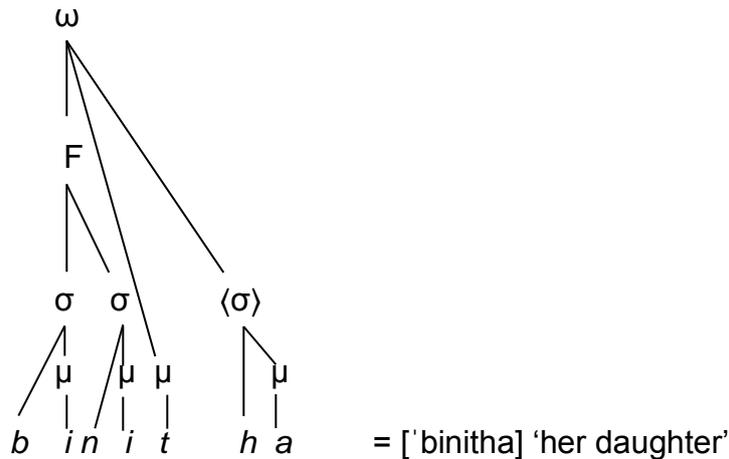
the head of the foot (the leftmost syllable) on the word layer (for word layer construction, see § 4.13.2 below), as in 4.12.15.

(4.12.15)



In a suffixed word like /'binitha/ 'her daughter', the consonant /t/ is no longer extrametrical, as it is no longer peripheral by the presence of the degenerate syllable .ha. (see chained extrametricality in § 4.12.4 below). The consonant /t/ in /'binitha/ 'her daughter' is licensed as a semisyllable in JUA. A semisyllable is a consonant which is no longer extrametrical due to suffixation (cf. Kiparsky, 2003). A semisyllable is permitted only when a consonant-initial suffix is attached to a stem of the pattern CVCVC in JUA. The semisyllable is assigned a mora which is linked directly to the word node (Kiparsky, 2003), such as the semisyllable /t/ in the JUA word /'binitha/ 'her daughter' in 4.12.16 below.

(4.12.16)



In 4.12.16, a foot is constructed over the light syllables .bi. and .ni. The consonant /t/ is licensed as a semisyllable. The final syllable .ha. is analysed as a degenerate syllable. Foot extrametricality is blocked from applying due to the presence of the degenerate syllable.

4.12.4 Extrasyllabicity

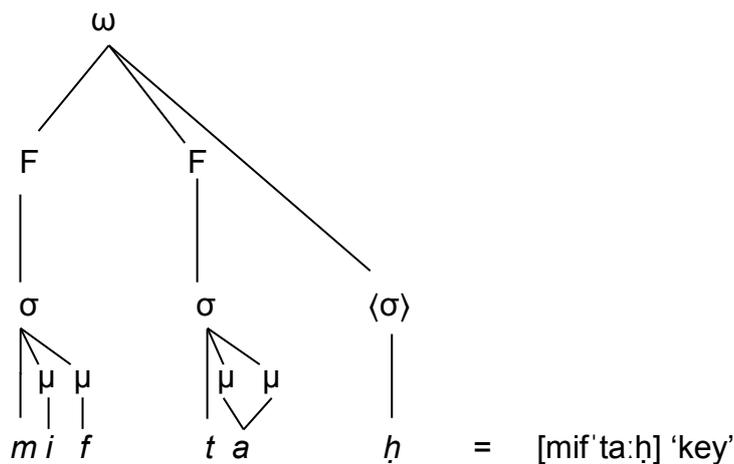
Unlike extrametrical consonants, extrasyllabic consonants block foot extrametricality from applying because they occur between the foot and the rightmost edge of the word (Hayes, 1995). They fall into what is described as a degenerate syllable³⁷ (Hayes, 1995; Kager, 1995). Therefore, the final consonant in the super-heavy³⁸ syllables CVVC and CVCG in JUA – which are generally restricted to the word-final position – is extrasyllabic and it is not linked with the adjacent syllable. Examples of JUA words with a final CVCG are /ʕamm/ 'uncle', /ma'ʕadd/ 'corset', /ma'ħall/ 'shop', /ma'sadd/ 'blockage', and /ma'ʕabb/ 'estuary'. A word-final CVVC in JUA as in [mif'ta:h]

³⁷ Degenerate syllables (C') are sub-minimal elements which are left unfooted at the end of the footed string (Hayes, 1995).

³⁸ A super-heavy syllable in JUA comprises a heavy syllable CVV or CVC plus a consonant. CVCG, CVVCG, CCVVC, CCVCG are all super-heavy syllables that are restricted to a word-final position in JUA (see § 3.1.5.1 above). The super-heavy CVVC syllable occurs word internally, as in /'ma:ddih/ 'material'.

'key' is analysed as a bimoraic CVV syllable followed by a degenerate syllable C'. The CVV is assigned a foot and this foot cannot be rendered extrametrical because it fails the Peripherality Condition. In other words, the foot CVV is rendered non-peripheral due to the presence of the extrasyllabic consonant, the onset of the degenerate syllable, as in 4.12.17.

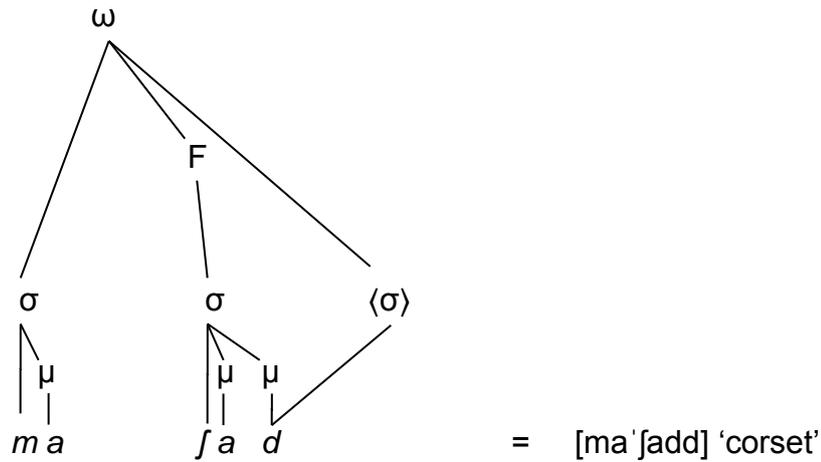
4.12.17



The phonological word in 4.12.17 comprises two feet. The leftmost foot (mif) consists of two moras (the short vowel /i/ and the consonant /f/). The rightmost foot (ta:) comprises two moras (the long vowel /a:/). The consonant /h/ is extrasyllabic.

Hayes (1995) states that extrametricality does not chain; in other words, a constituent does not count as peripheral if it is followed by an extrametrical constituent. Otherwise, an extrametrical foot which is followed by an extrasyllabic consonant would violate the Peripherality Condition and result in chained extrametricality. To simplify the term 'chained extrametricality', only the final consonant (i.e. extrasyllabic consonant) in a word-final CVCG counts as peripheral, as in 4.12.18.

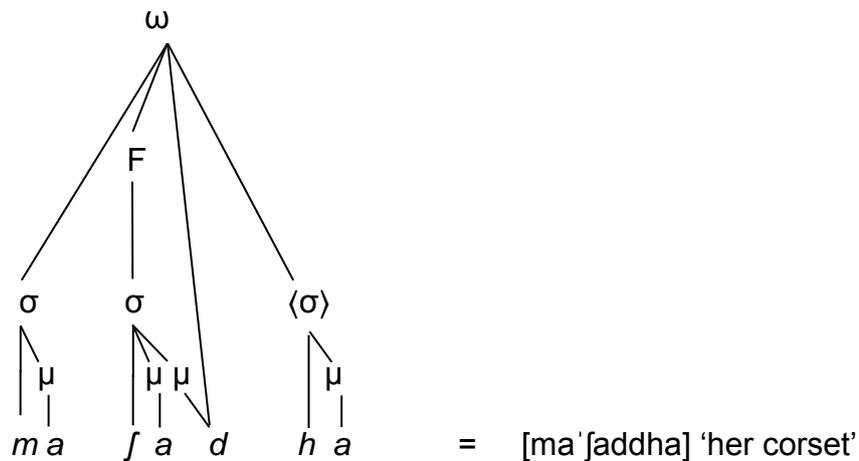
4.12.18



In 4.12.18, the monomoraic syllable .ma. is skipped because it neither constitutes a foot on its own nor forms a foot with the following bimoraic syllable. A foot is constructed over the heavy syllable .jad. The final consonant /d/ is analysed as an extrasyllabic consonant. Foot extrametricality is blocked by the presence of the extrasyllabic consonant.

The following is a prosodic representation of the suffixed word /ma'jaddha/ 'her corset'.

4.12.19



In 4.12.19, the monomoraic syllable .ma. is skipped because it neither constitutes a foot on its own nor forms a foot with the following bimoraic

syllable. A foot is constructed over the heavy syllable .jad. The syllable .ha. is degenerate.

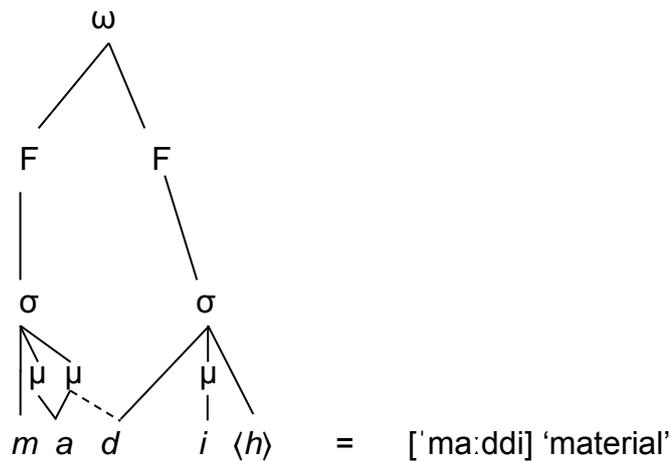
The JUA word /kta:b/ 'book' shows the difference between peripheral consonants at the left and right edges of a word. The word /kta:b/ 'book' comprises one foot (ta:). The consonant /k/ is peripheral and is assigned a mora. This is because when /k/ becomes intrametrical, either by prefixation or at a postlexical level, it remains moraic and must become fully integrated into a complete syllabic structure. For example, when the word /kta:b/ 'book' is preceded by a vowel-final utterance such as the JUA conjunction /wi-/ 'and', it maintains its mora as it becomes a coda to the derived syllable .wik. in /wikta:b/ 'and a book'. /wikta:b/ comprises two feet (wik) and (ta:). The /k/ in (wik) receives a mora by Weight-by-Position rule, as it occurs in the coda position.

The consonant /b/ in the word /kta:b/ 'book' is extrasyllabic; it is not assigned a mora. This is because when it becomes intrametrical, either by suffixation or at a postlexical level, it becomes an onset to the morphologically-derived syllable. For example, when the word /kta:b/ 'book' is followed by a vowel-initial utterance such as the suffix /-i:/ '1st-person possessive suffix in JUA' – which is realised as /-i/ in the output form, the consonant /b/ becomes an onset to the morphologically-derived syllable .bi. in the suffixed word /kta:bi:/ 'my book'. The suffixed word /kta:bi:/ 'my book' comprises two feet, (ta:) and (bi:).

4.12.5 Mora Sharing

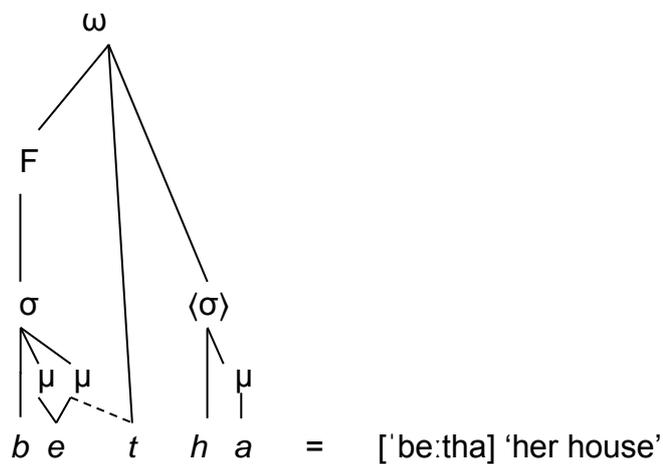
There are cases in JUA in which one mora dominates two segments, as in the words /'ba:bha/ 'her door' and /'ma:ddih/ 'material. These cases are accounted for by what Broselow (1992) calls Adjunction-to-Mora; a rule which she formulated to account for internal CVVC in Arabic. In internal CVVC in JUA one mora dominates two segments, as in the prosodic representations in 4.12.20 and 4.12.21, where dotted lines indicate mora sharing. The Adjunction-to-Mora adjoins the final consonant in a word-internal CVVC syllable to the second mora of the preceding long vowel.

4.12.20



The final consonant /h/ is extrametrical. A foot is constructed over the heavy bimoraic syllable .ma:/. The consonant /d/ is adjoined to the second mora of the preceding long vowel /a:/. The rightmost foot is rendered extrametrical as it is peripheral – it is invisible to stress rules. Stress is assigned to the rightmost visible foot (ma:).

4.12.21



A foot is constructed over the heavy bimoraic syllable .be:/. The consonant /t/ is adjoined to the second mora of the preceding long vowel /e:/. The light syllable .ha. is left unfooted. Stress is assigned to the rightmost visible foot (be:).

4.12.6 Syllable Repair Processes in JUA

The following sections present the phonological repair processes that a syllable in JUA words undergoes.

4.12.6.1 Syncope

Syncope refers to the deletion of a sound within a word, specifically the unstressed vowel. Broselow (1992) states that the function of syncope is to reduce monomoraicity in the utterance and to maximize the number of bimoraic syllables. Syncope delinks the melodic material of the monomoraic syllables and reassigns it to the remaining syllables. Languages show differences in respect to which syllables undergo syncope. This depends on two factors; “the melodic properties of vowels and their position in the metrical structure” (ibid: 33). JUA deletes a high vowel in an open syllable only when it is preceded by another open syllable. The following list presents examples of JUA phrases with unstressed high short vowels /i/ or /u/ being syncope. The first column presents the input, the second column presents the output, and the third column presents glosses.

(4.12.22)

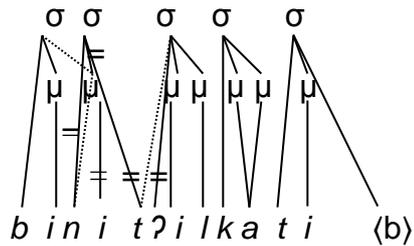
a. /binit + ʔilka:tib/	[bintil ka:tib]	‘the writer’s daughter’
b. /kutub + ʔilmuʔallif/	[kutbil muʔallif]	‘the author’s books’
c. /binit + -i:/	[binti]	‘my daughter’
d. /binit + -uh/	[bintu]	‘his daughter’
e. /binit + -e:n/	[binte:n]	‘two girls’
f. /maktabih + -a:t/	[maktaba:t]	‘libraries’

The unstressed high short vowel /i/ in the final syllable in the words /binit/ ‘daughter’, /kutub/ ‘books’, and /maktabih/ ‘library’ is syncope in the output forms in 4.12.22 to reduce the number of monomoraic syllables in the utterances and maximize bimoraicity. The mora of the syncope vowel is assigned to the preceding consonant (onset) within the same syllable that undergoes syncope. The output forms show that the glottal stop /ʔ/ in the

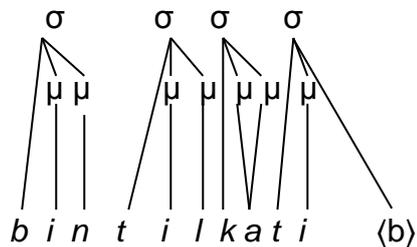
output forms in 4.12.22.a and 4.12.22.b is syncopated, as well. This is due to the fact that the glottal stop /ʔ/ is deleted in JUA when it occurs medially either by prefixation or at a post-lexical level. 4.12.23 presents the prosodic representation of JUA [bintil ka:tib] ‘the writer’s daughter’.

(4.12.23)

(a) Syncope



(b) Output



The glottal stop /ʔ/ in the word /ʔilka:tib/ ‘the writer’ is syncopated as it occurs medially by post-lexicalization (i.e. it is preceded by the word /‘binit/ ‘daughter’). The syncope of the glottal stop maximizes the number of the monomoraic syllables in /binitilka:tib/ ‘the writer’s daughter’. This in turn triggers the syncope of the short vowel /i/ in the final syllable in /binit/ ‘daughter’ resulting in the output form [bintil ka:tib] ‘the writer’s daughter’.

4.12.6.2 Epenthesis

Within Kiparsky's (2003) approach to semisyllables in three different types of dialects in Arabic: CV³⁹, VC, and C⁴⁰, epenthesis occurs to the left rather than to the right of the unsyllabified consonant, the second consonant in the sequence, in VC dialects. Accordingly, the sequence CCC is syllabified as C[V]CC in VC dialects in order to reduce changes in the structure of the word (Kiparsky, 2003; cf. Watson, 2007).

JUA is considered a VC dialect. Therefore, when a JUA word with an initial consonantal cluster is preceded by a consonant-final word, the epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant (i.e. the second consonant in the consonantal sequence across the boundaries of the two utterances involved) as in 4.6.24. The first column presents the input forms, the second column presents the output forms, and the third column presents glosses.

(4.12.24)

a. /kbi:r/	[kbi:r]	'masc. big or old'.
b. /'maktab + kbi:r/	[maktab [i] kbi:r]	'big office'
c. /'baħir + kbi:r/	[baħr [i] kbi:r]	'big sea'
d. /'binit/	[binit]	'girl'
e. /'binit + -ha/	[binitha]	'Her daughter'

4.12.24 shows that JUA allows bi-consonantal clusters in a word-initial position as in /kbi:r/ 'masc. big or old'. In [maktab [i] kbi:r] 'big office' in 4.12.24.b the word /kbi:r/ 'big' is preceded by the word /maktab/ 'office'. Since it is not allowed in JUA to have a tri-consonantal sequence, the

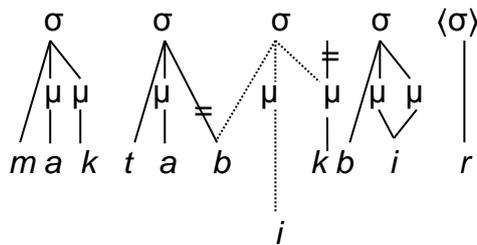
³⁹ In CV dialects the epenthetic short vowel is inserted to the right of the unsyllabified consonant. In VC dialects it is inserted to the left, and in C dialects there is no insertion of an epenthetic vowel.

⁴⁰ The majority of dialects in Egypt are considered CV dialects (Watson, 2007). Palestinian Arabic is an example of a VC dialect (Behnstedt, 1994; cited in Kiparsky (2003)). Moroccan Arabic is an example of a C dialect (Harrell, 1965; cited in Kiparsky, 2003).

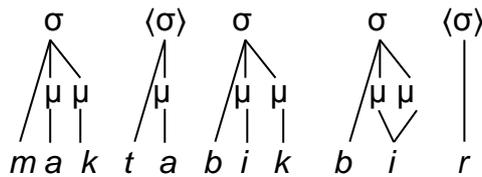
epenthetic short vowel [i] is inserted to the left of the second consonant in the sequence, as in 4.12.25.

(4.12.25)

(a) Epenthesis



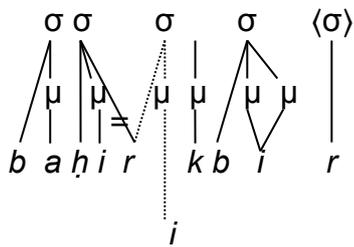
(b) Output



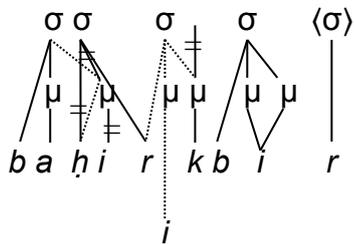
In [baħır [i] kbi:r] ‘big sea’ in 4.12.24.c the word /kbi:r/ ‘big’ is preceded by /baħır/ ‘sea’. A tri-consonantal sequence is not allowed in JUA; therefore, the epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant in the sequence -rkb-. The unstressed vowel in the syllable .ħi. undergoes syncope to minimize the number of the monomoraic syllables, and the mora of the syncopated vowel is assigned to the /ħ/ in /baħır/ ‘sea’, as in 4.12.26.

(4.12.26)

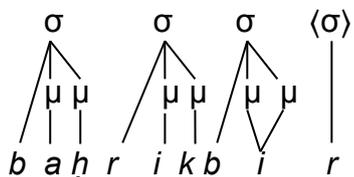
(a) Epenthesis



(b) Syncope



(c) Output



In 4.12.24.d the word /binit/ surfaces as [binit] ‘girl’. A phonological constraint in JUA prohibits word final clusters (when the two consonants in the cluster are non-identical) lexically. Extrametricality is permitted in JUA; therefore, the consonant /t/ in [binit] ‘girl’ is licensed as extrametrical. In 4.12.24.e the word /binit/ ‘daughter’ in [binitha] ‘her daughter’ is followed by the consonant-initial suffix /-ha/ ‘her’. The word /binit/ ‘daughter’ does not undergo any phonological repair, as a bi-consonantal sequence across syllables is permitted in JUA. The consonant /t/ is licensed as a semisyllable in /‘binitha/ ‘her daughter’ (see § 4.12.4 above). The following list presents the phonological repair that occurs in JUA words which end with bi-consonantal clusters (where the two consonants in the cluster are identical).

The first column presents the input forms, the second column presents the output forms, and the third column presents glosses.

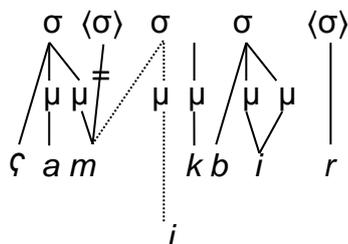
(4.12.27)

- a. /ʕamm/ > [ʕamm] ‘uncle’.
- b. /ʕamm + -ha/ > [ʕammha] ‘her uncle’.
- c. /ʕamm + kbi:r/ > [ʕamm [i] kbi:r] ‘old uncle’.

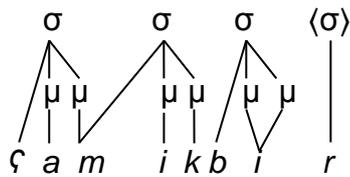
The word /ʕamm/ surfaces as [ʕamm] ‘uncle’ in 4.12.27.a. This is because JUA allows final consonantal clusters when the two consonants in the cluster are identical. In 4.12.27.b the word /ʕamm/ ‘uncle’ in [ʕammha] ‘her uncle’ is followed by the consonant-initial suffix /-ha/ ‘her’. No epenthesis occurs in [ʕammha] ‘her uncle’ due to the fact that tri-consonantal sequences which occur between a stem of a bi-consonantal cluster of two identical consonants (i.e. a pseudo geminate; see sections 3.1.5.1 and 4.12.4 above) and a consonant-initial suffix are allowed in JUA. In 4.12.27.c the JUA word /ʕamm/ ‘uncle’ in [ʕamm [i] kbi:r] ‘old uncle’ is followed by /kbi:r/ ‘old’. A quadri-consonantal sequence is not allowed in JUA; therefore, the epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant /k/ in the sequence -mmkb-, as in 4.12.28.

(4.12.28)

(a) Epenthesis



(b) Output



4.12.6.3 Closed Syllable Shortening (CSS)

Closed Syllable Shortening (CSS) is a phonological process in which the final consonant in the CVVC syllable displaces the vowel which constitutes the second mora to prevent the occurrence of stray erasure⁴¹ (Kenstowicz, 1994). When a consonant-initial utterance follows the extrasyllabic consonant in the CVVC-final utterance, the final consonant in the CVVC is no longer licenced as extrasyllabic and is linked to the second mora from which the vowel melody is delinked (Broselow, 1992). CSS occurs in JUA when a prefixed word with the definite article /ʔil-/ ‘the’ is preceded by the preposition /fi:/ ‘in’ which ends with a long vowel, as in 4.12.29. The first column presents the input, the second column presents /ʔi-/ syncope, the third column presents the linking of the /l/ in /ʔil-/ ‘the’ to the final syllable of the preceding utterance, and the column presents the output forms which undergo CSS.

(4.12.29)

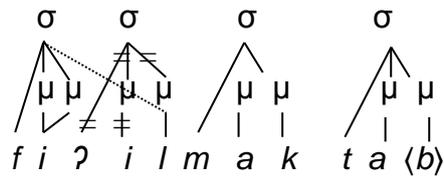
- a. /fi: + ʔil'maktab/ > /fi: + l'maktab/ > /fi:l 'maktab/ > [fil 'maktab] ‘in the office’
- b. /fi: + ʔis'sa:ħah/ > /fi: + s'sa:ħah / > /fi:s 'sa:ħah/ > [fis 'sa:ħah] ‘in the yard’

⁴¹ Stray erasure is a phonological process, was first proposed by Steriade (1982), which deletes melodic material that does not belong to any constituent (Scheer, 2004: 421).

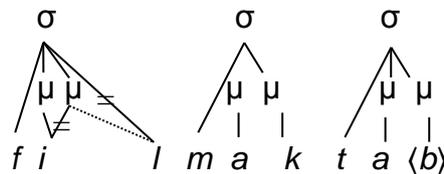
In 4.12.29 the glottal stop /ʔ/ (together with the accompanying vowel) in the definite article /ʔil-/ 'the' is syncopated, as it occurs phrase-medially and the consonant /l/ is linked to the final syllable of the preceding utterance. The consonant /l/ is left stray, in other words, it does not belong to the prosodic hierarchy. To prevent the occurrence of stray erasure of the consonant /l/, the derived syllable /fi:l/ undergoes closed syllable shortening, where the /l/ is linked to the second mora from which the vowel melody is delinked. The following is the prosodic representation of the JUA phrase [fil'maktab] 'in the office'.

(4.12.30)

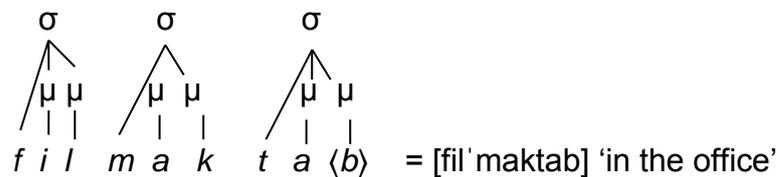
(1) Glottal Stop Syncope



(2) CSS



(3) The Output



In 4.12.30 the glottal stop /ʔ/ (along with the vowel /i/) is syncopated, as it occurs medially (it is preceded by a vowel-final utterance, see § 3.1.4 above). The consonant /l/ is linked to the preceding syllable. The long vowel /i:/ in /fi:l/ constitutes a unit of two moras and the consonant /l/ is left stray

(i.e. it is not integrated into the prosodic hierarchy). To prevent deleting the consonant /l/, the syllable /fi:l/ undergoes closed syllable shortening and the /l/ is linked to the second mora from which the vowel melody is delinked.

Internal CVVC in suffixed nominal words does not undergo closed syllable shortening in JUA. For example, /ba:b + -na/ surfaces as ['ba:bnə] 'our door'. However, CSS took place historically in JUA within the phonological word which consists of a verbal stem of a CVVC and a consonant-initial suffix, as in /ba:ŋ + -na/ (where the /-na/ is the subject) which surfaces as ['biŋnə] 'we sold'. The consonant /ŋ/ in the syllable .ba:ŋ. displaces the vowel which constitutes the second mora for that syllable to prevent the occurrence of stray erasure of the consonant /ŋ/. The consonant /ŋ/ is no longer licensed as extrasyllabic in the output ['biŋnə], as it is linked to the second mora from which vowel melody is delinked. In other words, in the output ['biŋnə], the consonant /ŋ/ is licensed as a second mora in the foot (biŋ), which is stressable, as it is the only foot in the word.

4.12.6.4 De-Clustering

Word-initial clusters in JUA undergo de-clustering when they are preceded by a vowel-final utterance. The first consonant in the cluster is linked to the final vowel of the preceding utterance constituting a second mora to the derived syllable, as in 4.12.31. The first column presents the input, the second column presents the output, and the third column presents glosses.

(4.12.31)

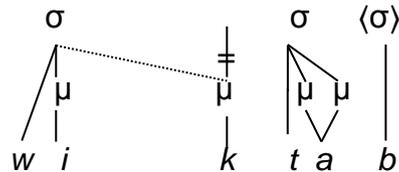
a. /wi- + 'kta:b/	[wik 'ta:b]	'and a book'
b. /wi- + 'sna:n/	[wis 'na:n]	'and teeth'
c. /wi- + 'wra:ʔ/	[wiw 'ra:ʔ]	'and sheets of papers'
d. /wi- + 'hʒa:r/	[wiḥ 'ʒa:r]	'and stones'

Word-initial clusters in the input forms in the list 4.12.31 are no longer clusters in the output forms. This is because the first consonant in the cluster

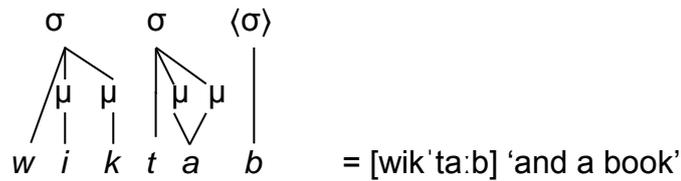
is linked to the final syllable of the preceding utterance constituting a second mora to the derived syllable, as in 4.12.32.

(4.12.32)

(1) De-Clustering



(2) Output



In 4.12.32 the consonant /k/ is linked to the second mora of the derived syllable /wik/.

4.12.7 Summary

Moraic Theory has the following universal rules:

- a. A short vowel is assigned one mora.
- b. A long vowel is assigned two moras.
- c. A geminate consonant is assigned one mora.

JUA has its own language-particular moraic rules which are summarised below:

- a. The minimal content word must be a foot of two moras, which can occur in a single heavy syllable or be distributed between two light syllables, in addition to an incomplete syllable that occurs in a word-final position.

- b. Sub-minimal words are expanded in JUA to satisfy the requirements of the minimal content word and thus be stressable.
- c. Feet are maximally bimoraic; each foot consists of exactly two moras.
- d. A single consonant does not receive a mora unless it occurs in a coda position, then it receives one mora by Weight-by-position rule.
- e. The rightmost CVC in a word-final position is analysed as invisible to stress rules through extrametricality in JUA.
- f. JUA has a moraic trochee system (i.e. feet are constructed from exactly two moras).
- g. Foot parse takes place from left to right; the left syllable is stressed in a sequence of two monomoraic syllables.
- h. The consonant on the left edge of its domain which is not linked to any syllable is analysed as an extrametrical mora in JUA. This mora becomes fully integrated into a complete syllable structure after derivation through suffixation or at a post-lexical level.
- i. Degenerate feet are forbidden absolutely in JUA.
- j. The final consonant in the super-heavy syllables CVVC and CVCG in JUA – which are generally restricted to a word-final position – is extrasyllabic and it is not linked to the adjacent syllable.
- k. A consonant is adjoined to the second mora of the preceding long vowel by the Adjunction-to-Mora in a word-internal CVVC.
- l. A word-internal CVC syllable may be assigned stress in antepenult or penult position in JUA; however, a CVC syllable in a word-final position fails to be assigned stress.
- m. In a word which comprises a heavy syllable followed by two light syllables, stress is assigned to the initial syllable.
- n. Heavy penults attract stress in words which contain no word-final CVVC or CVCG.

A syllable in JUA undergoes a number of phonological repair strategies: syncope, epenthesis, closed syllable shortening, and de-clustering. The following sections, 4.13-4.13.4.3, present the main aspects of Hayes' (1995) Metrical Stress Theory, the parameters of primary stress representation in JUA, and the rules of word primary stress shift in plural,

dual, and possessive forms in JUA. These sections are significant, as they provide the reader with some background information on how word primary stress is assigned in JUA, and they help the researcher provide a theory-based account for word primary stress shift in English loanwords.

4.13 Metrical Stress Theory

4.13.1 Overview

Metrical Stress Theory was first introduced by Liberman (1975), and then developed in the works of Liberman and Price (1977), and Hayes (1981, 1984; 1995). The goal of Metrical Theory, which Autosegmental Phonology (the other main branch of nonlinear phonology) shares is to develop alternatives to rule variables and abbreviatory conventions of linear theory (Kager, 1995). Word stress in the non-linear approach is an autonomous phonological entity that reflects a rhythmic structure or grid which is hierarchically organised (Liberman and Prince, 1977).

4.13.2 Hayes' Metrical Stress Theory

In Hayes' (1995) Metrical Stress Theory metrical structures are represented by bracketed grids, in which a hierarchy of constituents include groupings of hierarchical rhythmic beats. Above the segmental layer there are four layers within the grids: the moraic layer, the syllable layer, the foot layer, and the word layer. In phonological phrases there is also a phrase layer. The grid columns are required to be continuous in the sense that if the word layer receives a mark for a column, foot layer, syllable layer, and moraic layer also receive marks for that column as in the representations of the JUA words in 4.13.4 below. In the bracketed grid, the symbol x is used to represent stressed elements and the bullet • unstressed elements.

The smallest metrical constituent is the foot, which may either be an unbounded foot or a bounded foot⁴². There are three types of bounded feet: Firstly, the moraic trochee⁴³ (i.e. feet which are constructed from moras); the moraic trochee foot is constructed from two consecutive light syllables of which the first is stronger or a heavy syllable which takes a stress. Secondly, the syllabic trochee⁴⁴ (i.e. feet which are constructed from syllables); the syllabic trochee is constructed from two consecutive syllables (without regard for length) of which the first is stronger. Finally, the iambic trochee⁴⁵ is a foot constructed from two consecutive light syllables of which the second is stronger or a light syllable followed by a heavy syllable in which the latter takes stress or a heavy syllable which attracts stress.

The following list presents types of bounded feet, where the symbol x means stressed, the bullet • means unstressed, the macron - indicates a bimoraic syllable, the breve ˇ indicates a monomoraic syllable, the sigma σ indicates a syllable without regard for length (i.e. light or heavy syllable).

⁴² In Crystal (2008), bounded feet consist of no more than two syllables and there is a restriction on stress distribution where stresses fall in a roughly equal distances. Unbounded feet are of no restricted size or stress distribution (ibid). Examples of languages with unbounded feet are French (right-headed feet) and Scots Gaelic (left-headed-feet) (Rogers, 2013).

⁴³ In Watson (2002) the majority of Arabic dialects have trochaic stress systems; however, much of Arabic morphology (singular nouns, adjectives, basic form I verbal nouns, broken plural patterns, and the diminutives) is based on the iambic stress system which comprises a light syllable followed by a heavy syllable. An example is the JUA word /ʔa'ri:b/ 'close' with stress assigned to the final syllable due to its weight.

⁴⁴ In Hayes (1995), Pintupi, a Pama Nyungan language of Australia, is an example of a language with a syllabic trochee system.

⁴⁵ In Watson (2002) many North African Arabic dialects have iambic stress systems. An example from Cyrenaican Bedouin (in the eastern coastal region in Libya) is the word /ka'tab/ 'he wrote' where the final syllable attracts stress.

(4.13.1)

- | | | | |
|---------------------|-------|-----|--------------|
| a. Moraic trochee | (x •) | or | (x) |
| | ˘ ˘ | | - |
| b. Syllabic trochee | (x •) | | |
| | σ σ | | |
| c. Iamb | (• x) | or | (• x) or (x) |
| | ˘ ˘ | ˘ - | - |

The other aspects of Hayes' (1995: 2-3) theory are summarised in 4.13.2.

(4.13.2)

- a. The basis of the foot inventory is a principle called the Iambic/Trochaic Law⁴⁶, which forms part of the theory of rhythm, not of language proper. The Iambic/Trochaic Law determines the set of possible feet and motivates a large number of segmental rules that adjust metrical structure.
- b. Metrical structure creation is non-exhaustive; that is, it need not exhaust the strings of syllables.
- c. Many stress languages impose a ban on 'degenerate' feet, that is, feet that consist of a single mora in languages that respect quantity, feet of one syllable in languages that do not.

⁴⁶ For Hayes (1995: 80), the Iambic/Trochaic Law is summarised as:

- a. Elements contrasting in intensity form groupings with initial prominence;
- b. elements contrasting in duration naturally form groupings with final prominence.

Accordingly, the two elements that form trochaic feet contrast in intensity, while the two elements that form iambic feet contrast in length.

- d. Syllable weight is not a unitary phenomenon; instead, languages distinguish between syllable quantity and syllable prominence. Quantity is represented by mora count, while prominence may be based on many other properties of the syllable, and is formally represented with grid columns of varying height. Only quantity may be referred to by rules of foot construction while prominence may be referred to by other metrical rule types, for example end rules (see below) and destressing⁴⁷.

One of the metrical rules that Hayes (1995) uses in stress assignment is called End Rule (Left/Right). End Rule (ER) is a type of stress rule, first introduced by Prince (1983), which applies at the highest level of the grid and assigns an extra grid mark to the rightmost or leftmost prominent element. The word layer rule in JUA is an instance of End Rule Right (ERR). End Rule Right (ERR) is a type of stress rule that applies at the highest level of the grid and assigns an extra grid mark to the rightmost prominent element.

JUA has a moraic trochee system in which the foot consists of exactly two moras and the left node of each foot is stressed (feet are left-headed). JUA does not have a syllabic trochee system, because the foot can only consist of either two consecutive light syllables (i.e. two monomoraic syllables) as in the word /'binit/ 'girl' or a single heavy syllable (i.e. bimoraic syllable) as in the word /ba:b/ 'door'. Foot parse takes place from left to right and degenerate feet are forbidden absolutely. A final super-heavy syllable always attracts stress in JUA. A heavy antepenult syllable in JUA is stressed if there is no final super-heavy syllable. Word construction rule assigns stress to the head of the rightmost foot according to End Rule Right (ERR). End Rules (ER) assign main stress (represented by x) at word layer by

⁴⁷ In Metrical Stress Theory, destressing is a rule that eliminates excessive stresses produced by foot construction, where one of the two clashing grid marks is deleted when two stressed syllables are adjacent.

promoting a foot layer mark x to word prominence. The rightmost stress (ERR) has the greatest prominence in JUA words; this is because rightmost visible feet in JUA words attract primary stress.

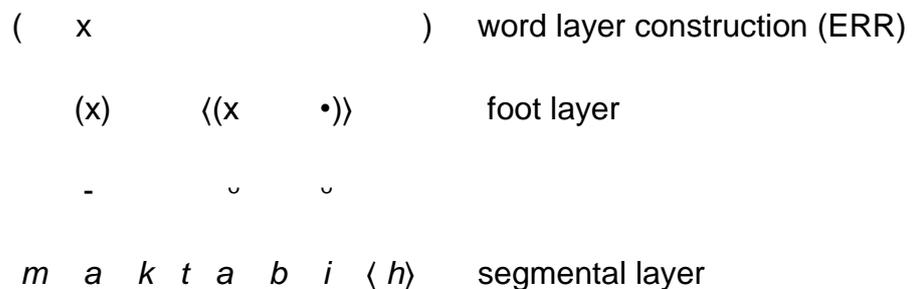
The rules of primary stress assignment in JUA are summarised in 4.13.3⁴⁸.

(4.13.3)

- a. Consonant extrametricality C → ⟨C⟩/ ___] word
- b. Foot construction Form moraic trochees from left to right.
Degenerate feet are forbidden absolutely
- c. Foot extrametricality Foot → ⟨Foot⟩ / ___] word
- d. Word layer construction ERR

These rules generate the following metrical structure for the JUA word /'maktabiħ/ 'library'. The macron – represents a heavy or bimoraic syllable and the breve ˇ represents a light or monomoraic syllable.

(4.13.4)



The final consonant /h/ is rendered extrametrical. Foot parse proceeds from left to right. The heavy (bimoraic) syllable .mak. forms a foot. The two following light syllables .ta. and .bih. form a second foot. The rightmost foot (ta.bih) is extrametrical – extrametrical foot is where the extrametrical consonant is syllabified. The foot (ta.bih) is rendered peripheral

⁴⁸ Secondary stress is not observed in Arabic dialects (Al-Jarrah, 2002: 182).

on the foot layer and thus it is invisible to stress rules. ERR assigns stress to the rightmost visible foot (mak).

Word primary stress in JUA follows the ordered algorithm in 4.13.5 (cf. Al-Jarrah, 2002).

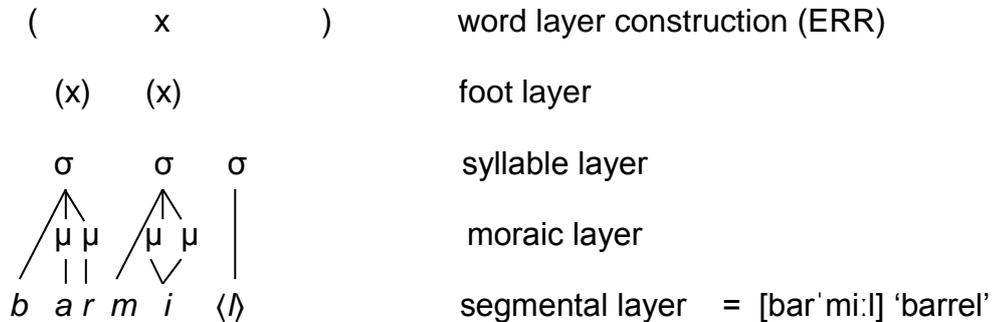
(4.13.5)

- a. Stress falls on the ultimate syllable if super-heavy (i.e. CVCG as in /ma'ʃadd/ 'corset', CVVC as in /bar'mi:l/ 'barrel' and /madras'te:n/ 'two schools', or CVVCG as in /'ʃa:dd/ 'active participle of stretch'), see 4.13.6 below.
- b. Otherwise, stress falls on the penult syllable if heavy (i.e. CVV as in /ma'ka:tib/ 'offices', or CVC as in /mak'tabhum/ 'their office') or in disyllabic words whether the penult syllable is light as in /'binit/ 'girl', heavy CVV as in /'ka:tib/ 'writer' or CVC as in /'maktab/ 'office', or super-heavy as in /'ka:tbiḥ/ 'active participle of write', see 4.13.7 and 4.13.8 below. Suffixes count for stress assignment in general; however, they do not count when they are attached to words with semisyllables as in /'binitna/ 'our daughter' where the possessive suffix /-na/ 'our' does not affect stress placement; stress does not fall on the penult syllable in /'binitna/ 'our daughter', due to the fact that the consonant /t/ is licensed as a semisyllable in the example above and the syllable .bi. constitutes the head of the foot (bi.ni) and thus attracts stress (see § 4.12.3 above).
- c. Otherwise, stress falls on antepenult syllable as in /'madrasah/ 'school and /mu'darrasih/ 'active participle of teach', see 4.13.9 below. Prefixes do not count for stress when they are added to words regardless of the number and weight of syllables in the words, as in /ʔil- + 'binit/ > [ʔil'binit] 'the girl' and /ʔil- + 'madrasah/ > [ʔil'madrasah] 'the school'.

The bracketed grids in 4.13.6 through 4.13.9 represent the JUA words [bar'mi:l] 'barrel', [maktab] 'office', [binit] 'girl', and [madrasah]

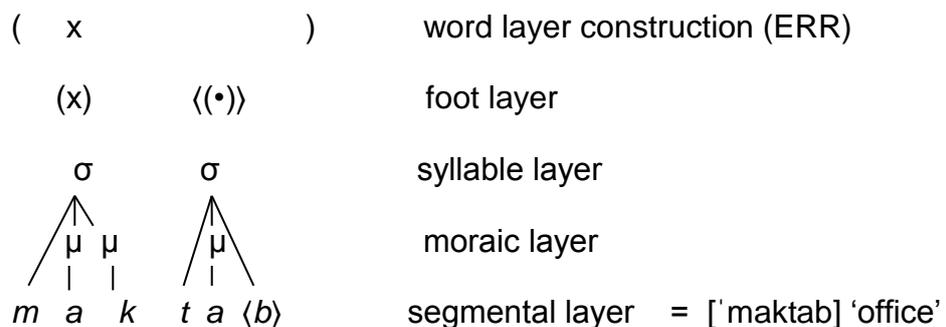
'school', respectively. The symbol x stands for stress and the bullet • means no stress.

(4.13.6)



Foot parse proceeds from left to right. The first heavy (bimoraic) syllable .bar. forms a foot. The heavy syllable .mi:. forms a second foot. The foot (mi:) is rendered non-peripheral due to the presence of the extrasyllabic final consonant. ERR assigns stress to the rightmost visible foot (mi:). The following is the metrical representation of the word ['maktab] 'office'.

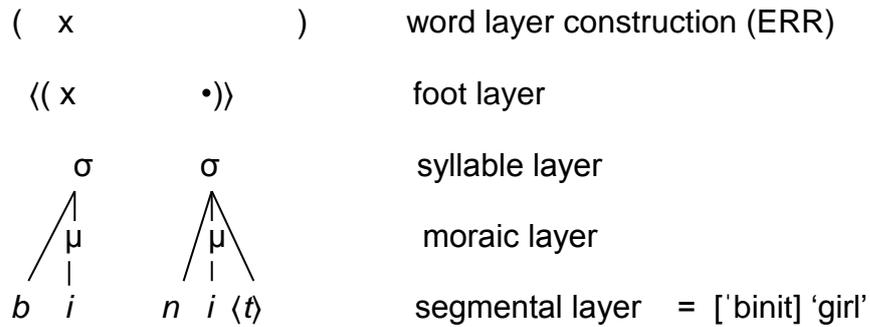
(4.13.7)



The consonant /b/ is extrametrical. A foot is constructed over the heavy syllable .mak. A second foot is constructed over the syllable .tab. The consonant /b/ fails to receive a mora by Weight-by-position rule due to its extrametrical status. The extrametrical ⟨b⟩ is peripheral on segmental layer but it is contained within the extrametrical foot <<(•)>> which is peripheral on the foot layer. The foot (tab) is invisible to stress rules. ERR assigns stress to

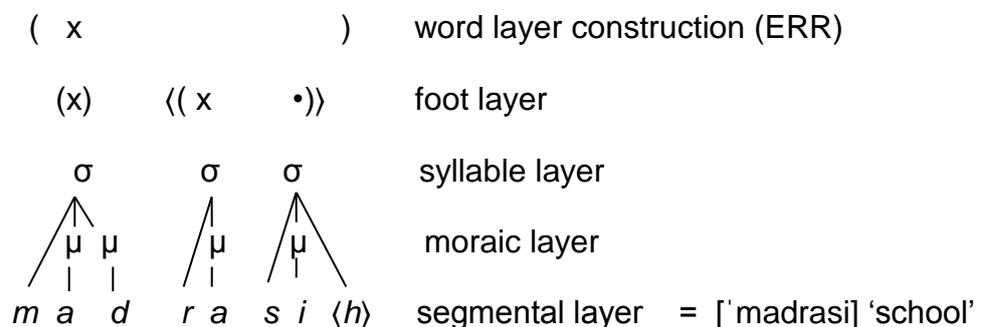
the rightmost visible foot (mak). The following is the metrical representation of the word ['binit] 'girl'.

(4.13.8)



The consonant /t/ is extrametrical. Foot parse proceeds from left to right. The first two monomoraic syllables .bi. and .nit. form a foot. The foot (bi.nit) is peripheral on the foot layer. Foot extrametricality is blocked from applying because the peripheral foot (bi.nit) is the only foot in the word. ERR assigns stress to the rightmost visible foot (bi.nit). The following is the metrical representation of the word ['madrasij] 'school'.

(4.13.9)



The consonant /h/ is extrametrical. Foot parse proceeds from left to right. The heavy syllable .mad. forms a foot. The two light syllables .ra. and .si. form a second foot. The rightmost foot (ra.sih) is extrametrical and it is

rendered peripheral on the foot layer. ERR assigns stress to the head of the rightmost visible foot (mad).

4.13.3 Word-Final CVV in JUA

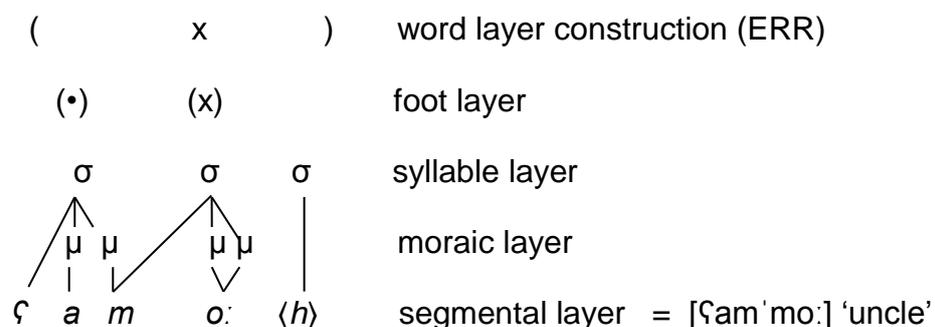
A constraint in JUA requires that a word-final CVV syllable attract stress. This is attributed to the fact that JUA words which end with CVV at the surface level do not really end with a long vowel underlyingly, but rather with the glottal fricative /h/. Accordingly, the covert /h/ is not deprived of its prosodic character as an extrasyllabic consonant. There is free variation between forms with and without final /h/. The following list presents examples of JUA words with a final CVV syllable.

(4.13.10)

- a. [ʕam'mo:] 'kids' word for uncle'.
- b. [ʒid'do:] 'kids' word for grandfather'.
- c. [xal'li:] 'keep it – imperative form'.
- d. [ħaʔ'tu:] 'they (masc.) put it down'.
- e. [ʃa:'fu:] 'they (masc.) saw it'.
- f. [ʔad'ri:] 'imperative form of appreciate him/it'.

The following is the metrical representation of the word [ʕam'mo:] 'uncle'.

(4.13.11)



Foot parse proceeds from left to right. The first heavy (bimoraic) syllable .ʕam. forms a foot. The following heavy syllable .mo: forms a second foot. The foot (mo:) is rendered non-peripheral due to the presence of the covert extrasyllabic consonant /h/ underlyingly. ERR assigns stress to the rightmost visible foot (mo:).

4.13.4 Word Primary Stress Shift in JUA Suffixed Words

The following sections present word primary stress shift in JUA suffixed words. The suffixes include plural, dual, and possessive suffixes.

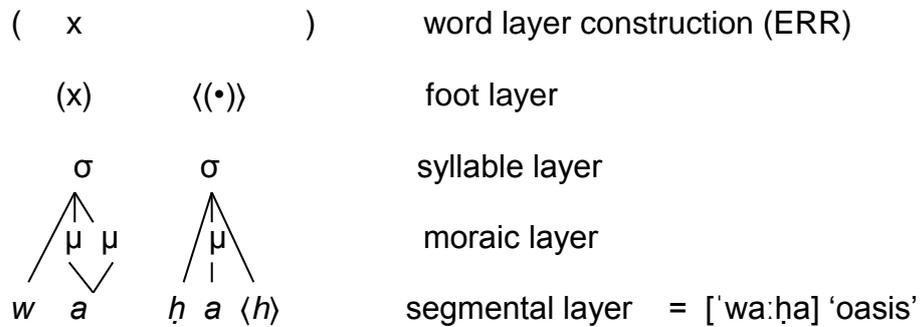
4.13.4.1 Word Primary Stress Shift in Plural Forms

There are three types of plural forms in JUA: feminine sound plural, masculine sound plural, and broken plural. To form the feminine sound plural in JUA, the feminine sound plural suffix /-a:t/ is added to the stem as in /ma'ʕa:r/ 'airport' > /maʕa:'ra:t/ 'airports'. In the words which end with /-ah/ the suffix /-a:t/ replaces the /h/ and the short vowel /a/ in the stem is deleted, as in /'wa:ħah/ 'oasis' which becomes /wa:'ħa:t/ 'oases'. In some nouns which end with /-a:ʔ/ or a consonant, the phonemes /w/ or /h/ are inserted to the noun stem before adding the suffix /-a:t/, as in /babba'ya:ʔ/ 'parrot' which becomes /babbaya:'wa:t/ 'parrots' and /ʔumm/ 'mother' which becomes /ʔumma'ha:t/ 'mothers'.

Masculine sound plural is formed by adding the masculine sound plural suffix /-i:n/ in the cases of nominative, accusative, or genitive as in /mu'darris/ 'teacher' which becomes /mudarri'si:n/ 'teachers'. Broken plural involves a change of vowel patterns within the word stem itself. For example, /ma'di:nih/ 'city' becomes /'mudun/ 'cities' where the long vowel becomes short and both /a/ and /i:/ change to /u/. It also involves affixation of a consonant as in /'jahir/ 'month' which becomes /'ʔaħhur/ 'months', where /ʔa-/ is prefixed, the vowel /a/ in the stem is deleted, and the vowel /i/ changes to /u/. In the JUA suffixed words which end with the suffixes /-a:t/ and /-i:n/ word primary stress falls on the ultimate syllable. The following two metrical

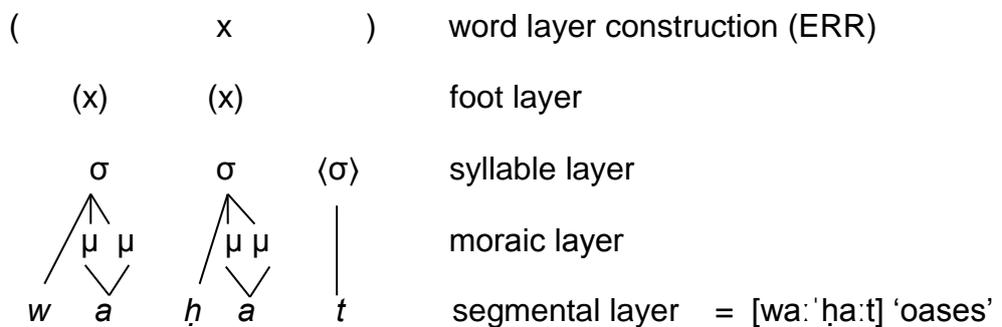
representations present word primary stress shift from the penult syllable in [ˈwaːħa] ‘oasis’ to the ultimate syllable in [waːˈħaːt] ‘oases’.

(4.13.12)



The consonant /h/ is extrametrical. A foot is constructed over the heavy syllable .wa:. A second foot is constructed over the syllable .ħah. The consonant /h/ fails to receive a mora by Weight-by-position rule due to its extrametrical status. The extrametrical $\langle h \rangle$ is peripheral on segmental layer but it is contained within the extrametrical foot $\langle(\bullet)\rangle$ which is peripheral on the foot layer. The foot ($\hbar ah$) is invisible to stress rules. ERR assigns stress to the rightmost visible foot (wa:). The following is the metrical representation of the word [waːˈħaːt] ‘oases’.

(4.13.13)



Foot parse proceeds from left to right. The first heavy syllable .wa:. forms a foot. A second foot is constructed over the heavy syllable .ħa:. The

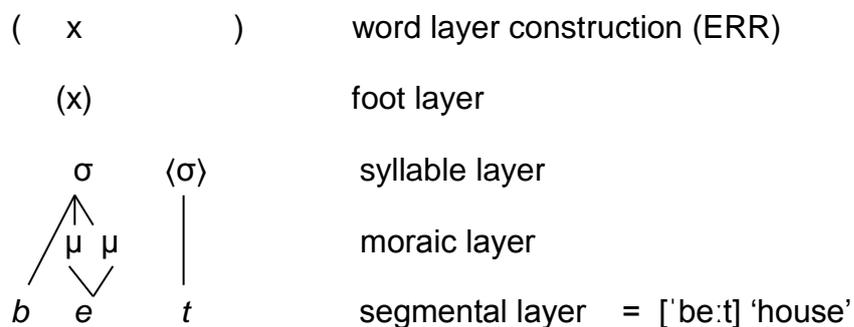
foot (ħa:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic final consonant. ERR assigns stress to the rightmost visible foot (ħa:). The metrical representations in 4.13.12 and 4.13.13 above show that word primary stress shifts from the penult syllable in ['wa:ħa] 'oasis' to the ultimate syllable in [wa:'ħa:t] 'oases'.

In broken plural, word stress may shift; however, it does not necessarily shift to the ultimate syllable. For example, stress shifts from the penult syllable in the singular form /'nahir/ 'river' to the ultimate syllable in the broken plural form /ʔan'ħa:r/ 'rivers'. However, the stress falls on the ultimate syllable in the singular form /kta:b/ 'book' while the penult syllable attracts stress in the broken plural form /'kutub/ 'books'.

4.13.4.2 Word Primary Stress Shift in Dual Forms

The dual form in JUA consists of a stem plus the dual suffix /-e:n/ in nominative, accusative, or genitive, as in /'be:t/ > /be:'te:n/ 'two houses'. The ultimate syllable attracts stress in the JUA suffixed words which end with the dual suffix /-e:n/. The following are the metrical representations of the singular form ['be:t] 'house' and the dual form [be:'te:n] 'two houses', respectively.

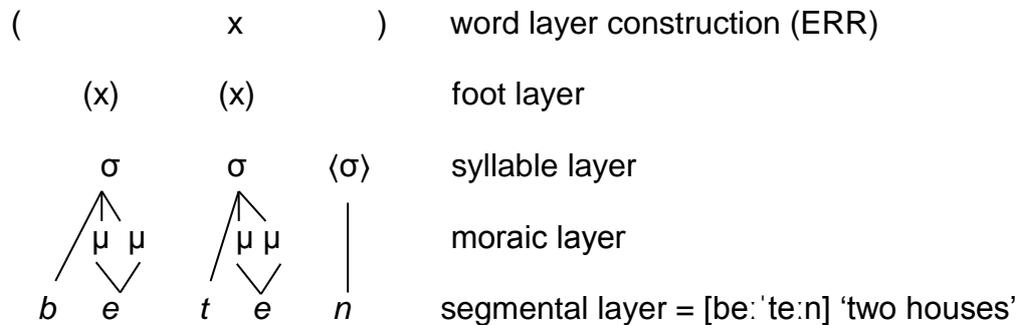
(4.13.14)



Foot parse proceeds from left to right. The heavy (bimoraic) syllable .be:. forms a foot. The foot (be:) is rendered non-peripheral on the foot layer

due to the presence of the extrasyllabic consonant /t/. ERR assigns stress to the rightmost visible foot (be:).

(4.13.15)



Foot parse proceeds from left to right. The first heavy syllable .be: forms a foot. A second foot is constructed over the heavy syllable .te:. The foot (te:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /n/. ERR assigns stress to the rightmost visible foot (te:).

4.13.4.3 Word Primary Stress Shift in Possessive Forms

There are three types of possessive suffixes in JUA:

1. First-person possessive suffixes which include the singular suffix /-i:/ as in /'binit/ > /'binti:/ (realised as [ˈbinti]) 'my daughter' and the plural suffix /-na/ as in /'binit/ > /'binitna/ 'our daughter'.
2. Second-person possessive suffixes which include the singular feminine suffix /-ik/ as in /'binit/ > /'bintik/ 'your daughter', the singular masculine suffix /-ak/ as in /'binit/ > /'bintak/ 'your daughter', and the plural (feminine and masculine) suffix /-ku(m)/ as in /'binit/ > /'binitkum/ 'your daughter'.
3. Third-person possessive suffixes which include the singular feminine suffix /-ha/ as in /'binit/ > /'binitha/ 'her daughter', the singular masculine suffix /-uh/ as in /'binit/ > /'bintuh/ (realised as [ˈbintu]) 'his daughter', and the plural (feminine and masculine) suffix /-hum/ as in /'binit/ > /'binithum/ 'their daughter'.

Stress is not likely to shift in the JUA words which consist of only one foot. For example, /'binit/ becomes /'binitha/ 'her daughter' and /'binithum/ 'their daughter', and /ba:b/ becomes /'ba:bha/ 'her door' and /'ba:bhum/ 'their door'. The same is true for JUA words which consist of more than one foot and the final foot is visible to stress rules, as in /qa:'mu:s/ which becomes /qa:'mu:sha/ 'her dictionary' and /qa:'mu:shum/ 'their dictionary'. When the possessive suffixes /-na/, /-ha/, /-hum/, and /-kum/ are attached to the JUA words which consist of more than one foot and the final foot is invisible to stress rules, stress shifts to the right. Examples from JUA are /'maktab/ which becomes /mak'tabha/ 'her office, /mak'tabhum/ 'their office', /mak'tabna/ 'our office'. However, stress is not likely to shift when the possessive suffixes /-i:/, /-uh/, /-ak/, /-ik/ are attached to the same JUA words. For example, /'maktab/ becomes /'maktabi:/ (realised as ['maktabi]) 'my office', /'maktabuh/ (realised as ['maktabu]) 'his office', /'maktabik/ 'your office', and /'maktabak/ 'your office'.

4.13.5 Conclusion

- a. Word primary stress in JUA follows the following ordered algorithm:
 - i. Stress falls on the ultimate syllable if superheavy.
 - ii. Otherwise, stress falls on the penult syllable if heavy (in polysyllabic words) or in disyllabic words whether the penult syllable is light, heavy, or super-heavy.
 - iii. Otherwise, stress falls on the antepenult syllable.
- b. Suffixes count for stress assignment in general; however, they do not count when they are attached to words with semisyllables.
- c. Prefixes do not affect word primary stress placement when they are attached to utterances in JUA. For example, stress falls on the penult syllable in the JUA words /'binit/ 'boy' and /ʔil'binit/ 'the girl', where the prefix /ʔil-/ 'the' does not affect the placement of stress.
- d. Following Hayes' (1995) rules of stress assignment, the rules of primary stress placement in JUA are summarised as follows.
 - a. Consonant extrametricality $C \rightarrow \langle C \rangle / _] \text{ word}$

The following chapter presents the data analysis and findings of the study. It provides descriptive statistics of the data and a theory-based account of the phonological repair strategies that English loanwords undergo.

Chapter 5 Data Analysis

This chapter presents descriptive statistics of the data and discusses the phonological repair strategies that the loanwords undergo.

5.1 Descriptive Statistics of Data

Sections 5.2.1-5.2.10.4.4 present descriptive statistics of the use of loanwords in the speech of two groups: JUA-speaking female university students who specialise in English (E group) and those who do not specialise in English (non-E), as the following table shows.

Table 5.1 Frequencies and percentages of English loanwords and their JUA translation equivalent words in the speech of two groups: E and non-E.

		Word = N (53)				Total
		JUA translation equivalent word	English loanword	Other JUA word	Other form of English loanword	
Group	Students from English dept. (E) = N (30)					
	Count	340	1205	27	18	1590
	Percentage	21%	76%	2%	1%	100%
	30 Students from other depts. (Non-E) = N (30)					
Count	943	548	83	16	1590	
Percentage	59%	35%	5%	1%	100%	

Table 5.1 presents frequencies and percentages of the loanwords and their JUA translation equivalent words in the speech of two groups: E and

non-E. The non-E group uses JUA translation equivalent words 943 times which is 603 times more than that in the E group. The number of the times that the non-E group uses the loanwords is 548 which shows a significant rise to a peak of 1205 in the E group.

Overall, the table shows that the frequent use of English and the use of the loanwords are related; E group uses the loanwords more than the non-E group; the proportion of E's use of the loanwords is 76% in comparison to 35% of non-E's use.

5.2 Phonological Repair Strategies of English Loanwords in JUA

This section presents a discussion of the phonological repair strategies that the loanwords undergo in JUA: consonantal substitution, epenthesis, syncope, glottal stop [ʔ] prosthesis, closed syllable shortening (CSS), de-clustering, vowel lengthening, vowel shortening, gemination, and word primary stress shift.

5.2.1 Consonantal Substitution

One of the phonological repair strategies that the loanwords undergo is consonantal substitution.

5.2.1.1 Preliminary

The English consonants which are not part of the JUA consonantal inventory undergo consonantal substitution to fit in the JUA phonological system. However, there are respondents who maintain English consonantal phonemes in loanwords. The following table presents percentages of the pronunciations of all loanwords with the JUA substitutes /f/, /b/, /t/, /ʃ/, /ʒ/, and /n/ and the pronunciations which maintain the English phonemes /v/, /p/, /θ/, /tʃ/, /dʒ/, and /ŋ/.

Table 5.2 Percentages of the pronunciations of all loanwords with JUA consonantal substitutes and the pronunciations which maintain English phonemes in the speech of E and non-E.

English Loanwords		Group	
		Non-E = N (30)	E = N (30)
N = (7)	Pronunciations of all loanwords with the JUA consonantal substitute /f/	51%	7%
	Pronunciations of all loanwords which maintain the English phoneme /v/	32%	87%
	Other (JUA words or all other pronunciations of the loanwords)	17%	6%
N = (24)	Pronunciations of all loanwords with the JUA consonantal substitute /b/	70%	37%
	Pronunciations of all loanwords which maintain the English phoneme /p/	16%	55%
	Other (JUA words or all other pronunciations of the loanwords)	14%	8%
N = (1)	Pronunciations of all loanwords with the JUA consonantal substitute /t/	60%	40%
	Pronunciations of all loanwords which maintain the English phoneme /θ/	20%	60%
	Other (JUA words or all other pronunciations of the loanwords)	20%	0%
N = (3)	Pronunciations of all loanwords with the JUA consonantal substitute /ʃ/	80%	30.3%
	Pronunciations of all loanwords which maintain the English phoneme /tʃ/	0%	47.3%
	Other (JUA words or all other pronunciations of the loanwords)	20%	22.3%
N = (2)	Pronunciations of all loanwords with the JUA consonantal substitute /ʒ/	66%	33%
	Pronunciations of all loanwords which maintain the English phoneme /dʒ/	10%	67%
	Other (JUA words or all other pronunciations of the loanwords)	24%	0%
N = (2)	Pronunciations of all loanwords with the JUA consonantal substitute /n/	80%	27%
	Pronunciations of all loanwords which maintain the English phoneme /ŋ/	20%	73%
	Other (JUA words or all other pronunciations of the loanwords)	0%	0%

Table 5.2 shows the percentages of the pronunciations of all loanwords with the JUA consonantal substitutes and the pronunciations which maintain the English phonemes in the speech of two groups: E and non-E. Within the non-E group, the percentages of the pronunciations of all loanwords with the consonantal substitutes /f, b, t, ʃ, ʒ, n/ are higher than that of the pronunciations which maintain the English phonemes /v, p, θ, tʃ, dʒ, ŋ/.

However, within the E group, the proportions of the pronunciations of all loanwords which maintain the phonemes /v, p, θ, ʃ, dʒ, ŋ/ are higher than that of the pronunciations with the consonantal substitutes /f, b, t, ʒ, ʒ, n/.

Overall, the table shows that the frequent use of English and the use of the phonological repair strategy of consonantal substitution are correlated; the E group maintains the English phonemes /v, p, θ, ʃ, dʒ, ŋ/ in loanwords more than the non-E group.

Based on the tables in Appendix G, the percentages in table (1) show that most respondents of the E group maintain the English phonemes in loanwords; however, eight respondents use the JUA substitutes /b, t, ʒ, ʒ, n/. The percentages in table (2) show that most non-E respondents use the JUA substitutes in their loanwords; however, three respondents behave like E respondents and maintain the English phonemes /v, p, θ, dʒ, ŋ/. Having presented the pronunciations of all loanwords with the JUA substitutes and the pronunciations which maintain the English phonemes, in the next few paragraphs I will present a theory-based account of the consonantal substitutions.

Based on the preliminary analysis of the data which have the JUA substitutes /f, b, t, ʒ, ʒ, n/ (see table 5.2 above), it has been proposed in the present study that the JUA phoneme which shares the largest number of contrastive phonological features with the English phoneme which is illicit in JUA is selected to be the optimal substitute. This is expressed under what is called Substitution Optimality Principle (SOP) in (1).

(1) Substitution Optimality Principle (SOP)

A consonantal phoneme constitutes an optimal substitute if it shares more phonological features with the foreign one than does any other consonantal phoneme. Redundant phonological features do not count.

The main purpose of the Substitution Optimality Principle is to establish which phoneme has the priority to be selected as the optimal substitute. In a situation involving a foreign consonantal phoneme which is illicit in the recipient language, the Substitution Optimality Principle predicts

that the consonantal phoneme which shares more phonological features with the foreign one will count as the optimal substitute. The principle requires that redundant features do not count for the consonantal phoneme to be the ideal replacement. Every language decides which phonological features are redundant. In other words, every language has its own system of considering phonological features as contrastive or non-contrastive. This optimal substitute applies for JUA in the present study. Based on my observation of the findings of Hafez (1996), it also applies for Egyptian Arabic. For example, The English words *gentleman* and *jacket* are adapted as /gintilma:n/ and /gakitta/, respectively, where English /dʒ/ becomes /g/ in Egyptian Arabic. The SOP in the present study predicts that Egyptian Arabic /g/ will constitute the optimal substitute for English /dʒ/. The features [-son], [-cont], [+voice], [-ant], [+cor] are contrastively specified for English /dʒ/. The features [-son], [-cont], [+voice], [-ant] are contrastively specified for Egyptian Arabic /g/. The feature [-cor] is not contrastively specified for Egyptian Arabic /g/ because, unlike English, it does not have postalveolar affricates. Either [cor] or [del.rel] works in the case of the adaptation of English /dʒ/ into Egyptian Arabic /g/, as [-cor] and [-del.rel] are not contrastively specified for Egyptian Arabic /g/. Therefore, it is hypothesised that the proposed substitute in the SOP is a universal ideal replacement to the foreign consonantal phoneme. The term ‘principle’⁴⁹ (or universal constraint) refers to what is common to all languages (Chomsky, 1995).

5.2.1.2 The English Phoneme /v/

This section discusses the JUA consonantal substitute /f/ for the English phoneme /v/ in the loanwords. The following table presents percentages of the pronunciations of all loanwords with the substitute /f/.

⁴⁹ Compare this with the term ‘parameter’ which refers to what handles differences among languages (Chomsky, 1995).

Table 5.3 Percentages of the pronunciations of all loanwords with the JUA consonantal substitute /f/ and the pronunciations which maintain the English phoneme /v/ in the speech of two groups: E and non-E

English phoneme	Gloss	English loanword	Group	
			Non-E	E
/v/	Mauve	a. [mo:f]	27%	10%
		b. [mo:v]	13%	73%
		c.	60% ['nahdi]	17% [mu:v]
	Receiver	a. [ri'si:far]	60%	0%
		b. [ri'si:var]	40%	100%
		c.	0%	0%
	Cover	a. ['kafar]	67%	0%
		b. ['kavar]	33%	100%
c.		0%	0%	
Visa	a. ['fi:za]	49%	19%	
	b. ['vi:za]	34%	66%	
	c.	17% [ta?'fi:ra]	15% [ta?'fi:ra]	
Vitamin	a. [fita'mi:n]	57%	17%	
	b. [vita'mi:n]	43%	83%	
	c.	0%	0%	
Voltaren	a. [fulta'ri:n]	60%	0%	
	b. [vulta'ri:n]	40%	100%	
	c.	0%	0%	
Silver	a. ['silfar]	40%	0%	
	b. ['silvar]	20%	90%	
	c.	40% ['fiɖɖi]	10% ['fiɖɖi]	

Table 5.3 presents the percentages of the pronunciations of all loanwords with the substitute /f/ and the pronunciations which maintain the phoneme /v/ in the speech of E and non-E groups. Within the non-E group, the proportions of the pronunciations of all loanwords with the substitute /f/ are higher than that of the pronunciations which maintain the phoneme /v/. Within the E group, the pronunciations which maintain the phoneme /v/ get higher percentages than the pronunciations with the substitute /f/.

The non-E group uses the JUA words [ˈnaɦdi] ‘mauve’, [taʔˈʃi:ra] ‘visa’, and [ˈfiɖɖi] ‘silver’ with the percentages 60%, 17%, and 40%, respectively. The E group uses the loanword /mu:v/ ‘mauve’ and the JUA words [taʔˈʃi:ra] ‘visa’, and [ˈfiɖɖi] ‘silver’ with the percentages 17%, 15%, and 10%, respectively. The position of [v] doesn't account for the variation - intervocalic position is no more likely to be [v] than other positions. Overall, the table shows that the E group is more likely to maintain the phoneme /v/ in loanwords more than the non-E group.

The following list presents the loanwords with the phonemes /f/ and /v/ as two variants for the English phoneme /v/. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

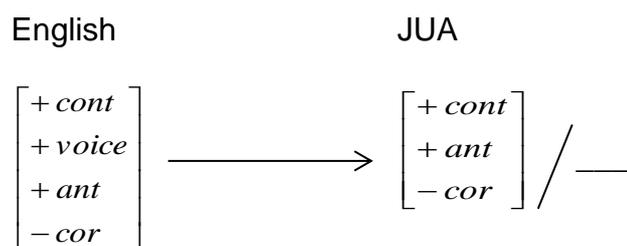
(5.2.1)

a. [mo:f], [mo:v]	mauve	/məʊv/
b. [riˈsi:far], [riˈsi:var]	receiver	/rɪˈsi:və/
c. [ˈkafar], [ˈkavar]	cover	/ˈkʌvə/
d. [ˈfi:za], [ˈvi:za]	visa	/ˈvi:zə/
e. [fultaˈri:n], [vultaˈri:n]	Voltaren	/ˈvɒltərən/
f. [ˈsilfar], [ˈsilvar]	silver	/ˈsɪlvə/
g. [fitaˈmi:n], [vitaˈmi:n]	vitamin	/ˈvɪtəmi:n/

The list 5.2.1 shows that the phoneme /v/ in the loanwords is rendered as both /f/ and /v/. The Substitution Optimality Principle predicts that the JUA

phoneme /f/ will constitute the optimal substitute for the English phoneme /v/. This is due to the fact that JUA /f/ shares more contrastive phonological features with English /v/ than does any other JUA phoneme. The JUA phoneme /f/ shares the features [+cont], [+ant], [-cor] with English /v/. The feature [-voice] is not contrastively specified for JUA /f/; this is connected with the fact that there are no voiced-voiceless pairs in JUA involving the upper teeth against the lower lip. The following phonological rule presents the consonantal substitution that the English phoneme /v/ undergoes in the loanwords which are more integrated into JUA – the phonological rule presents the underlying representations of the two phonemes in English and JUA.

Phonological rule (1):



The English phoneme /v/ becomes /f/ in JUA in all phonological contexts in the loanwords which are more integrated into JUA.

5.2.1.3 The English Phoneme /p/

This section discusses the JUA consonantal substitute /b/ for the English phoneme /p/ in the loanwords. The following table presents percentages of the loanwords which have the substitute /b/.

Table 5.4 Percentages of the pronunciations of all loanwords with the JUA consonantal substitute /b/ and the pronunciations which maintain the English phoneme /p/ in the speech of two groups: E and non-E.

			Group	
English phoneme	Gloss	English loanword	Non-E	E
/p/	make-up	a. ['me:kʔab]	73%	47%
		b. ['me:kʔap]	20%	53%
		c.	7% [ma'wa:d taʒ'mi:l]	0%
	Pedicure	a. [badik'ju:r]	77%	43%
		b. [padik'ju:r]	10%	57%
		c.	13% [ʕi'na:ja bilʔaq'da:m]	0%
	Spray	a. ['sibre:]	77%	33%
		b. ['sipre:]	7%	50%
		c.	16% [mu'sabbit 'jaʕir]	17% [mu'sabbit 'jaʕir]
	Sprite	a. [sib'rait]	80%	47%
		b. [sip'rait]	20%	53%
		c.	0%	0%
Espresso	a. [ʔisbi'rissu]	67%	43%	
	b. [ʔispi'rissu]	23%	57%	
	c.	10% ['ʔahwi]	0%	
Plasma	a. ['bla:zma]	57%	47%	
	b. ['pla:zma]	17%	53%	
	c.	26% [ja:ʕit i 'bla:zma]	0%	
Parachute	a. [bara'ʔo:t]	50%	33%	
	b. [para'ʔo:t]	17%	43%	
	c.	33% [suqu:t 'ħurr]	23% [suqu:t 'ħurr]	
Super	a. ['su:bar]	67%	27%	
	b. ['su:par]	17%	50%	
	c.	16% [mum'ta:z]	23% [mum'ta:z]	
Spare	a. [sbe:r]	60%	40%	
	b. [spe:r]	17%	53%	
	c.	23% [ʔiħti'ja:t]	7% ['ʕaʒal ʔiħti'ja:t]	

	Helicopter	a. [hali'kubtar] b. [hali'kuptar] c.	33% 17% 50% [taj'ja:ra]	23% 27% 50% [taj'ja:ra]
	Professor	a. [brufi'so:r] b. [prufi'so:r] c.	60% 13% 27% [ʔus'ta:z]	33% 50% 17% [ʔus'ta:z]
	Protein	a. [bro:'ti:n] b. [pro:'ti:n] c.	83% 17% 0%	40% 60% 0%
	Pose	a. [bo:z] b. [po:z] c.	83% 17% 0%	33% 67% 0%
	Reception	a. [ri'sibʃin] b. [ri'sipʃin] c.	57% 17% 26% [ʔistiq'ba:l]	40% 47% 13% [ʔistiq'ba:l]
	Poster	a. ['bo:star] b. ['po:star] c.	53% 10% 37% ['mulʃaq iʃ'la:ni]	43% 50% 7% ['mulʃaq]
	Panda	a. ['ba:nda] b. ['pa:nda] c.	63% 17% 20% [həjwa:n il'ba:nda]	47% 53% 0%
	Plaster	a. ['bla:star] b. ['pla:star] c.	50% 13% 37% [luz'ze:ʔa]	33% 40% 27% [luz'ze:ʔa]
	Paraceta- mol	a. [barasita'mo:l] b. [parasita'mo:l] c.	83% 17% 0%	33% 67% 0%
	Prestige	a. [bris'ti:ʒ] b. [pris'ti:ʒ] c.	83% 17% 0%	33% 67% 0%

	Skype	a. [skaib]	83%	27%
		b. [skaip]	17%	73%
		c.	0%	0%
	Scallop	a. ['skalub]	87%	33%
		b. ['skalup]	13%	67%
		c.	0%	0%
Cap	a. [ka:b]	83%	40%	
	b. [ka:p]	17%	60%	
	c.	0%	0%	
Aspirin	a. [ʔasbiri:n]	83%	40%	
	b. [ʔaspiri:n]	17%	60%	
	c.	0%	0%	
Panadol	a. [bana'do:l]	83%	40%	
	b. [pana'do:l]	17%	60%	
	c.	0%	0%	

Table 5.4 illustrates the proportions of the pronunciations of all loanwords with the substitute /b/ and the pronunciations which maintain the phoneme /p/ in the speech of the two groups. Within the non-E group, percentages of the pronunciations with the substitute /b/ are higher than that of the pronunciations which maintain the phoneme /p/. However, percentages of the pronunciations which maintain the phoneme /p/ are higher than that of the pronunciations with the substitute /b/ in the E group.

The non-E group uses the JUA words [ma'wa:d taʒ'mi:l] 'make-up' 7%, [ʕi'na:ja bilʔaq'da:m] 'pedicure' 13%, [mu'sabbit 'jaʕir] 'spray' 17%, [ʔahwih] 'coffee' 10%, [ʔa:ʕit i 'bla:zma] 'plasma screen' 26%, [suqu:ʔ 'hurr] 'parachute' 33%, [mum'ta:z] 'super' 16%, [ʔiħti'ja:t] 'spare' 23%, [ʔaj'ja:ra] 'helicopter' 50%, [ʔus'ta:z] 'professor' 27%, [ʔistiq'ba:l] 'reception' 26%, [ʔmulʕaq iʕ'la:ni] 'poster' 37%, [luz'ze:ʔa] 'plaster' 20%, and the loanword [ʔba:nda] 'panda' at the post lexical level [ħajwa:n il'ba:nda] 'the panda' 37%. The E group uses the JUA words [mu'sabbit 'jaʕir] 'spray' 17%, [suqu:ʔ 'hurr]

'parachute' 23%, [mum'ta:z] 'super' 23%, [ʕaʒal ʔihti'ja:t] 'spare' 7%, [tʃaj'ja:ra] 'helicopter' 50%, [ʔus'ta:z] 'professor' 17%, [ʔistiɒ'ba:l] 'reception' 13%, [ʔmulʃaɒ] 'poster' 7%, and [luz'ze:ʔa] 'plaster' 27%. The position of [p] doesn't account for the variation. Overall, the table shows that the non-E group is more likely to substitute the JUA phoneme /b/ for English /p/ in loanwords than the E group.

The following list presents the loanwords with the phonemes /b/ and /p/ as two variants for the English phoneme /p/. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

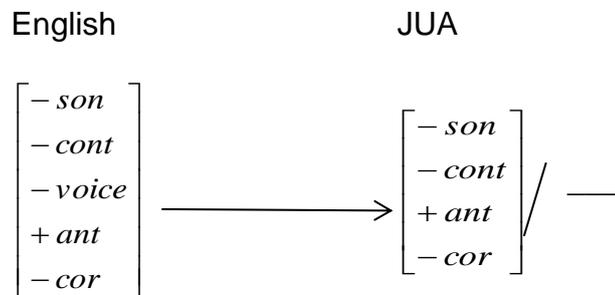
(5.2.2)

a. [badik'ju:r], [padik'ju:r]	pedicure	/ˈpedɪkjʊə/
b. [ˈme:kʔab], [ˈme:kʔap]	makeup	/ˈmeɪkʌp/
c. [sɪb're:], [sɪp're:]	spray	/spreɪ/
d. [sɪb'rait], [sɪp'rait]	Sprite	/sprɑɪt/
e. [ˈfɪbɪs], [ˈfɪps]	chips	/tʃɪps/
f. [ʔɪsɪbɪ'rɪssu], [ʔɪspɪ'rɪssu]	espresso	/esˈpresəʊ/
g. [sbe:r], [spe:r]	spare	/speə/
h. [hali'kubtar], [hali'kuptar]	helicopter	/ˈhelɪkɒptə/
i. [brufɪ'so:r], [prufɪ'so:r]	professor	/prəˈfesə/
j. [bro:'ti:n], [pro:'ti:n]	protein	/ˈprəʊti:n/
k. [bo:z], [po:z]	pose	/pəʊz/
l. [rɪ'sɪbʃɪn], [rɪ'sɪpʃɪn]	reception	/rɪˈsepʃən/
m. [ˈbo:stɑr], [ˈpo:stɑr]	poster	/ˈpəʊstə/
n. [ˈbla:stɑr], [ˈpla:stɑr]	plaster	/ˈplɑ:stə/
o. [barasɪtɑ'mo:l], [parasɪtɑ'mo:l]	paracetamol	/pærəˈsɪ:təmə/
p. [brɪs'ti:ʒ], [prɪs'ti:ʒ]	prestige	/pres'ti:ʒ/
q. [skaɪb], [skaɪp]	Skype	/skaɪp/
r. [ˈsu:bar], [ˈsu:par]	super	/ˈsu:pə/
s. [ˈba:nda], [ˈpa:nda]	panda	/ˈpændə/
t. [ˈbla:zma], [ˈpla:zma]	plasma (screen)	/ˈplæzmə skri:n/
u. [bara'fo:t], [para'fo:t]	parachute	/ˈpærəʃu:t/

v. [ˈskalub], [ˈskalup]	scallop	/ˈskɒləp/
w. [ka:b], [ka:p]	cap	/kæp/
x. [banaˈdo:l], [panaˈdo:l]	Panadol	/ˈpænədɒl/

The phoneme /p/ in the loanwords in 5.2.2 is rendered as /b/ and /p/. According to the SOP, the JUA phoneme /b/ makes the ideal replacement for English /p/. JUA /b/ shares more contrastive features with English /p/ than does any other JUA phoneme. JUA /b/ shares the features [-son], [-cont], [+ant], [-cor] with English /p/. The feature [+voice] is redundantly specified for JUA /b/; this is due to the fact that there is no voiced-voiceless pair in JUA involving the upper lip against the lower lip. The following phonological rule presents the consonantal substitution that the phoneme /p/ undergoes in the loanwords which are more integrated into JUA – the phonological rule presents the underlying representations of the two phonemes in English and JUA.

Phonological rule (2):



The English phoneme /p/ becomes /b/ in JUA in all phonological contexts in the loanwords which are more integrated into JUA.

5.2.1.4 The English Phoneme /θ/

This section discusses the JUA substitute /t/ for the English phoneme /θ/. The following table presents percentages of the pronunciation of the loanword which have the substitute /t/.

Table 5.5 Percentages of pronunciation of the loanword with the JUA consonantal substitute /t/ and the pronunciation which maintains the English phoneme /θ/ in the speech of two groups: E and non-E.

English phoneme	Gloss	English loanword	Group	
			Non-E	E
	Thermos	a. ['te:rmus] b. ['θe:rmus] c.	60% 20% 20% [saxxa:n 'fa:j]	40% 60% 0%

Table 5.5 shows proportions of the pronunciation of the loanword with the substitute /t/ and the pronunciation which maintains the English phoneme /θ/. The table shows that the percentage of the pronunciation which maintains the phoneme /θ/ is higher in the E group than that in the non-E group. The non-E group uses the JUA word [saxxa:n 'fa:j] which gets 20%. The following first column presents the loanword, the second column presents a gloss, and the third column presents the phonemic transcription of the native English pronunciation.

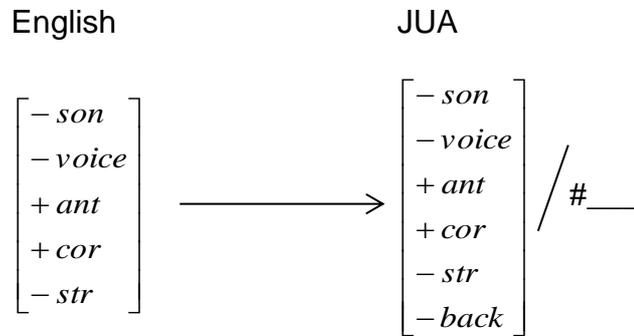
(5.2.3)

- a. ['te:rmus], ['θe:rmus] thermos /'θɜ:məs/

The phoneme /θ/ in /'θɜ:məs/ is rendered as /t/ and /θ/. The SOP predicts that the JUA phoneme /t/ will constitute the optimal substitute for the English /θ/, as it shares the contrastive features [-son], [-voice], [+ant], [+cor], [-str] with English /θ/. The feature [-back] is contrastively specified for JUA /t/; this is connected with the fact that JUA maintains a contrast between /t/ and /t̥/. Since JUA /t/ shares more contrastive phonological features with /θ/ than does any other JUA phoneme, it is selected by the SOP as the ideal replacement for English /θ/. The following phonological rule presents the consonantal substitution that the phoneme /θ/ undergoes in the loanword

which is more integrated into JUA – the phonological rule presents the underlying representations of the two phonemes in English and JUA.

Phonological rule (3):



The English phoneme /θ/ becomes /t/ in JUA in the context when it occurs in the initial position in the loanword which is more integrated into JUA.

5.2.1.5 The English Phoneme /tʃ/

This section discusses the JUA consonantal substitute /ʃ/ for the English phoneme /tʃ/. The following table presents percentages of the pronunciations of all loanwords which have the substitute /ʃ/.

Table 5.6 Percentages of pronunciations of all loanwords with the JUA consonantal substitute /ʃ/ and the pronunciations which maintain the English phoneme /tʃ/ in the speech of two groups: E and non-E.

English phoneme	Gloss	English loanword	Group	
			Non-E	E
/tʃ/	brooch	a. [bro:ʃ]	40%	33%
		b. [bro:tʃ]	0%	50%
		c.	60% [dab'bu:s]	17% [dab'bu:s]

	cheque	a. [ʃe:k] b. [tʃe:k] c.	100% 0% 0%	23% 27% 50% [tʃak]
	chips	a. [ʃɪbɪs] b. [tʃɪps] c.	100% 0% 0%	35% 65% 0%

Table 5.6 shows the percentages of the pronunciations of all loanwords with the substitute /ʃ/ and the pronunciations which maintain the phoneme /tʃ/ in the speech of the two groups. The non-E group does not maintain the phoneme /tʃ/ in loanwords whereas the E group maintains the phoneme /tʃ/, and substitutes /ʃ/ for the English phoneme, in loanwords. However, the percentages of the pronunciations which maintain the phoneme /tʃ/ are higher than that of the pronunciations with the substitute /ʃ/ within the E group.

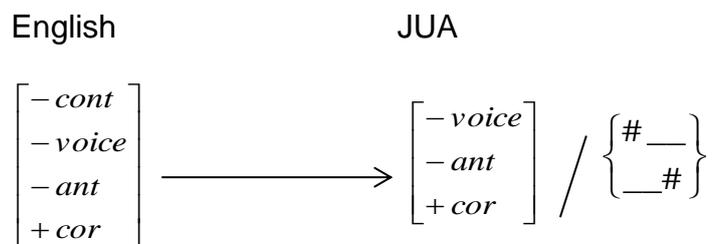
The non-E and E groups use the JUA word [dab'bu:s] 'brochure' with the percentages of 60% and 17%, respectively. The E group uses the English word [tʃak] 'cheque' with 50%. Overall, the table shows that the percentages of the pronunciations with the substitute /ʃ/ are higher in the non-E group than in the E group. The following list presents the loanwords with the phonemes /ʃ/ and /tʃ/ as two variants for the English phoneme /tʃ/. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

(5.2.4)

- | | | |
|----------------------|--------|----------|
| a. [bro:ʃ], [bro:tʃ] | brooch | /brəʊtʃ/ |
| b. [ʃe:k], /tʃe:k] | cheque | /tʃek/ |
| c. [ʃɪbɪs], [tʃɪps] | chips | /tʃɪps/ |

The English phoneme /tʃ/ in the loanwords in 5.2.4 is rendered as /ʃ/ and /tʃ/. According to the SOP, the JUA phoneme /ʃ/ constitutes the ideal replacement for English /tʃ/, as it shares more phonological features with the latter than does any other JUA phoneme. The JUA phoneme /ʃ/ shares the features [-voice], [-ant], [+cor] with English /tʃ/. The feature [+cont] is redundantly specified for JUA /ʃ/. The following phonological rule presents the consonantal substitution that the phoneme /tʃ/ undergoes in the loanwords which are more integrated into JUA – the phonological rule presents the underlying representations of the two phonemes in English and JUA.

Phonological rule (4):



The English phoneme /tʃ/ becomes /ʃ/ in JUA in the context when it occurs in the initial or final position in the loanwords which are more integrated into JUA.

5.2.1.6 The English Phoneme /dʒ/

This section discusses the JUA substitute /ʒ/ for the English phoneme /dʒ/. The following table presents percentages of the pronunciations with the substitute /ʒ/.

Table 5.7 Percentages of pronunciations of all loanwords with the JUA consonantal substitute /ɜ/ and the pronunciations which maintain the English phoneme /dʒ/ in the speech of two groups: E and non-E.

English phoneme	Gloss	English loanword	Group	
			Non-E	E
	message	a. ['masiɜ]	42%	33%
		b. ['masidʒ]	10%	67%
		c.	48% [ri'sa.li]	0%
	jeans	a. ['ɜiniz]	90%	33%
		b. [dʒi:nz]	10%	67%
		c.	0%	0%

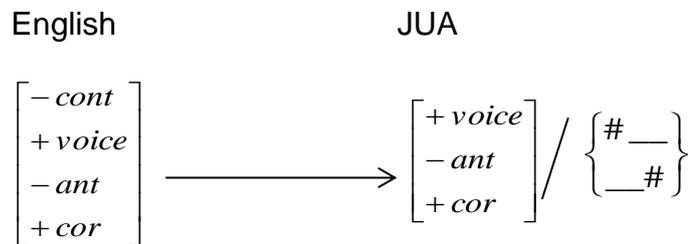
Table 5.7 shows the proportions of the pronunciations with the JUA substitute /ɜ/ and the pronunciations which maintain the phoneme /dʒ/ in the speech of the two groups. Within the non-E group, the percentages of the pronunciations with the substitute /ɜ/ are higher than that of the pronunciations which maintain the phoneme /dʒ/. The E group members maintain the phoneme /dʒ/ more than they substitute it with /ɜ/. The non-E group uses the JUA word [ri'sa.li] 'message' with the percentage of 48%. Overall, the table shows that the E group is more likely to maintain the phoneme /dʒ/ in loanwords than the non-E group. The following list presents the loanwords with the phonemes /ɜ/ and /dʒ/ as two variants for the English phoneme /dʒ/. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

(5.2.5)

- | | | |
|------------------------|---------|-----------|
| a. ['ɜiniz], [dʒi:nz] | jeans | /dʒi:nz/ |
| b. ['masiɜ], ['masidʒ] | message | /'mesidʒ/ |

The phoneme /dʒ/ in the loanwords in 5.2.5 is rendered as /ʒ/ and /dʒ/. The SOP predicts that JUA /ʒ/ will be the optimal substitute for English /dʒ/, as the former shares more contrastive features with the latter. The two phonemes share the features [+voice], [-ant], [+cor]. The feature [+cont] is redundantly specified for the JUA phoneme /ʒ/. The following phonological rule presents the consonantal substitution that the phoneme /dʒ/ undergoes in the loanwords which are more integrated into JUA – the phonological rule presents the underlying representations of the two phonemes in English and JUA.

Phonological rule (5):



The English phoneme /dʒ/ becomes /ʒ/ in JUA in the context when it occurs in the initial or final position in the loanwords which are more integrated into JUA.

5.2.1.7 The English Phoneme /ŋ/

This section discusses the JUA substitute /n/ for the English phoneme /ŋ/. The following table presents percentages of the pronunciations with the substitute /n/.

Table 5.8 Percentages of the pronunciations of all loanwords with the JUA consonantal substitute /n/ and the pronunciations which maintain the English phoneme /ŋ/ in the speech of two groups: E and non-E.

English phoneme	Gloss	English loanword	Group	
			Non-E	E
/ŋ/	tank	a. ['tanɪk]	80%	27%
		b. [tɑŋk]	20%	73%
		c.	0%	0%
	bank	a. ['banɪk]	80%	27%
		b. [bɑŋk]	20%	73%
		c.	0%	0%

Table 5.8 shows the percentages of the pronunciations with the JUA substitute /n/ in the speech of E and non-E groups. Within the non-E group, the percentages of the pronunciations with the substitute /n/ are higher than that of the pronunciations which maintain the English phoneme /ŋ/. The E group members maintain the phoneme /ŋ/ more than they substitute it with /n/. Overall, the table shows that the E group members are more likely to maintain /ŋ/ in loanwords than the non-E group. The following list presents the loanwords with the phonemes /n/ and /ŋ/ as two variants for the English phoneme /ŋ/. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

(5.2.6)

- | | | |
|---------------------|------|--------|
| a. ['tanɪk], [tɑŋk] | tank | /tæŋk/ |
| b. ['banɪk], [bɑŋk] | bank | /bæŋk/ |

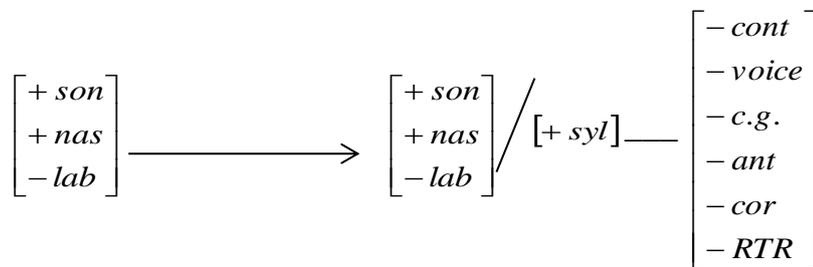
The phoneme /ŋ/ in the loanwords in 5.2.6 is rendered as /n/ and /ŋ/. The JUA phoneme /n/ is selected by the SOP as the optimal substitute for the English phoneme /ŋ/. This is due to the fact that JUA /n/ shares the

contrastive phonological features [+son], [+nas], [-lab] with /ŋ/. The fact that JUA /n/ constitutes the ideal replacement is related to the idea that the features [+ant], [+cor], [-hi], [-back] are not contrastively specified for the JUA substitute /n/. The following phonological rule presents the consonantal substitution that the phoneme /ŋ/ undergoes in the loanwords which are more integrated into JUA – the phonological rule presents the underlying representations of the two phonemes in English and JUA.

Phonological rule (6):

English

JUA



The English phoneme /ŋ/ becomes /n/ in JUA in the context when it is preceded by a vowel and followed by a voiceless velar in the loanwords which are more integrated into JUA.

5.2.2 Epenthesis

Epenthesis is one of the phonological repair strategies that the loanwords undergo in JUA.

5.2.2.1 Preliminary

Based on the observation of the data, it has been proposed in the present study that phonological repairs in the loanwords occur at the lowest phonological level in the prosodic hierarchy in favour of satisfying constraints at higher levels, as it is expressed in the Phonological Repair Principle (PRP) in (2).

(2) Phonological Repair Principle (PRP)

In a situation involving one or more violated constraints, a repair occurs at the lowest phonological level of the PH⁵⁰ in favour of satisfying constraints at higher phonological levels.

The purpose of the Phonological Repair Principle is twofold: Firstly, to determine the phonological level at which a phonological repair occurs; secondly, to establish which constraint has the priority to be satisfied when two or more constraints are violated at the same time. The following prosodic hierarchy, which is based on the hierarchy in Moraic Theory and Metrical Stress Theory, determines the lowest phonological level that is referred to in (2).

(3) Prosodic Hierarchy (PH)

Word level > Foot level > syllable level > moraic level > segmental level

The purpose of the PH is to determine the lowest phonological level that is referred to in the PRP in (2) above. According to this hierarchy, the segmental level is the lowest phonological level that phonological repairs occur at in order to satisfy phonological constraints at moraic level, syllable level, foot level, or word level.

5.2.2.2 Vowel Epenthesis in Initial Clusters

The following list presents the loanwords with the epenthetic short vowel [i] in the word-initial position. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

⁵⁰ See the PH in (3) below.

(5.2.2.1)

- | | | | |
|----|-------------------------|--------|----------|
| a. | [sib're:] ⁵¹ | spray | /spreɪ/ |
| b. | [sib'rait] | Sprite | /sprait/ |

The Phonological Repair Principle predicts that the phonological repair of epenthesis will occur at the segmental level in order to satisfy a phonotactic constraint at a syllabic level, a higher phonological level in the PH. A phonotactic constraint in JUA requires that a word begin with a consonant or a bi-consonantal cluster; a tri-consonantal cluster is not permitted. Therefore, the forms */sbre:/ 'spray' and */sbrait/ 'sprite' are unaccepted in JUA⁵². The illicit tri-consonantal cluster /spr-/ fails to be resolved prosthetically (i.e. inserting a short vowel at the beginning of a word). This is because a constraint in JUA requires that a syllable begin with a consonant. Accordingly, the forms *[isbrait], *[asbrait], or *[usbrait] 'sprite' and *[isbre:], *[asbre:], or *[usbre:] 'spray' are unaccepted in JUA. Inserting the glottal stop [ʔ] plus an epenthetic short vowel in the forms *[ʔisbrait], *[ʔasbrait], or *[ʔusbrait] 'sprite' and *[ʔisbre:], *[ʔasbre:], or *[ʔusbre:] 'spray' does not resolve the phonological issue in question either. This is due to the fact that the tri-consonantal sequence /-sbr-/ is not permitted in a word-medial position whether it occurs within a syllable or across syllables in JUA, unless the first two consonants in the sequence are identical (i.e. a pseudo geminate) within a suffixed word (see sections 3.1.5.1 and 4.12.4 above).

Let us go back and have a look at the loanwords in 5.2.2.1. The epenthetic short vowel [i] is inserted to the left of the second consonant in the cluster /spr-/ to resolve the illicit tri-consonantal cluster in the loanwords. The question arises as to why the initial tri-consonantal cluster is resolved by inserting a short vowel to the left, and not to the right, of the unsyllabified consonant. As mentioned before, JUA is a VC dialect; the epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant (see § 4.12.6.2

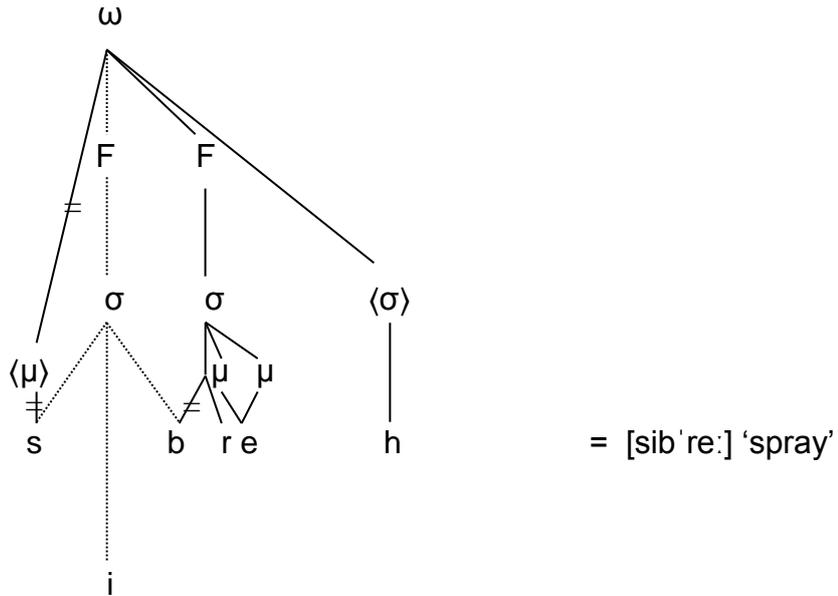
⁵¹ For the consonantal substitution of English /p/ into JUA /b/, see § 5.2.1.3 above.

⁵² The asterisk * means unaccepted.

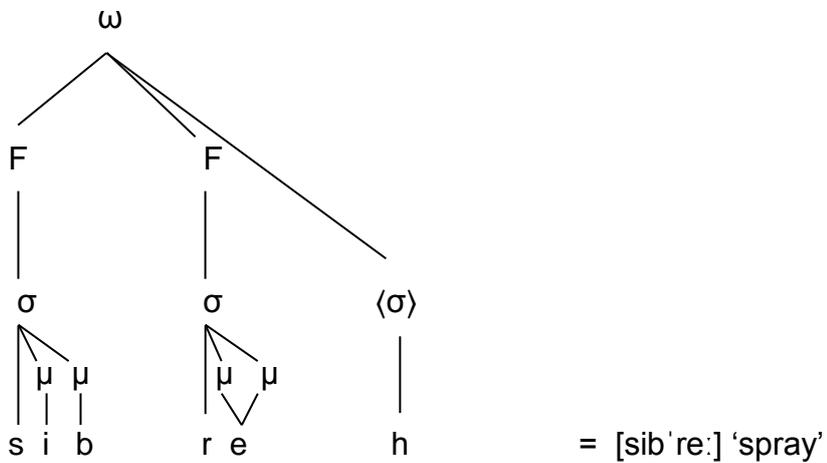
above). The following prosodic representation presents the loanword [sib're:] 'spray' with the epenthetic short vowel being inserted to the left of the unsyllabified consonant (for the underlying /h/, see § 4.13.3 above).

(5.2.2.2)

a. Epenthesis



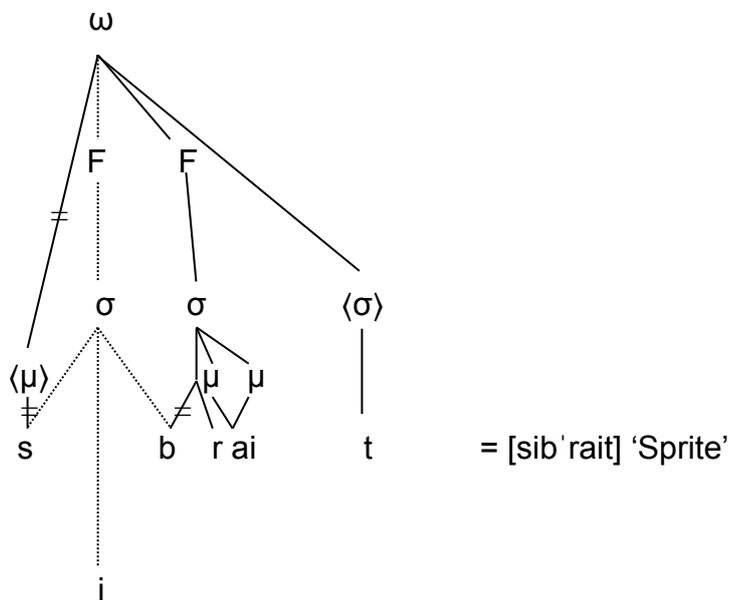
b. Output



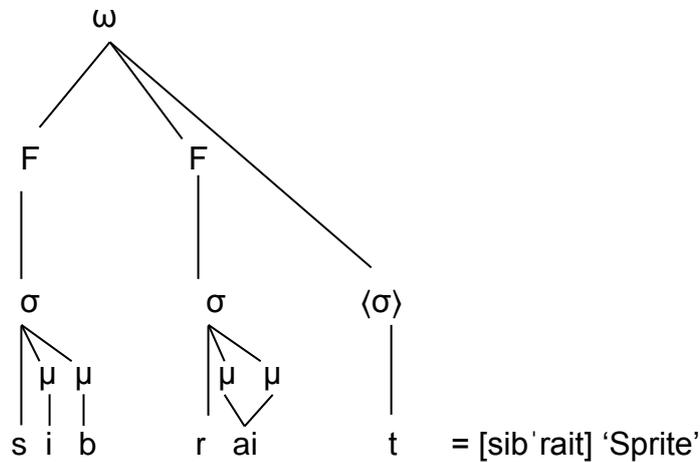
The phonological word in 5.2.2.2.b has two feet (sib) and (re:). The foot (sib) has two moras (the short vowel /i/ and the consonant /b/ which receives a mora by Weight-by-position rule) and the rightmost foot (re:) consists of two moras (the long vowel /e:/). The underlying /h/ is an extrasyllabic consonant. The loanword [sib're:] 'spray' satisfies the JUA moraic rules and thus it is accepted in JUA. The following prosodic representation presents the loanword [sib'rait] 'Sprite'

(5.2.2.3)

a. Epenthesis



b. Output

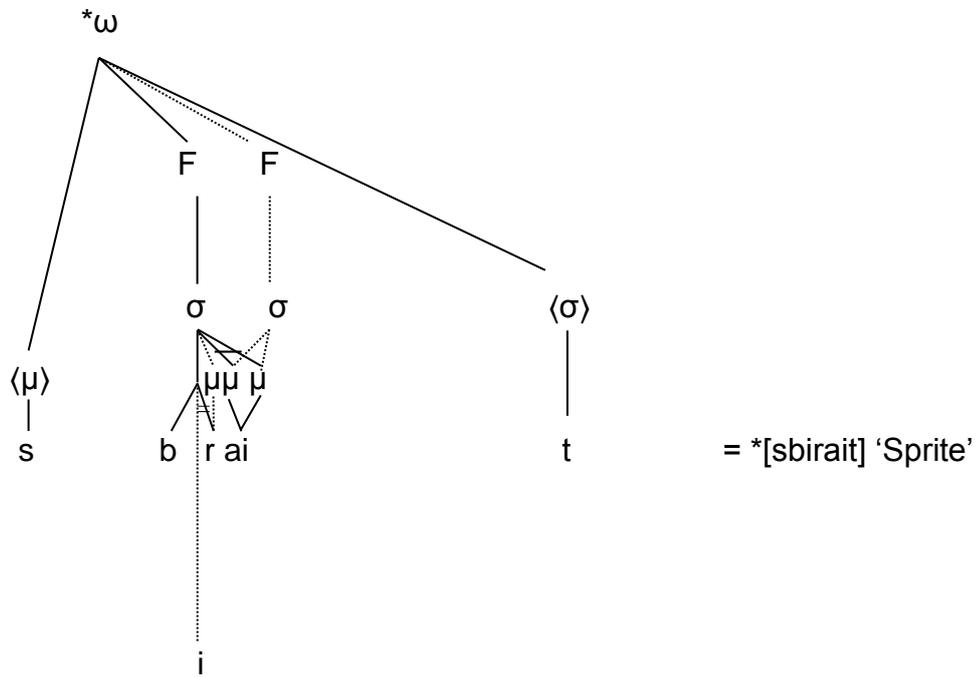


The phonological word in 5.2.2.3.b has two feet. The foot (sib) comprises two moras (the short vowel /i/ and the consonant /b/ which receives a mora by Weight-by-position rule) and the rightmost foot (rai) consists of two moras (the diphthong /ai/). The /t/ is an extrasyllabic consonant. The loanwords [sib'rait] 'Sprite' is accepted in JUA as it satisfies the JUA moraic rules. The short vowel [i] is selected as an epenthetic vowel in loanwords due to the fact that it is the vowel that is used in JUA to resolve illicit tri-consonantal sequences across the boundaries of words, as in /binit + kbi:rih/ 'girl + big' > [bint [i] kbi:ri] 'big girl'.

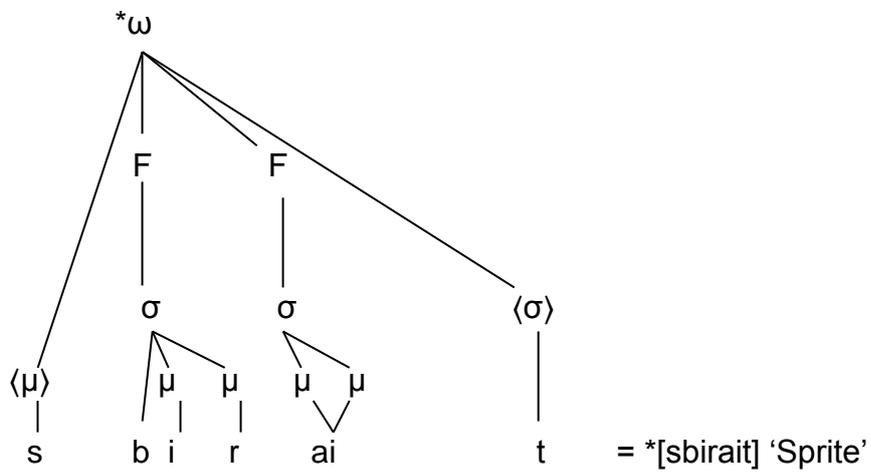
Now let us see what would happen if the short vowel [i] was inserted to the right of the unsyllabified consonant, which would result in the forms *[sbire:] 'sray' and *[sbitrait] 'Sprite'. The following prosodic representation presents the suggested form *[sbitrait] 'Sprite', where the asterisk * means unaccepted.

(5.2.2.4)

a. Epenthesis



b. Output

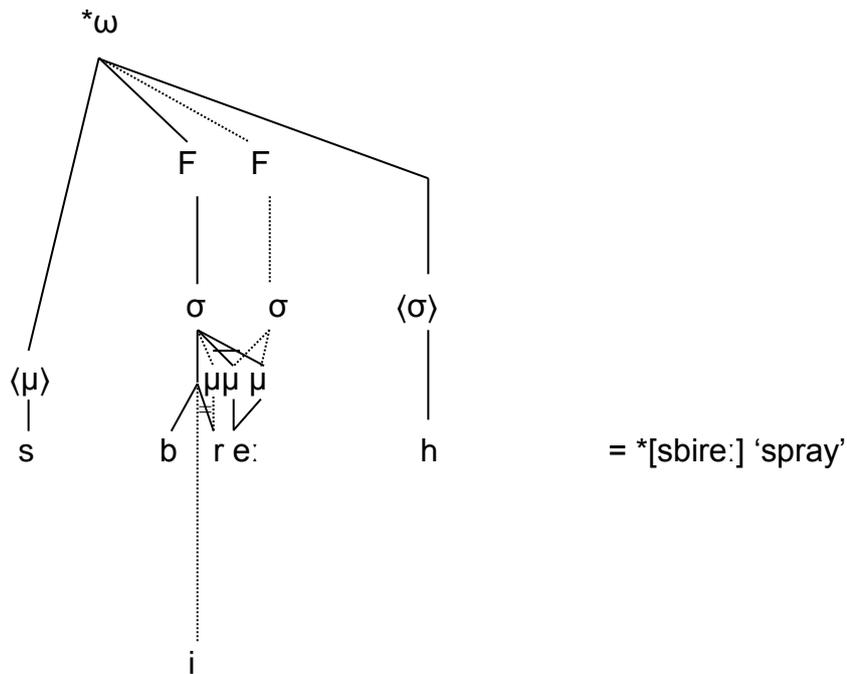


The phonological word in 5.2.2.4.b has two feet. The leftmost foot (bir) has two moras (the short vowel /i/ and the consonant /r/) and the illicit rightmost foot (ai) has two moras (the diphthong /ai/); however, it has no onset. The phonological word $*[sbirait]$ 'Sprite' violates the JUA constraint which requires that each syllable begin with a consonant. As a result, the

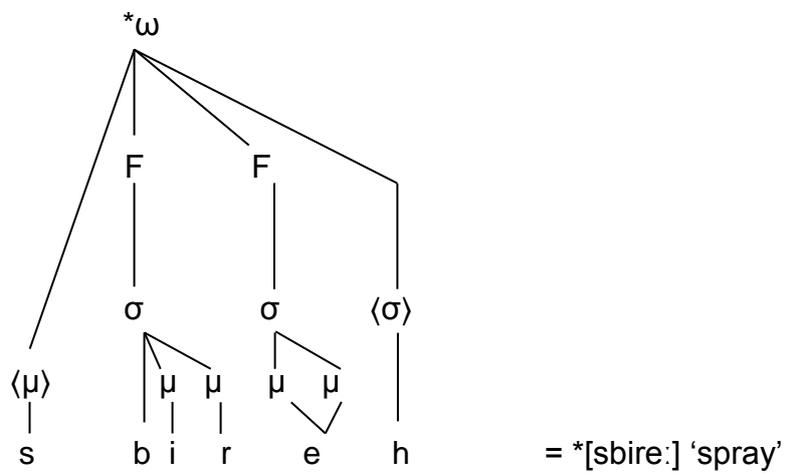
suggested form *[sbirait] 'Sprite' is unaccepted in JUA. The following prosodic representation presents the suggested form *[sbire:] 'spray'.

(5.2.2.5)

a. Epenthesis



b. Output



The phonological word in 5.2.2.5.b has two feet. The leftmost foot (bir) has two moras (the short vowel /i/ and the consonant /r/) and the illicit rightmost foot (e:) has two moras (the long vowel /e:/); however, it has no onset. The covert consonant /h/ is extrasyllabic (see § 4.13.3 above). The phonological word */sbire:h/ ‘spray’ violates the JUA constraint which requires that each syllable begin with a consonant. As a result, the suggested form *[sbire:] ‘spray’ is unaccepted in JUA.

5.2.2.3 Vowel Epenthesis in Final Clusters

This sub-section discusses vowel epenthesis in final clusters. The following table presents percentages of the pronunciations of all loanwords with the epenthetic short vowel [i] in final clusters.

Table 5.9 Percentages of the Pronunciations of all loanwords with the epenthetic short vowel [i] in a word-final position and the Pronunciations with final clusters in the speech of E and non-E.

		Group	
		Non-E N = 30	E N = 30
English Loanword N = 7	Pronunciations of all loanwords with the epenthetic short vowel [i]	72%	30%
	Pronunciations of all loanwords which maintain final clusters	22%	70%
	Other (i.e. JUA word)	6%	0%
Total		100%	100%

Table 5.9 shows the percentages of the pronunciations with the epenthetic short vowel [i] in final clusters and the pronunciations which maintain final clusters in the speech of two groups: E and non-E. The table shows that the proportion of the pronunciations which maintain final clusters is higher in the E group than that in the non-E group. Overall, the non-E

group members insert the epenthetic short vowel [i] in final clusters more than the E group. The following table presents percentages of the pronunciations with the epenthetic short vowel [i] in final clusters and the pronunciations which maintain the final clusters /-nz/, /-ps/, /-lm/, /ŋk/, /-ft/, and /-sk/ in the speech of the two groups.

Table 5.10 Percentages of the pronunciations of all loanwords with the epenthetic short vowel [i] and the pronunciations with final bi-consonantal clusters in the speech of two groups: E and non-E.

English final bi-consonant cluster	Gloss	English loanword	Group	
			Non-E	E
/nz/	Jeans	a. [ˈʒiniz]	90%	33%
		b. [dʒi:nz]	10%	67%
		c.	0%	0%
/ps/	Chips	a. [ˈfɪbis]	100%	35%
		b. [tʃɪps]	0%	65%
		c.	0%	0%
/lm/	Film	a. [ˈfɪlɪm]	63%	33%
		b. [fɪlm]	37%	67%
		c.	0%	0%
/ŋk/	Tank	a. [ˈtɒnɪk]	80%	27%
		b. [tɒŋk]	20%	73%
		c.	0%	0%
/ŋk/	Bank	a. [ˈbɒnɪk]	80%	27%
		b. [bɒŋk]	20%	73%
		c.	0%	0%
/ft/	Shift	a. [ˈʃɪfɪt]	61%	33%
		b. [ʃɪft]	39%	67%
		c.	0%	0%

/sk/	Disc	a. ['disik]	33%	27%
		b. [disk]	27%	73%
		c.	40% ['quruş]	0%

Table 5.10 shows the percentages of the pronunciations with the epenthetic short vowel [i] in final clusters and the loanwords which maintain the clusters in the speech of two groups. The table shows that the E group members are more likely to maintain the clusters in loanwords than the non-E group. The non-E group uses the JUA word ['quruş] 'disc' with the percentage of 40%. The following list presents the loanwords with the epenthetic short vowel [i]. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

(5.2.2.6)

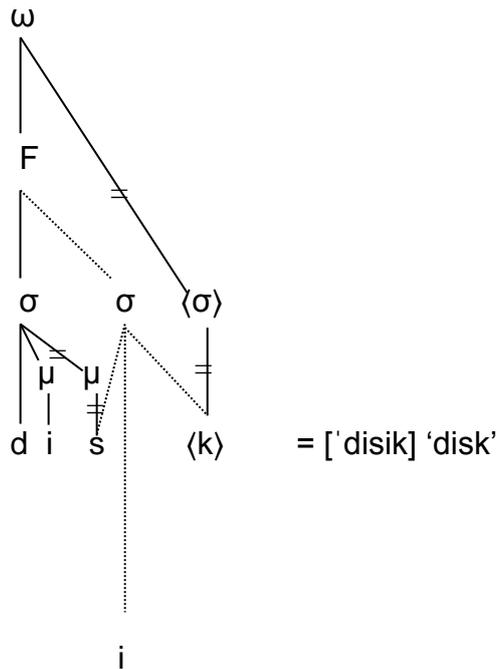
a. ['tanik]	tank	/tæŋk/
b. ['banik]	bank	/bæŋk/
c. ['filim]	film	/fɪlm/
d. ['ʃifit]	shift	/ʃɪft/
e. ['ʒiniz]	jeans	/dʒi:nz/
f. ['ʃibis]	chips	/tʃɪps/
g. ['disik]	disk	/disk/

According to the PRP, the phonological repair of epenthesis occurs at the segmental level to satisfy a phonotactic constraint at a syllabic level, a higher phonological level in the PH. A phonotactic constraint in JUA does not permit final bi-consonantal clusters apart from pseudo geminates (see 3.1.5.1 above). Therefore, the epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant (i.e. second consonant) in the clusters in 5.2.2.6. The epenthetic vowel is inserted to the left, and not to the right, of the unsyllabified consonant due to the fact that JUA is a VC dialect, where epenthetic vowels are inserted to the left of unsyllabified consonants in illicit tri-consonantal sequences across word boundaries (see § 4.12.6.2 above).

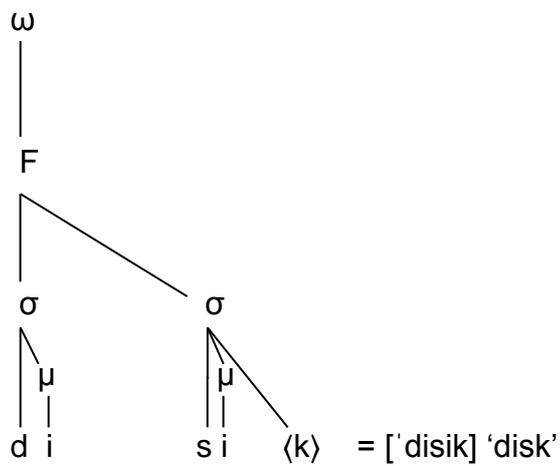
The loanwords in 5.2.2.6 are analogous to the JUA words ['bahir] 'sea' and ['ʕilim] 'science'. The prosodic representation in 5.2.2.7 presents the loanword ['disik] 'disk'.

(5.2.2.7)

a. Epenthesis



b. Output



The phonological word in 5.2.2.7.b consists of one foot (di.sik) which comprises two monomoraic syllables. The consonant /k/ fails to receive a mora by Weight-by-position rule due to its extrametrical status.

5.2.2.4 Vowel Epenthesis at Phrasal and Sentential Levels

The following list presents the loanwords with the epenthetic short vowel [i] in phonological phrases/sentences. The first column presents the input forms (i.e. JUA verbs plus loanwords), the second column presents the output forms, and the third column presents glosses.

(5.2.2.8)

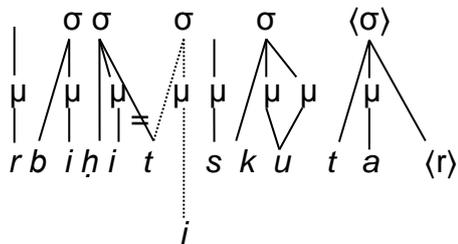
- a. /ħab'be:t + 'skalub, 'skalup/ ['ħab'be:t i 'skalub/' skalup] 'I liked scallop'
- b. /'rbiħit + 'sku:tar/ ['rbiħt i 'sku:tar] 'I won a scooter'
- c. /'binit + brufi'so:r, prufi'so:r/ ['bint i brufi'so:r/prufi'so:r] 'professor's daughter'
- d. /ħab'be:t + 'bro:ʃ, 'bro:tʃ/ [ħab'be:t i 'bro:ʃ/' bro:tʃ] 'I liked a brooch'
- e. /'ħdɪrit + 'kla:s/ ['ħdɪrit i 'kla:s] 'I attended a class'

In 5.2.2.8 the bi-consonantal-initial loanwords ['skalub, 'skalup] 'scallop', ['sku:tar] 'scooter', [brufi'so:r, prufi'so:r] 'professor', [bro:ʃ, bro:tʃ] 'brooch', and [kla:s] 'class' are preceded by JUA consonantal-final words. The input forms have the sequences /-tsk-/, /-tsk-/, /-tbr-, -tpr-/, /-tbr-, -tpr-/, /-tkl-/, respectively. However, a phonotactic constraint in JUA prohibits tri-consonantal sequences (apart from a pseudo geminate in a suffixed word; see sections 3.1.5.1 and 4.12.4 above). To satisfy this phonotactic constraint, the PRP predicts that the epenthetic short vowel [i] will be inserted at the segmental level, the lowest phonological level in the PH. Since JUA is a VC dialect, the epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant. For example, in ['rbiħt i 'sku:tar] 'I won a scooter' the epenthetic short vowel [i] is inserted to the left of the

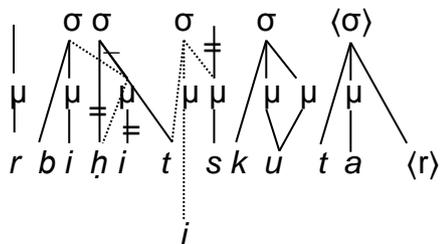
unsyllabified consonant /s/. The insertion of the epenthetic short vowel [i] results in a number of monomoraic syllables in /'rbiḥit[i] 'sku:tar/ 'I won a scooter'. To reduce the number of the monomoraic syllables and maximize the number of optimal bimoraic syllables, the unstressed vowel in the final syllable in the JUA phonological word /'rbiḥit/ is syncopated (for syncope, see § 4.12.6.1 above and § 5.2.3 below). The mora of the syncopated vowel /i/ is assigned to the onset of the syncopated syllable /ḥ/. The following is the prosodic representation of [rbiḥt i sku:tar] 'I won a scooter'.

(5.2.2.9)

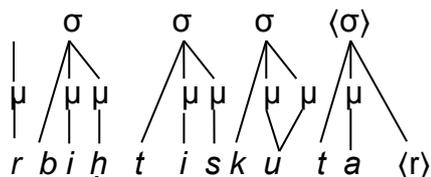
(a) Epenthesis



(b) Syncope



(b) Output



The following list presents the loanwords with the epenthetic short vowel [i] in phonological phrases. The first column presents the input forms

(i.e. loanwords plus JUA adjectives), the second column presents the output forms, and the third column presents glosses.

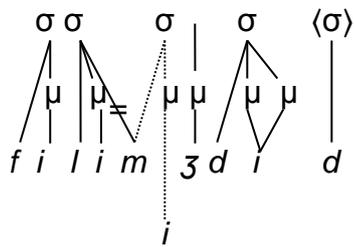
(5.2.2.10)

a. /'filim + 'ʒdi:d/	['film i 'ʒdi:d]	'a new film'
b. /'ʃifit + 'tʷi:l/	['ʃift i 'tʷi:l]	'long shiftwork'
c. /'ʃibis + 'kbi:r/	['ʃibs i 'kbi:r]	'a big bag/box of crisps'
d. /'ʒiniz + 'kbi:r/	['ʒinz i 'kbi:r]	'big jeans'
e. /'disik + 'ʒdi:d/	['disk i 'ʒdi:d]	'a new disc'

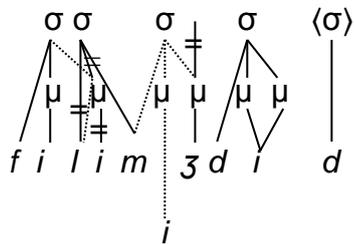
In 5.2.2.10 the loanwords ['filim] 'film', ['ʃifit] 'shift', ['ʃibis] 'chips', ['ʒiniz] 'jeans', and ['disik] 'disc' are followed by JUA bi-consonantal-initial words. The input forms have the sequences /-mʒd-/, /-tʷw-/, /-skb-/, /-zkb-/, /-kʒd-/, respectively. As mentioned before, a phonotactic constraint in JUA prohibits tri-consonantal sequences. Therefore, the epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant in the sequences above. For example, in ['film i 'ʒdi:d] 'a new film', the epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant /ʒ/. The insertion of the epenthetic short vowel [i] results in a number of monomoraic syllables in /'filim[i] 'ʒdi:d/ 'a new film'. Therefore, to reduce the number of the monomoraic syllables and maximize the number of optimal bimoraic syllables, the unstressed vowel in the final syllable in the loanword ['filim] 'film' is syncopated (for syncope, see § 4.12.6.1 above and § 5.2.3 below). The mora of the syncopated vowel /i/ is assigned to the onset of the syncopated syllable, /l/. The following is the prosodic representation of the phonological phrase [film i ʒdi:d] 'a new film'.

(5.2.2.11)

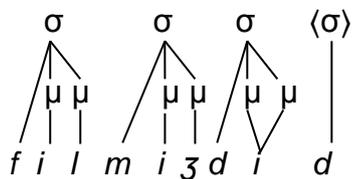
(a) Epenthesis



(b) Syncope



(c) Output



5.2.3 Syncope

Syncope is one of the phonological repair strategies that the loanwords undergo. The loanwords undergo two types of syncope: vowel syncope and consonant syncope.

5.2.3.1 Vowel Syncope

The following list presents the suffixed loanwords which undergo vowel syncope. The first column presents the input (i.e. loanwords plus suffixes), the second column presents the output, and the third column presents glosses.

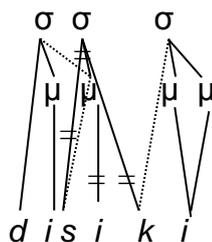
(5.2.3.1)

a. /disk + -i:/	['diski]	'my disc'
b. /disk + -uh/	['disku]	'his disc'
c. /ʃifit + -i:/	['ʃifti]	'my shift work'
d. /ʃifit + -uh/	['ʃiftu]	'his shift work'
e. /ʒiniz + -i:/	['ʒinzi]	'my jeans'
f. /ʃifit + -a:t/	[ʃif'ta:t]	'shift work (plural)'
g. /disk + -a:t/	[dis'ka:t]	'discs'
h. /ʒiniz + -a:t/	[ʒin'za:t]	'pairs of jeans'
i. /disk + -e:n/	[dis'ke:n]	'two discs'
j. /ʃifit + -e:n/	[ʃif'te:n]	'shift work (dual)'

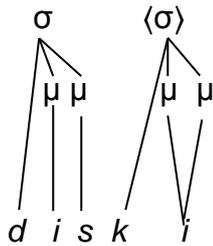
The unstressed high short vowel /i/ in the final syllable in the loanwords in the input forms is syncopated in the output forms in 5.2.3.1. This occurs in order to reduce the number of the monomoraic syllables in the utterances and maximize bimoraicity. Mora of the syncopated vowel is assigned to the preceding consonant within the same syllable that undergoes syncope, and the consonant in the coda position within the syllable which undergoes syncope is linked to the following (derived) syllable constituting an onset to that syllable. The prosodic representation in 5.2.3.2 presents the syncope of the short vowel /i/ in the suffixed loanword ['diski] 'my disc'.

(5.2.3.2)

(a) Syncope



(b) Output



The prosodic representation in 5.2.3.2 shows that the mora of the syncopated vowel /i/ in the final syllable in the loanword /'diski/ 'disc' is assigned to the preceding consonant /s/ and the consonant /k/ is linked to the following suffix /-i:/ constituting an onset to the derived syllable .ki:. in /'diski:/ which is realised as ['diski] 'my disc'.

5.2.3.2 Consonant Syncope

The following list presents prefixed loanwords with the definite article /ʔil-/ 'the' which undergo consonant syncope at a post-lexical level. The first column presents the input forms (i.e. JUA verbs plus prefixed loanwords), the second column presents the output, and the third column presents glosses.

(5.2.3.3)

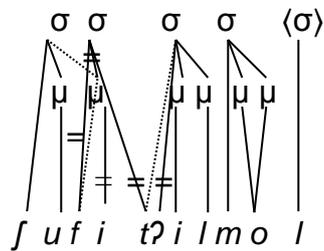
- | | | |
|------------------------------------|------------------------------|---------------------|
| a. /'ʃufit + ʔil'mo:l/ | [ʃuftil mo:l] | 'I saw the mall' |
| b. /ʃa're:t + ʔil'ko:t/ | [ʃare:til ko:t] | 'I bought the coat' |
| c. /'biʃit + ʔil'kafar, ʔil'kavar/ | [biʃtil kafar, biʃtil kavar] | 'I sold the cover' |
| d. /ʔad'de:ʃ + ʔis'saiz/ | [ʔadde:ʃis saiz] | 'which size?' |
| e. /ra'me:t + ʔir'ro:b/ | [rame:tir ro:b] | 'I threw the robe' |

The glottal stop /ʔ/ in the definite article /ʔil-/ or ʔiC-/ 'the' in the prefixed loanwords in 5.2.3.3 is syncopated in the output forms. This is due to a constraint in JUA which requires that the glottal stop /ʔ/ in the definite article /ʔil-/ 'the' drop out in pronunciation when it occurs medially by post-lexicalization (see § 3.1.4 above). The /il-/ or iC-/ in the definite article /ʔil-/ or

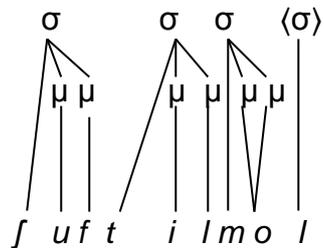
ʔiC-/ 'the' is linked to the final consonant of the preceding utterance. The deletion of the glottal stop /ʔ/ maximizes the number of monomoraic syllables in the JUA words which precede the loanwords in 5.2.3.3a and 5.2.3.3.c. To reduce the number of the monomoraic syllables and maximize the number of optimal bimoraic syllables, the high short vowel /i/ in the final syllable in /ʔufit/ 'I saw' and /biʕit/ 'I sold' is syncopated, as well. The prosodic representation in 5.2.3.4 presents [ʔuftil mo:l] 'I saw the mall'.

(5.2.3.4)

(a) Syncope



(b) Output



The glottal stop /ʔ/ in the loanword /ʔilmol/ 'the mall' is syncopated as it occurs medially by post-lexicalization (i.e. it is preceded by the JUA word /ʔufit/ 'I saw'). The deletion of the glottal stop maximizes the number of the monomoraic syllables in /ʔufit[i]lmol/ 'I saw the mall'. This in turn triggers the syncope of the short vowel /i/ in the final syllable in /ʔufit/ 'I saw' resulting in the output form [ʔuftil mo:l] 'I saw the mall'.

5.2.4 Glottal Stop [ʔ] Prosthesis

One of the phonological repair strategies that the loanwords undergo is glottal stop [ʔ] prosthesis; the prosthetic glottal stop [ʔ] is inserted at the beginning of the loanwords which begin with a vowel. The following list presents the loanwords with the prosthetic glottal stop [ʔ]. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

(5.2.4.1)

a. [ʔasbi'ri:n], [ʔasbi'ri:n]	aspirin	/'æspɪrɪn/
b. [ʔai'lainar]	eyeliner	/'aɪlaɪnə/
c. [ʔisbi'rissu], [ʔispi'rissu] ⁵³	espresso	/es'presəʊ/
d. ['me:kʔab], ['me:kʔap] ⁵⁴	makeup	/'meɪkʌp/

The PRP predicts that the glottal stop [ʔ] will be inserted prosthetically in the loanwords in 5.2.4.1 at the segmental level to resolve a syllabic problem at the syllabic level, a higher level in the PH. A constraint in JUA requires that a syllable begin with a consonant. As mentioned before, JUA words must begin with consonants. The glottal stop [ʔ] is selected as a prosthetic consonant in loanwords which do not begin with consonants; the only eligible consonant which can be inserted prosthetically in the loanwords above is the glottal stop, as it is attached by default to vowels in utterance-initial position in JUA, as in [ʔamal] 'hope and [ʔalam] 'pen or pain'. Glottal stop has this prosthetic function in Classical Arabic and MSA, and in the modern colloquial forms (Watson, 2002).

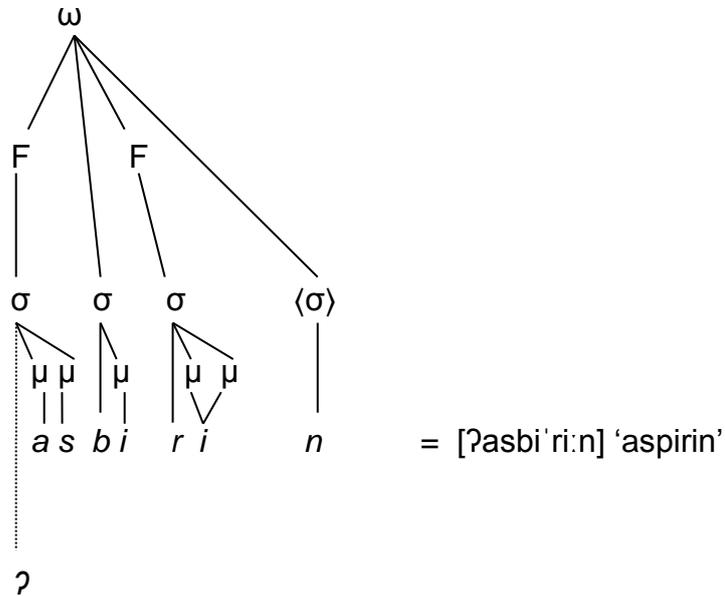
The following prosodic representation presents the loanword [ʔasbi'ri:n] 'aspirin'.

⁵³ The loanword [ʔisbi'rissu/ʔispi'rissu] 'espresso' undergoes more than one phonological repair, for details see § 5.2.9.2 below.

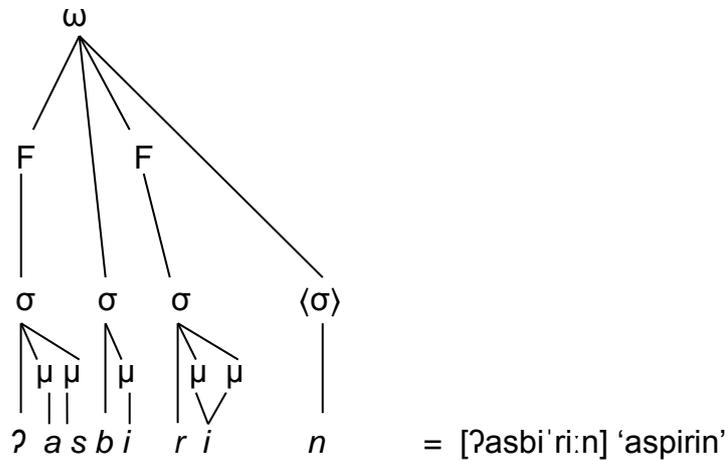
⁵⁴ The loanword ['me:kʔab/'me:kʔap] 'makeup' is treated as a compound word.

(5.2.4.2)

(a) Prosthesis



(b) Output



In 5.2.4.2.b a foot is constructed over the heavy syllable .ʔas. A second foot is constructed over the heavy syllable .ri:. The monomoraic syllable .bi. is skipped because it neither constitutes a foot on its own nor forms a foot with the following bimoraic syllable. The final consonant /n/ is analysed as an extrasyllabic consonant, onset for the degenerate syllable. Foot extrametricality is blocked from applying by the presence of the

extrasyllabic consonant. The loanword [ʔasbi'ri:n] 'aspirin' is analogous to the JUA word [makta'be:n] 'two offices'.

5.2.5 Closed Syllable Shortening (CSS)

Closed syllable shortening is one of the phonological repair strategies that the loanwords undergo. The following list presents prefixed loanwords in phrases which undergo closed syllable shortening. The first column presents the input forms (i.e. the JUA preposition /fi:/ 'in' plus prefixed loanwords), the second column presents syncope of glottal stop (along with the accompanying vowel), the third column presents linking of // or the coronal consonant to the final syllable of the preceding utterance, and the fourth column presents the output forms which undergo CSS.

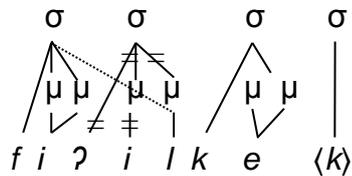
(5.2.5.1)

- c. /fi: + ʔil'fo:ldar/ > /fi: + l'fo:ldar/ > /fi:l 'fo:ldar/> [fil 'fo:ldar] 'in the folder'
- d. /fi: + ʔil'bo:star/ > /fi: + l'bo:star/ > /fi:l 'bo:star/> [fil 'bo:star] 'in the poster'
- e. /fi: + ʔil'po:star/ > /fi: + l'po:star/ > /fi:l 'po:star/> [fil 'po:star] 'in the poster'
- f. /fi: + ʔil'ke:k/ > /fi: + l'ke:k/ > /fi:l 'ke:k/ > [fil 'ke:k] 'in the cake'
- g. /fi: + ʔis'silfar/ > /fi: + s'silfar/ > /fi:s 'silfar/ > [fis 'silfar] 'in the silver'
- h. /fi: + ʔis'silvar/ > /fi: + s'silvar/ > /fi:s 'silvar/ > [fis 'silvar] 'in the silver'

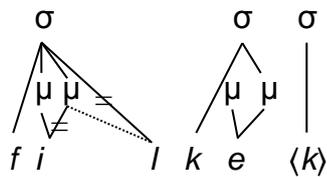
The prefixed loanwords in 5.2.5.1 are preceded by the vowel-final preposition /fi:/ 'in'. The glottal stop /ʔ/ (together with the accompanying vowel) in the definite article /ʔil-/ 'the' drops out as it occurs medially. The /l/ in the definite article /ʔil-/ 'the' – or the coronal consonant in the definite article /ʔiC-/ 'the' (where C is a coronal consonant) – is linked to the final syllable of the preceding utterance. The vowel /i:/ constitutes two moras for the derived syllable .fi:l. and the consonant // is left stray; that is, it is left non-integrated into the prosodic hierarchy. To prevent stray erasure of the consonant //, in other words, to avoid the deletion of the consonant //, the derived syllable .fi:l. undergoes closed syllable shortening. The long vowel /i:/ is shortened into /i/ and the // is linked to the second mora from which the vowel melody is delinked, as in 5.2.5.2.

(5.2.5.2)

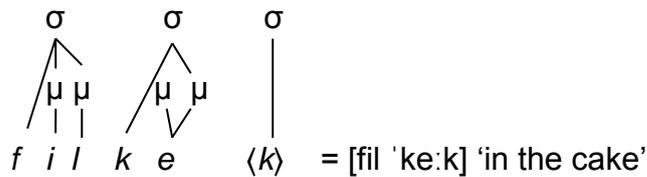
(1) Glottal Stop Syncope



(2) CSS



(3) The Output



In 5.2.5.2 the glottal stop (along with the accompanying vowel /i/) is syncopeated as it occurs medially. The consonant /l/ is linked to the final syllable of the preceding utterance .fi:l., where the vowel /i:/ constitutes two moras for the derived syllable .fi:l. and the consonant /l/ is left stray (i.e it does not belong to the prosodic hierarchy). To resolve this prosodic issue, the syllable .fi:l. undergoes closed syllable shortening and the consonant /l/ is linked to the second mora from which the vowel melody is delinked.

5.2.6 De-Clustering

De-Clustering is one of the phonological repair strategies that the loanwords undergo in JUA. De-clustering is a process in which a bi-consonantal cluster splits and one of the consonants constitutes a coda for the preceding derived syllable and the other consonant constitutes an onset for the following

syllable. The following list presents the loanwords which undergo de-clustering. The first column presents the input forms (i.e. the JUA conjunction /wi/ 'and' plus loanwords), the second column presents the output, and the third column presents glosses.

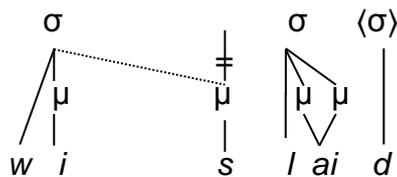
(5.2.6.1)

e. /wi- + 'slaid/	[wis'laid]	'and a slide'
f. /wi- + 'bla:star, 'pla:star/	[wib'la:star, wip'la:star]	'and a plaster'
g. /wi- + 'bre:k/	[wib're:k]	'and a break'
h. /wi- + 'stikar/	[wis'tikar]	'and a sticker'
i. /wi- + 'kla:s/	[wik'la:s]	'and a class'

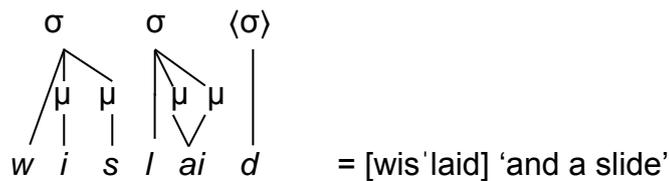
The initial clusters in the output forms in 5.2.6.1 undergo de-clustering, as they are preceded by the vowel-final conjunction /wi/ 'and'. The following prosodic representation presents de-clustering in [wis'laid] 'and a slide'.

(5.2.6.2)

(1) De-Clustering



(2) Output



In 5.2.6.2 the peripheral consonant /s/ (the first consonant in the cluster /sl-/), becomes intrametrical, as it is preceded by the conjunction /wi/ 'and' which ends with a vowel. The peripheral consonant is required to be integrated into the prosodic hierarchy constituting a coda for the preceding derived syllable .wis. The consonant /s/ is linked to the second mora of the derived syllable .wis. and the consonant /l/ constitutes an onset for the syllable .lai.

5.2.7 Vowel Lengthening

The seventh phonological repair strategy that the loanwords undergo is vowel lengthening. In the following sections, 5.2.7.1-5.2.7.3, loanwords are classified into three groups according to the number of syllables that they consist of: monosyllabic loanwords, disyllabic loanwords, and polysyllabic loanwords.

5.2.7.1 Vowel Lengthening in Monosyllabic Loanwords

The following list presents the monosyllabic loanwords with the super-heavy (C)CVVC syllable which undergo vowel lengthening. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

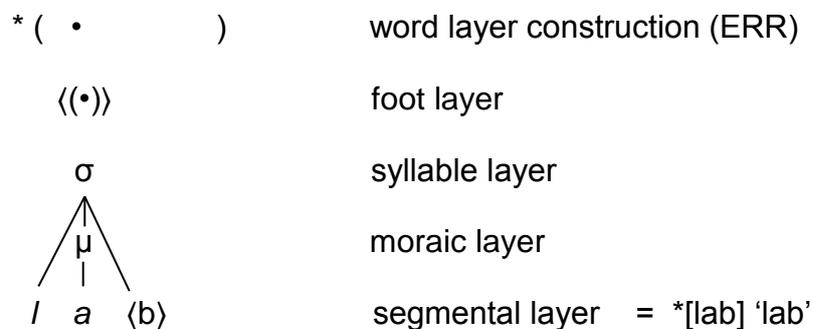
(5.2.7.1)

a.	[la:b]	lab	/læb/
b.	[fla:ʃ]	flash	/flæʃ/
c.	[ka:ʃ]	cash	/kæʃ/
d.	[sla:ʃ]	slush	/slʌʃ/
e.	[ka:b]	cap	/kæp/
f.	[ʃe:f]	chef	/ʃef/
g.	[ʃe:k]	cheque	/tʃek/

The PRP predicts that vowel lengthening will occur at the segmental level, the lowest phonological level in the PH, to satisfy a constraint at the

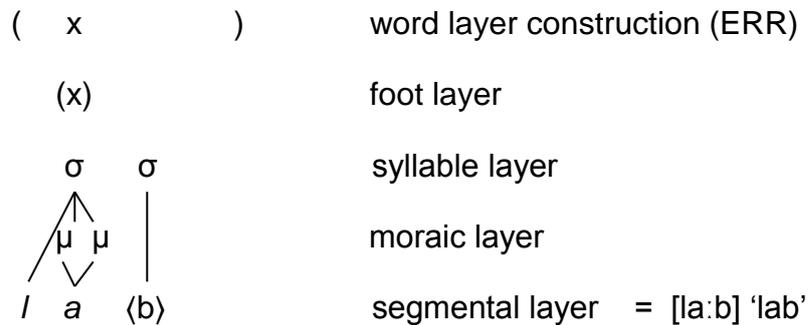
word level, a higher phonological level in the PH. A phonological constraint in JUA requires that the minimal phonological word (a content word) consist of a foot of two moras in addition to an incomplete syllable. The (C)CVC in a word-final position is analysed as invisible to stress rules through extrametricality in JUA, this in turn makes the word-final (C)CVC syllable equivalent in weight to the non-final monomoraic CV syllable. Thus the (C)CVC syllable is unstressable, as in 5.2.7.2 below. The asterisk * means an unaccepted form.

(5.2.7.2)



Foot parse proceeds from left to right. An foot is wrongly constructed over the syllable .lab., as it consists of only one mora (the short vowel /a/). The consonant /b/ fails to receive a mora by Weight-by-Position rule due to its extrametrical status. The syllable .lab. is monomoraic and it is similar in weight to a non-final CV syllable. The illicit word */lab/ 'lab' is considered sub-minimal in JUA; it does not achieve the requirements of a minimal content word and it is unstressable. The form *[lab] 'lab' is unaccepted in JUA. To render (C)CVC visible to stress rules, the short vowels in the English input forms in 5.2.7.1 are lengthened, as in 5.2.7.3.

(5.2.7.3)



Foot parse proceeds from left to right. The heavy (bimoraic) syllable .la: forms a foot. The foot (la:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /b/. ERR assigns stress to the rightmost visible foot (la:).

5.2.7.2 Vowel Lengthening in Disyllabic Loanwords

The following list presents the disyllabic loanwords with the ultimate syllable being open CV. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

(5.2.7.4)

- | | | |
|---------------------------|-----------------|------------------|
| a. ['fa:nta] | Fanta | /fæntə/ |
| b. ['ba:nda], ['pa:nda] | panda | /'pændə/ |
| c. ['bla:zma], ['pla:zma] | plasma (screen) | /'plæzmə skri:n/ |

JUA lacks content words with the word pattern CVCCV. Therefore, to resolve this phonological problem, the loanwords in 5.2.7.4 are treated as suffixed words which consist of stems and suffixes, such as the JUA suffixed words /ʒa:r + -na/ > ['ʒa:rnə] 'our neighbour' and /bla:d + -na/ > [bla:dna] 'our country'. This is due to the JUA constraint which requires that a content word end with a consonant underlyingly if unsuffixed. This constraint does not

apply if the word is suffixed. Accordingly, the loanword ['fa:nta] 'Fanta', for example, is coped with as a suffixed word which comprises a stem and a suffix. The following are the suggested stems and suffixes in JUA. The asterisk * means unaccepted forms in JUA.

(5.2.7.5)

The input

The output

a. */fant + -a/ → *[fanta]

b. */fan + -ta/ → *[fanta]

The stem */fant/ in 5.2.7.5.a is unaccepted in JUA because final bi-consonantal clusters (where the two consonants in the cluster are non-identical) are not permitted in JUA. As a result, the output *[fanta] does not comprise the stem */fant/ and the suffix /-a/. Let us have a look at 5.2.7.5.b where the stem is */fan/ and the suffix is /-ta/. In this case the stem */fan/ violates the JUA content word minimality, as the minimal phonological word must consist of a foot of two moras in addition to an incomplete syllable. The stem */fan/ is sub-minimal; it consists of one mora (the short vowel /a/) and the consonant /n/ fails to receive a mora by Weight-by-Position rule due to its extrametrical status. In other words, the stem */fan/ is footless, as a word-final CVC is equivalent in weight to the non-final CV syllable, and thus the stem */fan/ is unaccepted in JUA. Therefore, the PRP predicts that the stem */fan/ will be expanded at the segmental level in order to meet the minimality requirements of JUA content word at the word level, the higher phonological level in the PH, and thus be stressable, as in 5.2.7.6.

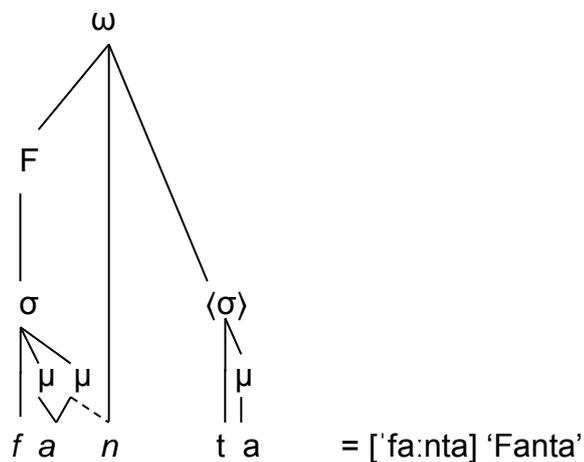
(5.2.7.6)

The input in JUA The output in JUA

a. /'fa:n + -ta/ → ['fa:nta]

To cope with the internal CVVC in the output form ['fa:nta] 'Fanta', the consonant /n/ is adjoined to the second mora of the preceding long vowel (see § 4.12.5), as in 5.2.7.7.

(5.2.7.7)



In 5.2.7.7 a foot is constructed over the heavy bimoraic syllable .fa:. The consonant /n/ is adjoined to the second mora of the preceding long vowel /a:/. The syllable .ta. is left unfooted. This makes the loanword /'fa:nta/ 'Fanta' analogous to the JUA suffixed words ['ba:bha] 'her door' and ['ba:bna] 'our door', as in 5.2.7.8.

(5.2.7.8)

a. /ba:b + -ha/ 'door + 3rd person sing. fem. Possessive suffix' > ['ba:bha] 'her door'

b. /ba:b + -na/ 'door + 1st person pl. possessive suffix' > ['ba:bna] 'our door'

Examples in 5.2.7.8 show that the incomplete syllable (the final consonant) /b/ is required in addition to the two moras (the long vowel /a:/). When the suffixes /-ha/ 'her' or /-na/ 'our' are attached to the nominal stem /ba:b/ 'door', the latter does not undergo closed syllable shortening, as closed syllable shortening is not permitted in JUA suffixed nominal words.

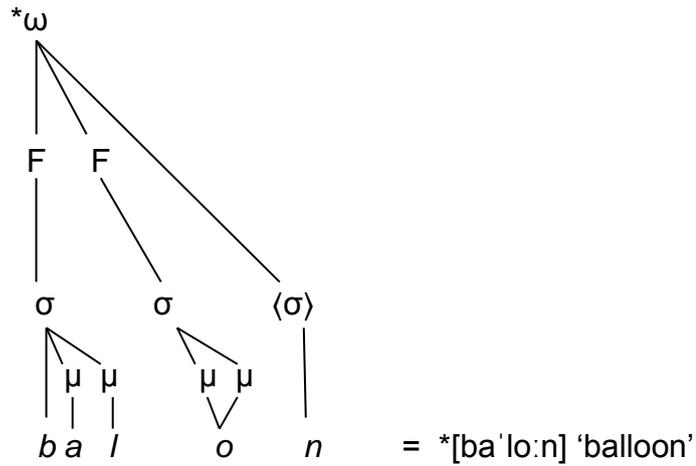
The following is a disyllabic loanword with the penult syllable being CVV and the ultimate syllable being super-heavy CVVC syllable. The first column presents the loanword, the second column presents the gloss, and the third column presents the phonemic transcription of the native English pronunciation.

(5.2.7.9)

a. [ba:'lo:n] balloon /bə'lu:n/

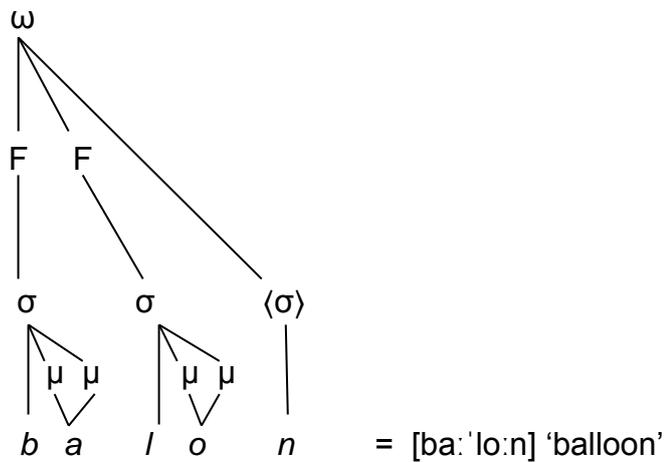
The schwa in English is weightless; it does not receive a mora (Hammond, 1999). In JUA there is no schwa, the English schwa becomes a short vowel /a/, which receives one mora. The PRP predicts that vowel lengthening will occur at the segmental level in the loanword in 5.2.7.9 to satisfy a constraint at the moraic level, a higher phonological level in the PH. A constraint in JUA requires that the ultimate syllable attract stress if super-heavy. Foot parse in JUA takes place from left to right; therefore, the phonological word */balo:n/ 'balloon' (before undergoing vowel lengthening) would be parsed as in 5.2.7.10. The asterisk * means unaccepted.

(4.2.7.10)



The phonological word in 5.2.7.10 comprises two feet where the leftmost foot (bal) consists of two moras (the short vowel /a/ and the consonant /l/), and the illicit rightmost foot (o:) consists of two moras (the long vowel /o:/). However, the rightmost foot does not have an onset. A constraint in JUA requires that each syllable in JUA begin with a consonant. To resolve this syllabic issue, the loanword is repaired by lengthening the short vowel in the penult syllable as in 5.2.7.11 below or geminating the consonant /l/ (see § 5.2.9.1 below).

(5.2.7.11)



The phonological word in 5.2.7.11 consists of two feet; each foot consists of two moras (the long vowels /a:/ in the leftmost foot and the /o:/ in the rightmost foot). The consonant /n/ is extrasyllabic. This loanword is analogous to the JUA word /ba:'be:n/ 'two doors'.

5.2.7.3 Vowel Lengthening in Polysyllabic Loanwords

The following list presents the polysyllabic loanwords with the penult syllable being light CV and the ultimate syllable being super-heavy CVVC. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

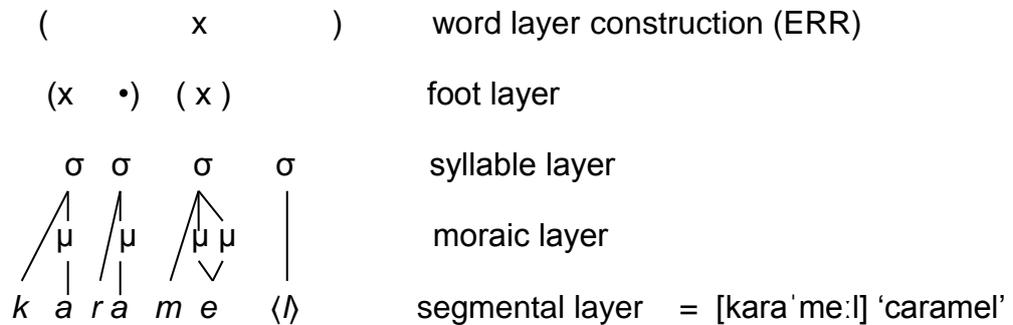
(5.2.7.12)

a. [kara'me:l]	caramel	/'kærəməl/
b. [brufi'so:r], [prufi'so:r]	professor	/prə'fesəl/
c. [mika'ni:k]	mechanic	/mə'kæni:k/
d. [fita'mi:n], [vita'mi:n]	vitamin	/'vitəmi:n/
e. [sira'mi:k]	ceramic	/sɪ'ræmi:k/
f. [bana'do:l], [pana'do:l]	Panadol	/'pænədɒl/
g. [ʔasbi'ri:n], [ʔasbi'ri:n]	aspirin	/'æspɪrɪn/
h. [trama'do:l]	Tramadol	/'træmədɒl/
i. [fulta'ri:n], [vulta'ri:n]	voltaren	/'vɒltərən/
j. [bara'fo:t], [para'fo:t]	parachute	/'pærəʃu:t/
k. [barasita'mo:l], [parasita'mo:l]	paracetamol	/pærə'si:təməl/

The PRP predicts that the loanwords in 5.2.7.12 will be repaired by vowel lengthening at the segmental level in order to satisfy a metrical constraint at the word level, a higher phonological level in the PH. A constraint in JUA requires that the ultimate syllable attract stress if super-heavy. Otherwise, stress falls on the penult syllable if heavy in polysyllabic words. However, neither the ultimate syllable nor the penult syllable in the English input forms in 5.2.7.12 satisfies the requirements for attracting stress. Since according to a JUA constraint, the priority for attracting stress

goes to the ultimate syllable first, the ultimate syllable in the input forms has the priority to be repaired and thus be able to attract stress, as in 5.2.7.13.

(5.2.7.13)



Foot parse proceeds from left to right. A foot is constructed over the two light syllables .ka and .ra. The following heavy syllable .me: forms a second foot. The foot (me:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /l/. ERR assigns stress to the rightmost visible foot (me:). Loanwords in 5.2.7.12 are analogous to the JUA words /ʔada'wa:t/ 'tools', /baʔa'ra:t/ 'cows', /fara'se:n/ 'two mares', /makta'be:n/ 'two offices', and the phrase /bsana'te:n/ 'in two years', and the sentence /saḥabuh ʕa 'ba:b/ which is realised as [saḥabu ʕa 'ba:b] 'he dragged him/it' at a door'.

5.2.8 Vowel Shortening

The eighth phonological repair strategy that the loanwords undergo is vowel shortening.

5.2.8.1 Vowel Shortening in Disyllabic Loanwords

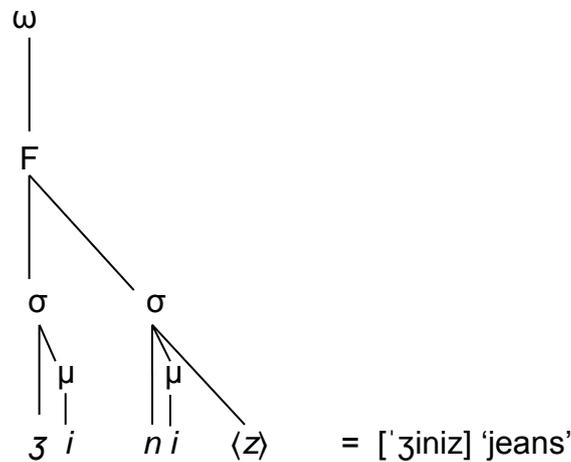
The following is a loanword with a shortened vowel. The first column presents the loanword, the second column presents a gloss, and the third column presents the phonemic transcription of the native English pronunciation.

(5.2.8.1)

a. ['ʒiniz]⁵⁵ jeans /dʒi:nz/

The PRP predicts that the English input form /dʒi:nz/ will undergo vowel shortening at the segmental level, the lowest phonological level in the PH, in order to resolve a phonological problem at the word level, a higher phonological level in the PH. A constraint in JUA requires that the minimal phonological word consists of a foot (which can be constructed over two consecutive CV light syllables, a CVV syllable, or a CVC syllable where the last C and the incomplete syllable are identical) and an incomplete syllable (consonant). A constraint in JUA prohibits the phonological pattern /CVVC_iC_j/ where the last two consonants are non-identical. Therefore, the input form /dʒi:nz/ is unaccepted. The following prosodic representation presents the loanword ['ʒiniz] 'jeans'.

(5.2.8.2)



A foot is constructed over the two monomoraic (light) syllables .ʒi. and .niz. The final consonant /z/ is not assigned a mora by Weight-by-Position

⁵⁵ the final cluster in the English input form /dʒi:nz/ undergoes epenthesis due to the fact that final clusters with two non-identical consonants are not permitted in JUA (see § 5.2.2.2).

rule due to its extrametrical status. The syllable .niz. is considered monomoraic and it is equivalent in weight to a non-final CV syllable. Peripherality Condition is blocked from applying, as the peripheral foot is the only foot in the word. The loanword [ˈʒiniz] ‘jeans’ is analogous to the JUA words [ˈbinit] ‘girl’ and [ˈbaħir] ‘sea’.

5.2.8.2 Vowel Shortening in Polysyllabic Loanwords

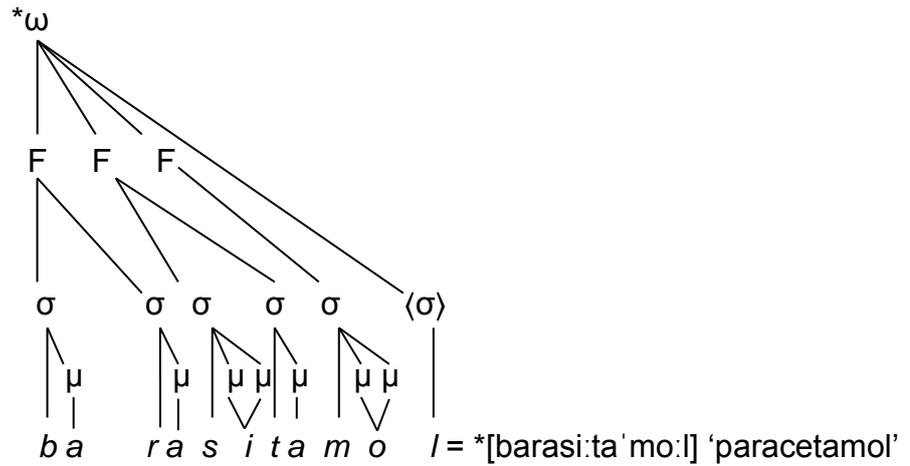
The following list presents a loanword with a shortened vowel. The first column presents the loanword, the second column presents a gloss, and the third column presents the phonemic transcription of the native English pronunciation.

(5.2.8.3)

- a. [barasitaˈmo:l], [parasitaˈmo:l] paracetamol /pæɾəˈsi:təmɒl/

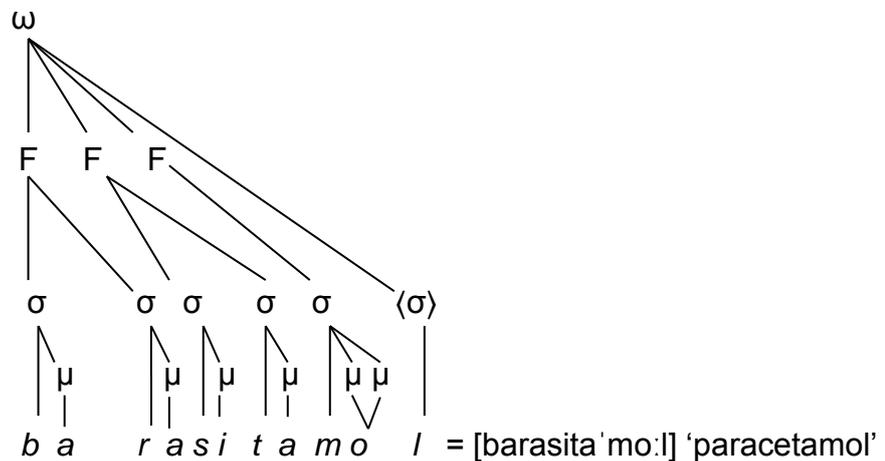
The loanword in 5.2.8.3 undergoes two phonological repairs: vowel lengthening and vowel shortening. As I mentioned before, the ultimate syllable has the priority to be expanded and thus be able to attract stress (see § 5.2.7.3 above). Foot parse takes places from left to right in JUA. Accordingly, the loanword /barasi:tamo:l/ ‘paracetamol’ (before undergoing vowel shortening) would be parsed as follows. The asterisk * means an unaccepted form in JUA.

(5.2.8.4)



Foot parse proceeds from left to right. A foot is constructed over the two light syllables .ba. and .ra. A second foot is wrongly constructed over the heavy syllable .si: and the light syllable .ta. The heavy syllable .mo: forms a third foot. The foot (mo:) is rendered non-peripheral due to the presence of the extrasyllabic consonant /l/. The second foot violates the JUA moraic rule as it comprises three moras (the long vowel /i:/ and the short vowel /a/). Feet in JUA must be bimoraic, i.e. they must consist of exactly two moras. Therefore, the form **/barasi:ta'mo:l/* 'paracetamol' is phonologically unaccepted in JUA. To resolve this moraic issue, the PRP predicts that the second foot will undergo vowel shortening at the segmental level, as in 5.2.8.5.

(5.2.8.5)



Foot parse proceeds from left to right. A foot is constructed over the two light syllables .ba. and .ra. The two light syllables .si. and .ta. form the second foot. A third foot is constructed over the heavy syllable .mo:. The foot (mo:) is rendered non-peripheral due to the presence of the extrasyllabic consonant // . The loanword /barasita'mo:l/ 'paracetamol' is analogous to the JUA sentence /saḥabu ʕa 'ba:b/ 'he dragged him/it' at a door'.

5.2.9 Gemination

The ninth repair strategy that the loanwords undergo is gemination.

5.2.9.1 Gemination in Disyllabic Loanwords

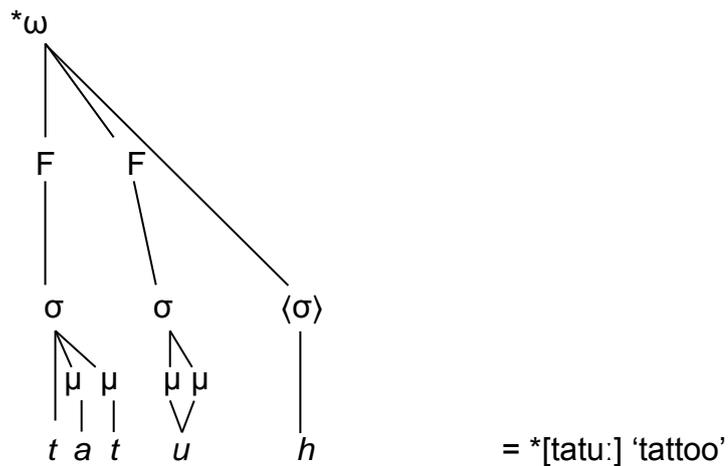
The following are two disyllabic loanwords with geminates. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

(5.2.9.1)

- | | | |
|---------------|---------|-----------|
| a. [tat'tu:] | tattoo | /tə'tu:/ |
| b. [bal'lo:n] | balloon | /bə'lu:n/ |

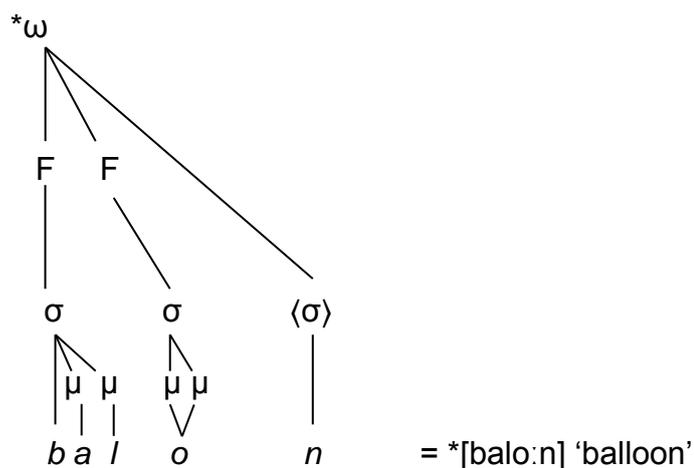
The English schwa /ə/ becomes the short vowel /a/ in loanwords. Foot parse takes place from left to right in JUA; therefore, the two illicit forms *[tatu:] 'tattoo' and *[ballo:n] 'balloon' (before undergoing gemination) would be parsed as in 5.2.9.2 and 5.2.9.3, respectively. The asterisk * means unaccepted.

(5.2.9.2)



Foot parse proceeds from left to right. A foot is constructed over the heavy syllable .tat. A second foot is wrongly constructed over the heavy syllable .u:. The consonant /h/ is a covert extrasyllabic consonant. However, the illicit rightmost foot has no onset and thus it violates the JUA rule which requires that a syllable have an onset. Therefore, the form $*[tatu:]$ 'tattoo' is unacceptable. The following is the prosodic representation of the form $*[balo:n]$ 'balloon'.

(5.2.9.3)

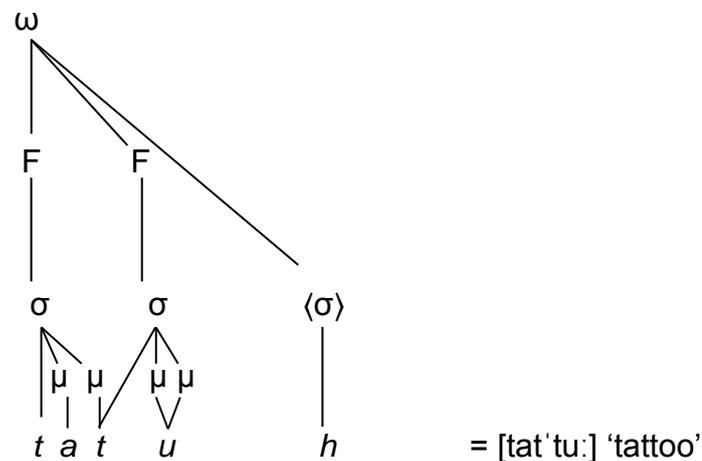


Foot parse proceeds from left to right. The heavy syllable .bal. forms a foot. A second foot is wrongly constructed over the heavy syllable .o:.

However, an onset is missing in the illicit rightmost foot. The rightmost foot violates the syllabic structure of a syllable in JUA. Therefore, the form *[balo:n] 'balloon' is unacceptable.

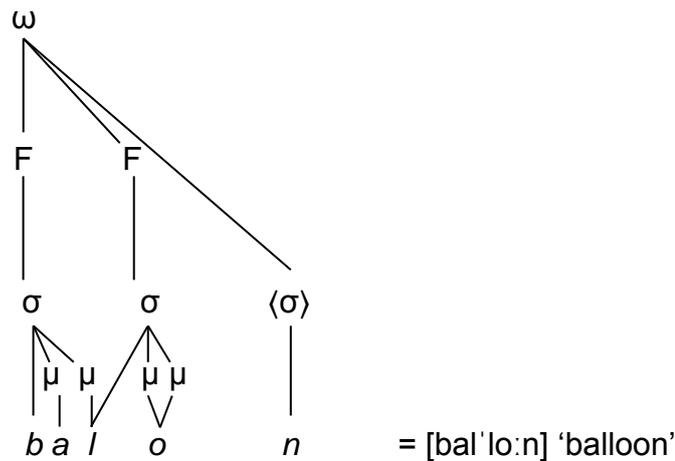
To satisfy the constraint which requires that a syllable have an onset at the syllabic level, the PRP predicts that the word-medial consonant in the illicit forms *[tatu:] 'tattoo' and *[balo:n] 'balloon' will undergo gemination at the segmental level – the lowest phonological level in the PH, as in 5.2.9.4 and 5.2.9.5.

(5.2.9.4)



Foot parse proceeds from left to right. A foot is constructed over the heavy syllable .tat. A second foot is constructed over the heavy syllable .tu:. The foot (tu:) cannot be deemed extrametrical due to the presence of the covert extrasyllabic consonant /h/ underlyingly (see § 4.13.3). The loanword [tat'tu:] 'tattoo' is analogous to the JUA words [ħat'tu:] 'they eroded it' and [ħat'tu:] 'they put it down'.

(5.2.9.5)



Foot parse proceeds from left to right. A foot is constructed over the heavy bimoraic syllable .bal. A second foot is constructed over the heavy syllable .lo:. The rightmost foot (lo:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /n/. The loanword [bal'lo:n] 'balloon' is analogous to the JUA words [bal'lu:tʃ] 'oak' and [far'ru:ʒ] 'baby chicken'.

5.2.9.2 Gemination in Polysyllabic Loanwords

The following is a polysyllabic loanword with a geminate. The first column presents the loanword, the second column presents a gloss, and the third column presents the phonemic transcription of the native English pronunciation.

(5.2.9.6)

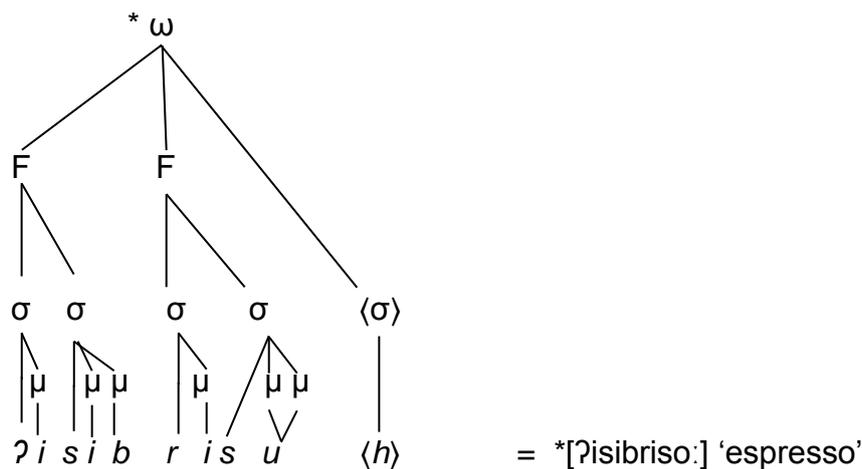
- a. [ʔisbi'rissu], [ʔispi'rissu]⁵⁶ espresso /es'presəʊ/

⁵⁶ To avoid repetition and to make it easier to understand, all the phonological repair strategies that the loanword [ʔisbi'rissu] 'espresso' undergoes are discussed in this section.

According to the PRP, the loanword [ʔisbi'rissu/ʔispi'rissu] 'espresso' undergoes four phonological repairs at the segmental level, the lowest phonological level in the PH, in order to resolve phonotactic problems as well as a word-pattern problem at higher phonological levels in the PH. The stages in deriving the loanword from the English input form will be presented in the following paragraphs.

The PRP predicts that the glottal stop [ʔ] will be inserted in /ʔisbriso:h/⁵⁷ 'espresso' in order to satisfy a constraint at the syllabic level in JUA which requires that a syllable have an onset. The epenthetic short vowel [i] is inserted to the right of the unsyllabified consonant /b/ in the sequence /-sbr-/ in /ʔisbiriso:h/ 'espresso', as a constraint in JUA prohibits tri-consonantal sequences apart from the sequence which occurs across the boundaries of a stem which ends with a pseudo geminate and a consonantal-initial suffix (see sections 3.1.5.1 and 4.12.4 above). Since foot parse takes place from left to right, inserting the epenthetic short vowel [i] to the left of the unsyllabified consonant /b/ would result in a moraic issue, as in 5.2.9.7. The asterisk * means unaccepted.

(5.2.9.7)



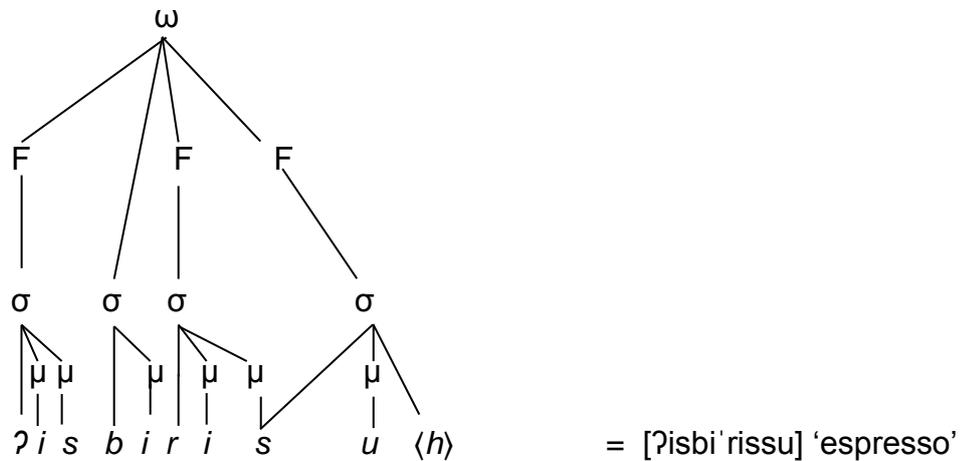
⁵⁷ For the covert extrasyllabic consonant /h/, see 5.2.9.7below.

Foot parse proceeds from left to right in 5.2.9.7. A foot is illegally constructed over the light syllable .ʔi. and the bimoraic heavy syllable .sib. The light syllable .ri. and the bimoraic heavy syllable .so:. form the second illicit foot. The consonant /h/ is a covert extrasyllabic consonant underlyingly (see 4.12.2 above). The two feet violate the JUA moraic rules; each foot consists of three moras. The form */ʔisibriso:h/ 'espresso' is unaccepted in JUA. Therefore, the PRP predicts that the JUA constraint which requires that the epenthetic short vowel [i] be inserted to the left of the unsyllabified consonant will be violated at the segmental level in favour of satisfying the JUA moraic constraint which requires that each foot consist of exactly two moras at the moraic level, a higher phonological level in the PH.

Back to the form /ʔisbiriso:h/ 'espresso', according to the PRP, the penult syllable in the form /ʔisbirisso:h/ 'espresso' undergoes gemination at the segmental level, the lowest phonological level in the PH, in order to satisfy the constraint which requires that a syllable have an onset at the syllabic level.

The form /ʔisbirisso:h/ 'espresso' has the phonological word pattern /CVC.CV.CVC.CVVC/ which JUA lacks. Therefore, according to the PRP, the ultimate syllable undergoes vowel shortening in /ʔisbi'rissuh/ 'espresso' in order to resolve a phonological problem at the word level, a higher phonological level in the PH, as in 5.2.9.8. The loanword /ʔisbi'rissuh/ which is realised as [ʔisbi'rissu] 'espresso' is analogous to the JUA words /mayri'bijjih/ 'fem. Moroccan' which is realised as [mayri'bijji], and /maʕdanijjih/ 'fem. made of metal' which is realised as [maʕdanijji], and /maʕba'ʔijjih/ 'a small vase-shaped container where some candy is put and wrapped' which is realised as [maʕba'ʔijji].

(5.2.9.8)



Foot parse proceeds from left to right. A foot is constructed over the bimoraic heavy syllable .ʔis. The monomoraic syllable .bi. is skipped because it neither constitutes a foot on its own nor forms a foot with the following bimoraic syllable. A second foot is constructed over the bimoraic syllable .ris. A third foot is constructed over the syllable .suh. constituting a peripheral foot, as the extrametrical consonant /h/ is contained within the foot (suh) (see 4.12.2 above).

5.2.9.3 Gemination in Prefixed Loanwords

The following list presents prefixed loanwords with geminates. The first column presents the input forms (i.e. the JUA prefix /ʔil-/ 'the' plus loanwords), the second column presents the output, and the third column presents glosses.

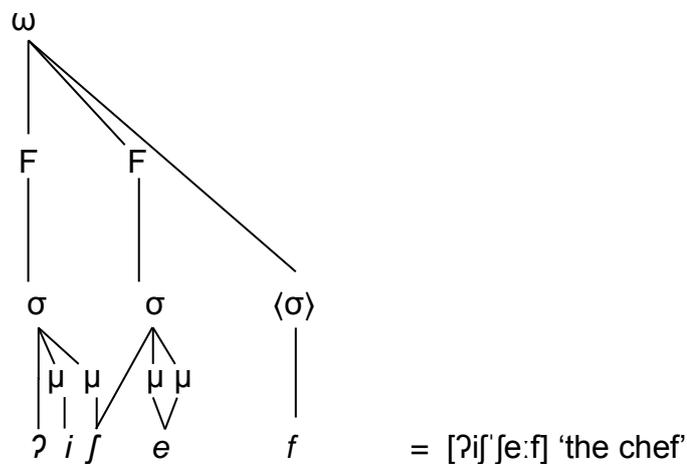
(5.2.9.10)

- | | | |
|----------------------------------|------------------------------|----------------------|
| a. /ʔil- + sata'lait/ | [ʔissata'lait] | 'the satellite dish' |
| b. /ʔil- + ri'si:far, ri'si:var/ | [ʔirri'si:far, ʔirri'si:var] | 'the receiver' |
| c. /ʔil- + [e:f/ | [ʔi]ʔ[e:f] | 'the chef' |
| d. /ʔil- + tili'fo:n, tala'fo:n/ | [ʔittili'fo:n, ʔittala'fo:n] | 'the telephone' |

- | | | |
|----------------------------------|------------------------------|-----------------|
| e. /ʔil- + ri'sibʃin, ri'sipʃin/ | [ʔirri'sibʃin, ʔirri'sipʃin] | 'the reception' |
| f. /ʔil- + la:b/ | [ʔil'la:b] | 'the lab' |
| g. /ʔil- + 'te:rmus, 'θe:rmus/ | [ʔit'te:rmus, ʔiθ'θe:rmus] | 'the thermos' |
| h. /ʔil- + ru:'ti:n/ | [ʔirru:'ti:n] | 'the routine' |
| i. /ʔil- + ro:ʒ/ | [ʔir'ro:ʒ] | 'the rouge' |

The loanwords in the first column begin with the coronal consonants /t s r ʃ l/. The // in the definite article /ʔil-/ 'the' is not pronounced in the output forms, and the initial consonants of the loanwords undergo gemination. This is because, according to a constraint in JUA, when the /ʔil-/ 'the' is attached to a coronal-initial utterance, the // in the definite article /ʔil-/ 'the' is not pronounced and the initial coronal consonant in the following utterance is geminated in JUA (see § 3.1.4 above), as in 5.2.9.11.

(5.2.9.11)



Foot parse proceeds from left to right. A foot is constructed over the heavy bimoraic syllable .ʔiʃ. A second foot is constructed over the heavy syllable .ʃe:. The rightmost foot (je:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /f/. The loanword /ʔiʃʃe:f/ 'the chef' is analogous to the JUA words /ʔil- + ʃe:f/ > [ʔiʃʃe:f] 'summer'.

5.2.10 Word Primary Stress Shift

Word primary stress shift is one of the phonological repair strategies that the loanwords undergo in JUA. The following sections, 5.2.10.1-5.2.10.4.4, discusses word primary stress shift in one of the forms of loanwords: singular, plural, dual, and possessive forms.

5.2.10.1 Word Primary Stress Shift in Singular Forms of Loanwords

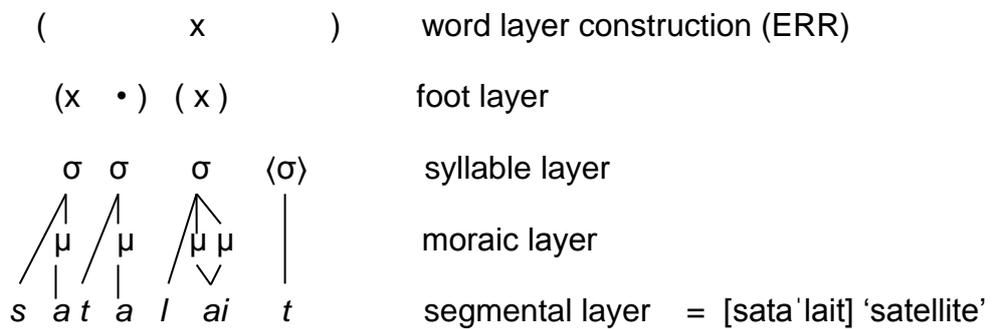
The following list presents the loanwords in which primary stress shifts from the antepenult syllable to the ultimate syllable. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

(5.2.10.1)

a. [sata'lait]	satellite	/'sætələɪt/
b. [badik'ju:r, padik'ju:r/]	pedicure	/'pedɪkjʊə/
c. [tɪli'fo:n, tala'fo:n]	telephone	/'telɪfəʊn/
d. [kara'me:l]	caramel	/'kærəməl/
e. [fita'mi:n, vita'mi:n]	vitamin	/'vɪtəmi:n/
f. [bana'do:l, pana'do:l]	Panadol	/'pænədɒl/
g. [ʔasbi'ri:n, ʔasbi'ri:n]	aspirin	/'æspɪrɪn/
h. [trama'do:l]	Tramadol	/'træmədɒl/
i. [fulta'ri:n, vulta'ri:n]	Voltaren	/'vɒltərən/
j. [bara'fo:t, para'fo:t]	parachute	/'pærəʃu:t/
k. [barasita'mo:l, parasita'mo:l]	paracetamol	/'pærə'si:təməʊl/

In the list 5.2.10.1 word primary stress shifts from the antepenult syllable in the English input forms to the ultimate syllable in the loanwords to resolve word stress patterns. The super-heavy ultimate syllable always attracts stress in the loanwords, as in 5.2.10.2.

(5.2.10.2)



Foot parse takes place from left to right. The two monomoraic (light) syllables .sa. and .ta. form a foot. A second foot is constructed over the bimoraic (heavy) syllable .lai. The consonant /t/ is extrasyllabic. The foot (lai) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /t/. ERR assigns stress to the head of the rightmost visible foot (lai).

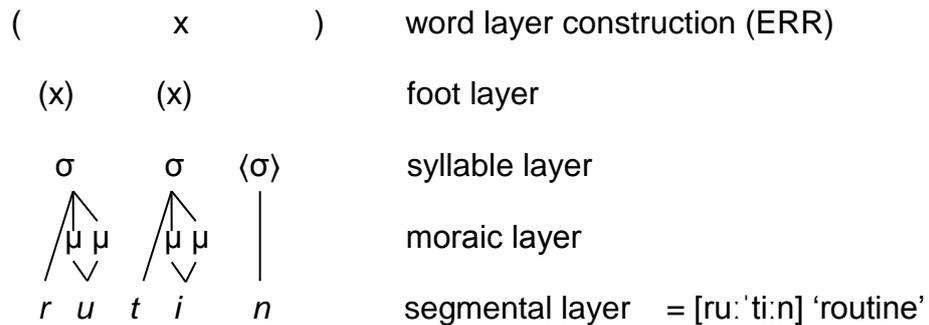
The following list presents the loanwords which undergo word primary stress shift from the penult syllable to the ultimate syllable. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

(5.2.10.3)

- | | | |
|-----------------------------|-----------|-------------|
| a. [ru:'ti:n] | routine | /'ru:ti:n/ |
| b. [ban'zi:n] | benzene | /'ben.zi:n/ |
| c. [kuk'te:l] | cocktail | /'kɒkteɪl/ |
| d. [bro:'ti:n] | protein | /'prəʊti:n/ |
| e. [mo:'baɪl] | mobile | /'məʊbaɪl/ |
| f. [ʔai'lainə] | eyeliner | /'aɪlaɪnə/ |
| g. [mika'ni:k] | mechanic | /mə'kæni:k/ |
| h. [sɪrə'mi:k] | ceramic | /sɪ'ræmi:k/ |
| i. [brʊfi'so:r, prʊfi'so:r] | professor | /prə'fesə/ |
| j. [bro:'ti:n, prɒ:'ti:n] | protein | /'prəʊti:n/ |

In the list 5.2.10.3 word primary stress shifts from the penult syllable in the English input forms to the ultimate syllable in the loanwords to resolve word stress patterns. As mentioned before, the super-heavy CVVC ultimate syllable always attracts stress in the loanwords, as in 5.2.10.4.

(5.2.10.4)



Foot parse takes place from left to right. The bimoraic (heavy) syllable .ru:. forms a foot. A second foot is constructed over the bimoraic syllable .ti:. The consonant /n/ is an extrasyllabic. The foot (ti:) cannot be rendered extrametrical; it is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /n/. Stress is assigned to the head of the rightmost visible foot (ti:) according to the ERR.

The following list presents the loanwords with the ultimate CVV syllable. The first column presents the loanwords, the second column presents glosses, and the third column presents phonemic transcription of the native English pronunciation.

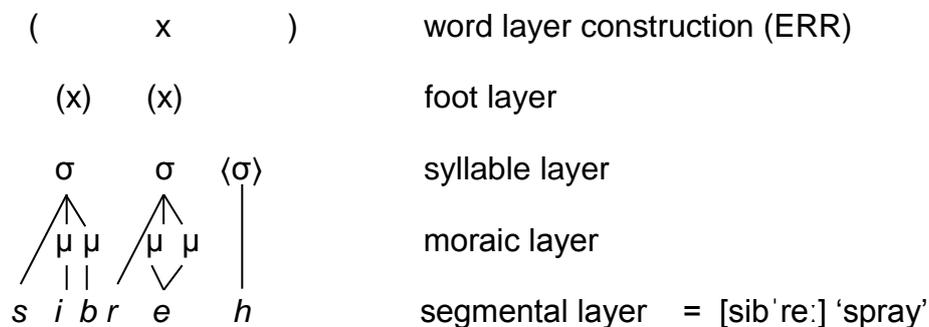
(5.2.10.5)

- | | | |
|--------------|----------|----------|
| a. [sib're:] | 'spray' | /spreɪ/ |
| b. [tat'tu:] | 'tattoo' | /tə'tu:/ |

The ultimate syllable attracts stress in the loanwords in the list 5.2.10.5 although it is not super-heavy at the surface level. This occurs because a JUA constraint requires that a word-final CVV syllable attract

stress. This is attributed to the fact that JUA words which end with a CVV syllable do not end with long vowels underlyingly, but rather with the glottal fricative /h/. The consonant /h/ is not deprived of its prosodic character although it is not overt at the surface level. The loanwords in 5.2.10.5 are analogous to the JUA words [ʃir'bu:] 'they (masc.) drank it' and [ʃam'mo:] 'kids' word for uncle'. The following prosodic representation presents the loanword [sib're:] 'spray'.

(5.2.10.6)



Foot parse proceeds from left to right. The first heavy (bimoraic) syllable .sib. forms a foot. The following heavy syllable .re:. forms a second foot. The foot (re:) is rendered non-peripheral due to the presence of the underlying extrasyllabic consonant /h/. ERR assigns stress to the rightmost visible foot (re:).

5.2.10.2 Word Primary Stress Shift in Plural Forms of Loanwords

This sub-section presents word primary stress shift in plural forms of the loanwords in JUA. The following list presents suffixed loanwords in which the ultimate CVVC syllable attracts word primary stress. The first column presents the input forms (i.e. loanwords plus the JUA feminine sound plural

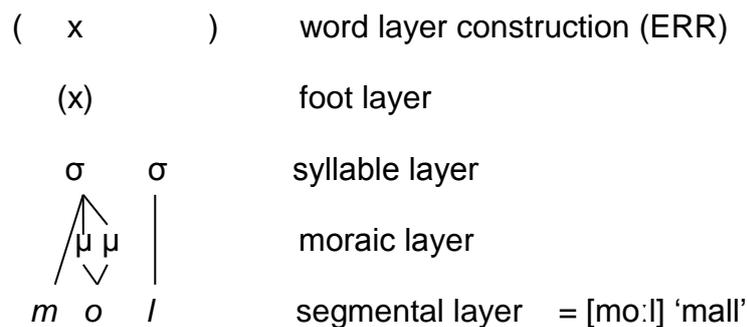
suffix + /-a:t/), the second column presents the output forms, and the third column presents glosses.

(5.2.10.7)

a. /mo:l + -a:t/	[mo:'la:t]	'malls'
b. /saiz + -a:t/	[sai'za:t]	'sizes'
c. /tɪli'fo:n, tala'fo:n + -a:t/	[tɪlifo:'na:t, talafo:'na:t]	'telephones'
d. /kan'ti:n + -a:t/	[kanti:'na:t]	'canteens'
e. /faɪl + -a:t/	[faɪ'la:t]	'files'

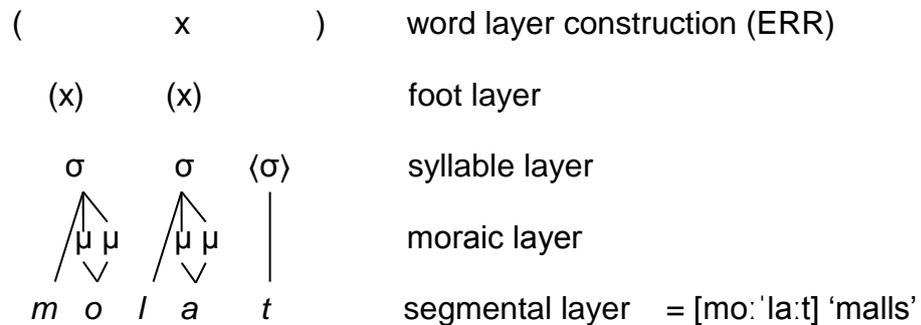
The loanwords in the list above are classified as feminine sound plural. Word primary stress shifts to the right in the output forms in 5.2.10.7. This is because the ultimate CVVC syllable in the loanwords always attracts stress. The following prosodic representations present the singular and plural forms of the loanword /mo:l/ 'mall' > [mo:'la:t], respectively.

(5.2.10.8)



Foot parse takes place from left to right. A foot is constructed over the bimoraic syllable .mo:. The consonant // is extrasyllabic. The foot (mo:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant //. ERR assigns stress to the head of the rightmost visible foot (mo:). The following is the prosodic representation of [mo:'la:t] 'malls'.

(5.2.10.9)



Foot parse takes place from left to right. A foot is constructed over the bimoraic syllable .mo:. The bimoraic syllable .la: forms a second foot. The consonant /t/ is extrasyllabic. The foot (la:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /t/. ERR assigns stress to the head of the rightmost visible foot (la:).

The following list presents suffixed loanwords in which word primary stress shifts from the penult syllable in the input forms (i.e. the singular forms of the loanwords) to the ultimate syllable in the output forms (i.e. the plural forms of the loanwords). The first column presents the input (i.e. loanwords plus the JUA feminine sound plural suffix + /-a:t/), the second column presents the output, and the third column presents glosses.

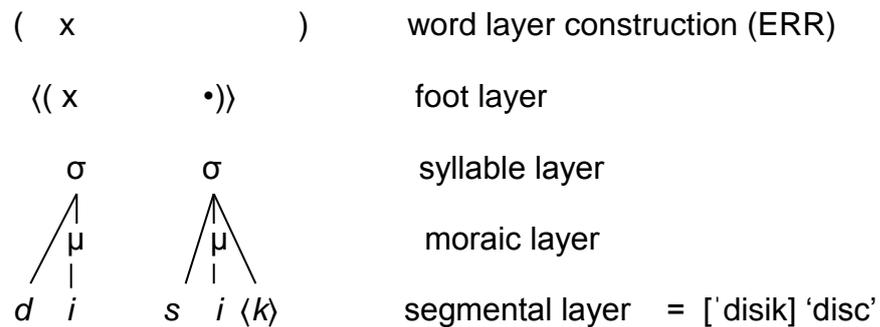
(5.2.10.10)

- | | | |
|--------------------------------|----------------------------|------------------|
| a. /'disik + -a:t/ | [dis'ka:t] | 'discs' |
| b. /'ʒiniz + -a:t/ | [ʒin'za:t] | 'pairs of jeans' |
| c. /'kafar, 'kavar + -a:t/ | [kafa'ra:t, kava'ra:t] | 'covers' |
| d. /'stikar + -a:t/ | [stika'ra:t] | 'stickers' |
| e. /'bo:star, 'po:star + -a:t/ | [bo:sta'ra:t, po:sta'ra:t] | 'posters' |
| f. /'sku:tar + -a:t/ | [sku:ta'ra:t] | 'scooters' |
| g. /'fo:ldar + -a:t/ | [fo:lda'ra:t] | 'folders' |

- h. /'ku:lɑr + -a:t/ [ku:lɑ'rɑ:t] 'water coolers'
 i. /ri'si:fɑr, ri'si:vɑr + -a:t/ [ri:si:fɑ'rɑ:t, ri:si:vɑ'rɑ:t] 'receivers'

The English word 'jeans' is a Plurale tantum⁵⁸. The loanword /'ʒiniz/ 'jeans' is analysed as a singular word in JUA. Therefore, it is pluralised as /'ʒin'zɑ:t/ by adding the suffix /-a:t/ 'feminine sound plural suffix'. Word primary stress shifts from the penult syllable in the singular forms of loanwords in 5.2.10.10 to the ultimate syllable in the plural forms. This is due to the fact that the super-heavy ultimate CVVC syllable always attracts stress in JUA. The following two prosodic representations present the singular and plural forms of the loanword /'disik/ 'disc' > [dis'ka:t] 'discs', respectively.

(5.2.10.11)



Foot parse proceeds from left to right. The final consonant /k/ is extrametrical. The first two monomoraic syllables .di. and .sik. form a foot. The foot [(di.si)k] is peripheral on the foot layer; however, foot extrametricality is blocked from applying since the peripheral foot [(di.si)k] is the only foot in the word. ERR assigns stress to the head of the rightmost

⁵⁸ Plurale tantum is a noun that does not have a singular variant to refer to a single object and it appears only in the plural form.

/ˈfɪltər/ ‘filter’ is analogous to the JUA word /ˈmɑktɑb/ ‘office’ which is pluralised as /mɑˈkɑ:tɪb/ ‘offices’.

5.2.10.3 Word Primary Stress Shift in Dual Forms of Loanwords

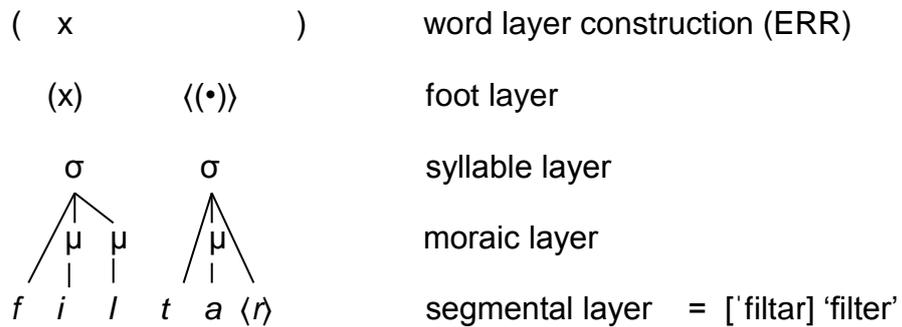
This sub-section presents word primary stress shift in dual forms of the loanwords in JUA. The following list presents suffixed loanwords in which the ultimate CVVC syllable attracts word stress. The first column presents the input forms (i.e. loanwords plus the JUA dual suffix /-e:n/), the second column presents the output, and the third column presents glosses.

(5.2.10.14)

a. /ˈfɪltər + -e:n/	[fɪltəˈre:n]	‘two filters’
b. /ˈdɪsɪk + -e:n/	[dɪsˈke:n]	‘two discs’
c. /ˈʒɪnɪz + -e:n/	[ʒɪnˈze:n]	‘two pairs of jeans’
d. /ˈfoːldər + -e:n/	[foːldəˈre:n]	‘two folders’
e. /ˈkuːlər + -e:n/	[kuːləˈre:n]	‘two water coolers’

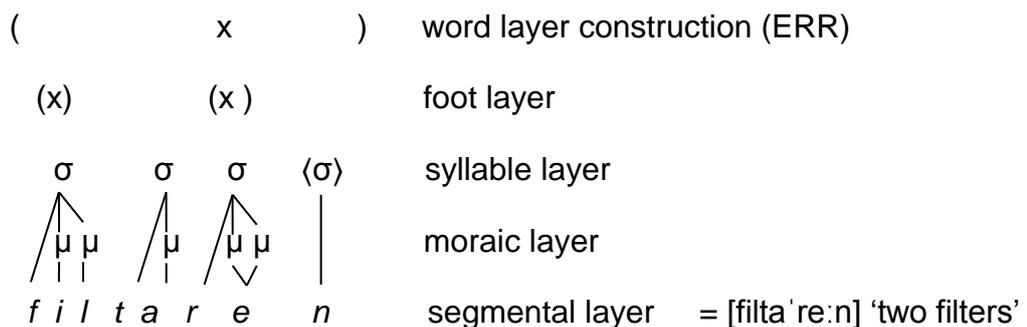
The list above shows that word primary stress shifts from the penult syllable in the singular forms of the loanwords into the ultimate syllable in the dual forms. This is because the ultimate super-heavy CVVC syllable always attracts stress in the loanwords. The following is the prosodic representation of the loanword /ˈfɪltər/ ‘filter’.

(5.2.10.15)



Foot parse proceeds from left to right. The final consonant /r/ is extrametrical. The first bimoraic syllable .fil. forms a foot. A second foot is constructed over the syllable .tar. The foot (tar) is rendered peripheral on the foot layer and thus it is invisible to stress rules. ERR assigns stress to the head of the rightmost visible foot (fil). The following is the prosodic representation of the dual form [fɪltaˈre:n] ‘two filters’.

(5.2.10.16)



A foot is constructed over the heavy syllable .fil. The monomoraic syllable .ta. is skipped because it neither constitutes a foot on its own nor forms a foot with the following bimoraic syllable. The final consonant /n/ is analysed as an extrasyllabic consonant. Foot extrametricality is blocked by the presence of the degenerate syllable. Stress is assigned to the head of the rightmost visible foot (re:) according to ERR.

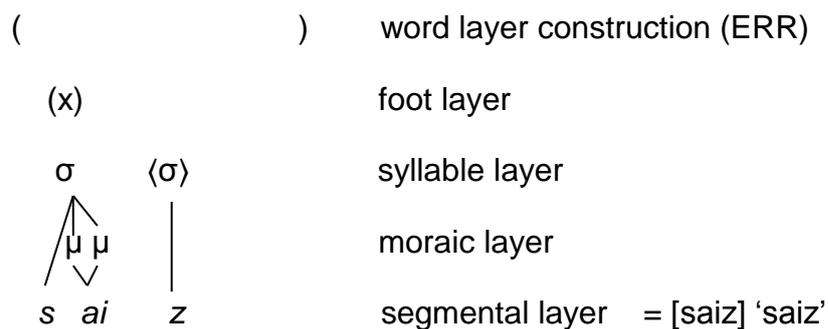
The following list presents suffixed loanwords in which word primary stress shifts to the right. The first column presents the input forms (i.e. loanwords plus the JUA dual suffix /-e:n/), the second column presents the output, and the third column presents glosses.

(5.2.10.17)

- | | | |
|--------------------------------|----------------------------|----------------|
| a. /ba:'lo:n, bal'lo:n + -e:n/ | [ba:lo:'ne:n, ballo:'ne:n] | 'two balloons' |
| b. /mo:l + -e:n/ | [mo:'le:n] | 'two malls' |
| c. /fail + -e:n/ | [fai'le:n] | 'two files' |
| d. /saiz + -e:n/ | [sai'ze:n] | 'two sizes' |

Word primary stress shifts to the right in the output forms in 5.2.10.16, as the ultimate syllable is super-heavy, CVVC. The ultimate super-heavy syllable always attracts stress in JUA. The following prosodic representations present stress shift in the loanwords [saiz] 'size' and the dual form [sai'ze:n] 'two sizes', respectively.

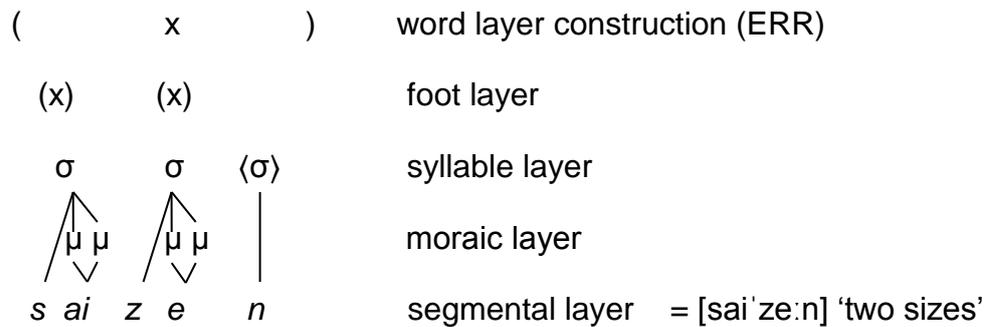
(5.2.10.18)



Foot parse takes place from left to right. A foot is constructed over the bimoraic syllable .sai. The consonant /z/ is extrasyllabic. The foot (sai) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /z/. ERR assigns stress to the head of the rightmost

visible foot (sai). The following is the prosodic representation of the dual form [sai'ze:n] 'two sizes'.

(5.2.10.19)



Foot parse takes place from left to right. A foot is constructed over the bimoraic syllable .sai. The bimoraic syllable .ze: forms a second foot. The consonant /n/ is extrasyllabic. The foot (ze:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /n/. ERR assigns stress to the head of the rightmost visible foot (ze:).

5.2.10.4 Word Primary Stress Shift in Possessive Forms of Loanwords

Sections 5.2.10.4.1-5.2.10.4.3 present word primary stress shift in the possessive forms of the loanwords in JUA.

5.2.10.4.1 English Loanwords + /-ha/ (3rd per. fem. sing. possessive suffix)

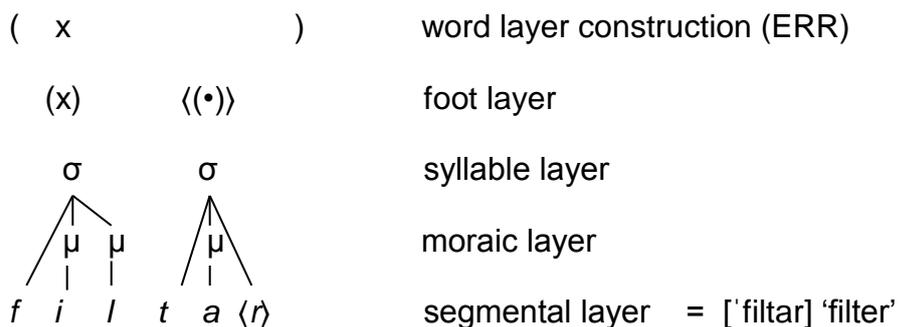
The following list presents 3rd person feminine singular possessive forms of the loanwords. The first column presents the input forms (i.e. loanwords plus /-ha/), the second column presents the output, and the third column presents glosses.

(5.2.10.20)

a. /'ʒiniz + -ha/	['ʒinizha]	'her jeans'
b. /'ʃifit + -ha/	['ʃifitha]	'her shift work'
c. /ko:t + -ha/	['ko:tha]	'her coat'
d. /la:b + -ha/	['la:bha]	'her lab'
e. /'fɪltar + -ha/	[fil'tarha]	'her filter'
f. /'skutar/ + -ha/	[sku:'tarha]	'her scooter'
g. /'fo:ldar + -ha/	[fo:l'darha]	'her folder'
h. /'ku:lar + -ha/	[ku:'larha]	'her water cooler'
i. /ri'si:far, ri'si:var + -ha/	[risi:'farha, risi:'varha]	'her receiver'
j. /ba:'lo:n, bal'lo:n + -ha/	[ba:'lo:nha, bal'lo:nha]	'her balloon'
k. /tɪli'fo:n, tala'fo:n + -ha/	[tɪli'fo:nha, tala'fo:nha]	'her telephone'

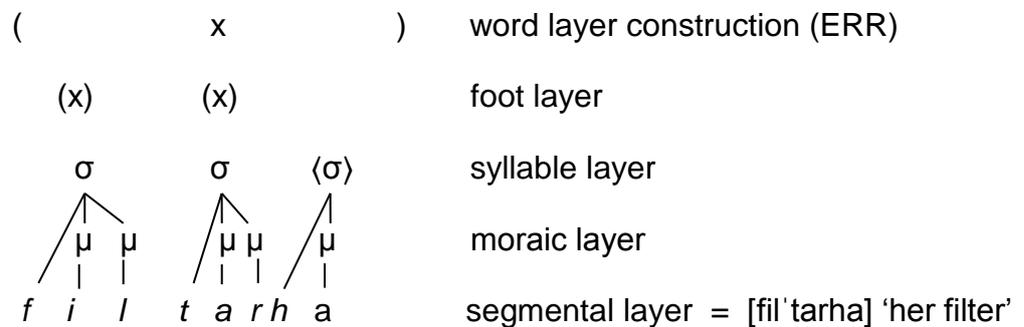
The list above shows that word stress is not likely to shift in the output forms in 5.2.10.20.a through 5.2.10.20.d when the possessive suffix /-ha/ is attached to the loanwords. This is attributed to the fact that those loanwords consist of only one foot of two consecutive light syllables or a heavy CVV syllable in the input forms (before suffixation). This foot is the only visible foot in the output forms after suffixation. Word stress in the output forms in 5.2.10.20.e through 5.2.10.20.i shifts to the right when the possessive suffix /-ha/ is attached to the loanwords. Those loanwords consist of more than one foot and the final foot is invisible to stress rules before suffixation. This final foot becomes visible to stress rules after suffixation, as in 5.2.10.21 and 5.2.10.22.

(5.2.10.21)



Foot parse proceeds from left to right. The consonant /r/ is extrametrical. The first bimoraic syllable .fil. forms a foot. A second foot is constructed over the syllable .tar. The foot (tar) is extrametrical. It is rendered peripheral on the foot layer and thus it is invisible to stress rules. ERR assigns stress to the head of the rightmost visible foot (fil). The following is the prosodic representation of the form [fil'tarha] 'her filter'.

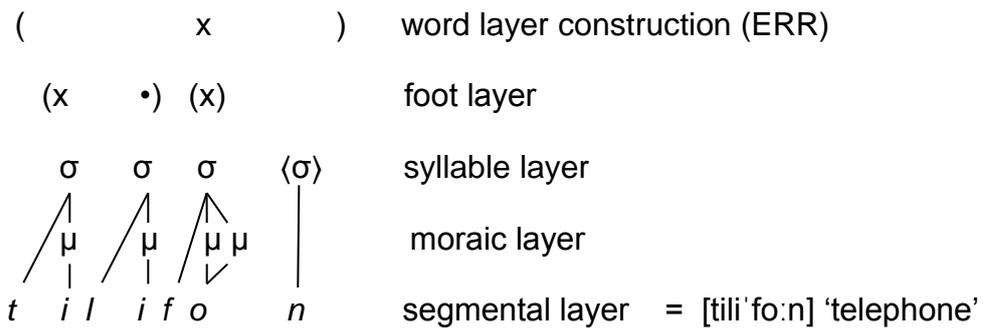
(5.2.10.22)



Foot parse proceeds from left to right. The first bimoraic syllable .fil. forms a foot. A second foot is constructed over the bimoraic syllable .tar. The foot (tar) is rendered non-peripheral due to the presence of the degenerate syllable .ha. ERR assigns stress to the head of the rightmost visible foot (tar).

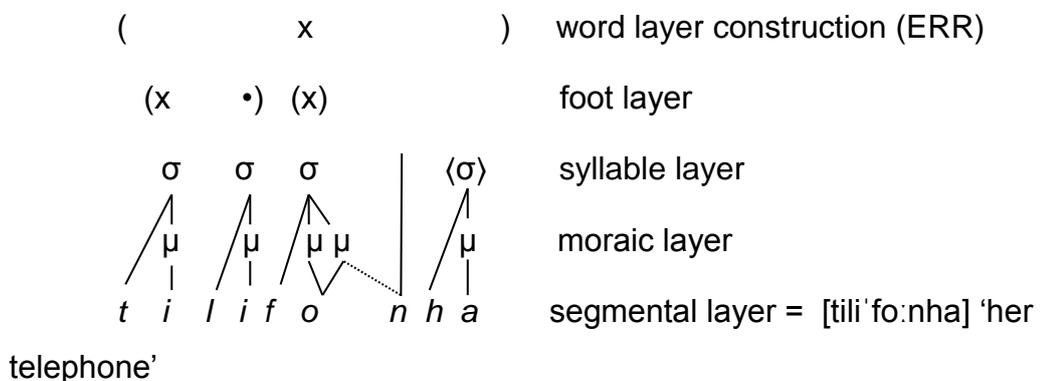
Word stress in the input forms in 5.2.10.20.j and 5.2.10.20.k consist of more than one foot and the final foot is visible to stress rules before suffixation. Word primary stress is not likely to shift when the possessive suffix /-ha/ is attached to the loanwords, as in 5.2.10.23 and 5.2.10.24.

(5.2.10.23)



Foot parse proceeds from left to right. A foot is constructed over the first two light (monomoraic) syllables .ti. and .li. The bimoraic syllable .fo: forms a second foot. The foot (fo:) is rendered non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /n/. Stress is assigned to the head of the rightmost visible foot (fo:) according to ERR.

(5.2.10.24)



Foot parse proceeds from left to right. The first two monomoraic syllables .ti. and .li form a foot. The bimoraic syllable .fo:. forms a second foot. The consonant /n/ is adjoined to the second mora of the preceding long vowel. The foot (fo:) is rendered non-peripheral on the foot layer due to the presence of the degenerate syllable .ha. ERR assigns stress to the head of the rightmost visible foot (fo:).

5.2.10.4.2 English Loanwords + /-hum/ (3rd person. pl. possessive suffix)

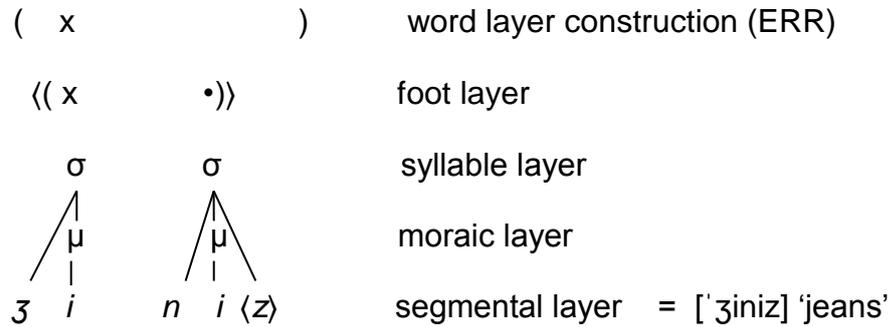
The following list presents 3rd person plural possessive forms of loanwords. The first column presents the input forms (i.e loanwords plus /-hum/), the second column presents the output, and the third column presents glosses.

(5.2.10.25)

a. /'ʒiniz + -hum/	['ʒinizhum]	'their jeans'
b. /'ʃifit + -hum/	['ʃifithum]	'their shift work'
c. /ko:t + -hum/	['ko:thum]	'their coat'
d. /la:b + -hum/	['la:bhum]	'their lab'
e. /ba:'lo:n, bal'lo:n + -hum/	[ba:'lo:nhum, bal'lo:nhum]	'their balloon'
f. /tili'fo:n, tala'fo:n + -hum/	[tili'fo:nhum, tala'fo:nhum]	'their telephone'
g. /'filtar + -hum/	[fil'tarhum]	'their filter'
h. /'skutar/ + -hum/	[sku:'tarhum]	'their scooter'
i. /'fo:ldar + -hum/	[fo:l'darhum]	'their folder'
j. /'ku:lar + -hum/	[ku:'larhum]	'their water cooler'
k. /ri'si:far, ri'si:var + -hum/	[risi:'farhum, risi:'varhum]	'their receiver'

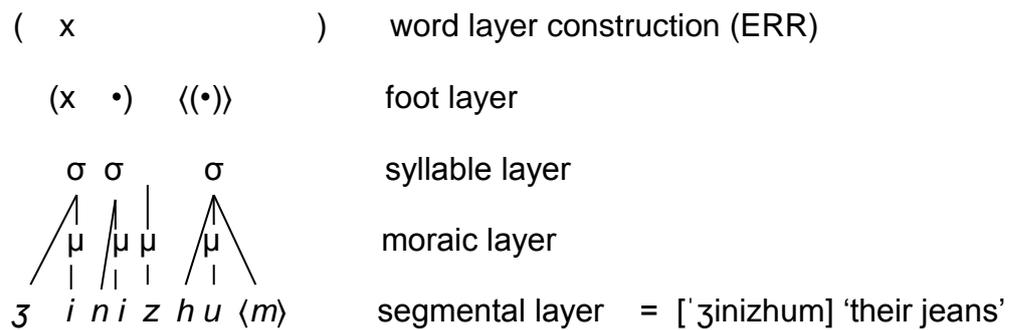
Word stress does not shift in the output forms in 5.2.10.25.a through 5.2.10.25.d when the possessive suffix /-hum/ is attached to the loanwords. This is due to the fact that those loanwords consist of only one visible foot before and after suffixation, this visible foot attracts stress, as in 5.2.10.26 and 5.2.10.27. The following is the prosodic representation of the loanword ['ʒiniz] 'jeans'.

(5.2.10.26)



Foot parse proceeds from left to right. The final consonant /z/ is extrametrical. The first two monomoraic syllables .ʒi. and .ni. form a foot. The foot [(ʒi.ni)z] is peripheral on the foot layer; however, foot extrametricality is blocked from applying because the peripheral foot [(ʒi.ni)z] is the only foot in the word. ERR assigns stress to the head of the rightmost visible foot. The following is the prosodic representation of the form ['ʒinizhum] 'their jeans'.

(5.2.10.27)



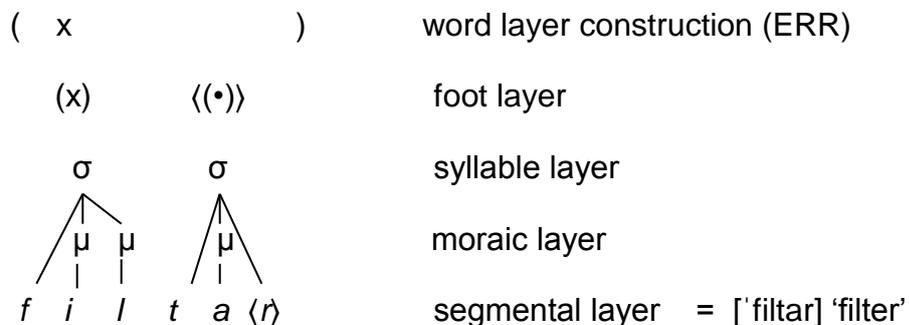
Foot parse proceeds from left to right. The final consonant /m/ is extrametrical. The first two monomoraic syllables .ʒi. and .ni. form a foot. The consonant /z/ is analysed as a semisyllable. A second foot is constructed over the syllable .hum. The foot (hum) where the extrametrical consonant /m/ is included is extrametrical. The foot (hum) is rendered

peripheral on the foot layer and thus it is invisible to stress rules. ERR assigns stress to the head of the rightmost visible foot ('ʒiniz).

The same is true when the possessive suffix /-hum/ is attached to the loanwords in 5.2.10.25.e and 5.2.10.25.f. For example, the rightmost foot (lo:) in /ba:'lo:n, bal'lo:n/ 'balloon' is visible to stress rules due to the presence of the extrasyllabic consonant /n/. When the suffix /-hum/ is attached to /ba:'lo:n, bal'lo:n/ 'balloon', stress does not shift in [ba:'lo:nhum, bal'lo:nhum] 'their balloon' because the foot (lo:) is the rightmost visible foot and the foot (hum) is extrametrical. The foot (hum) is rendered peripheral on the foot layer and thus it is invisible to stress rules.

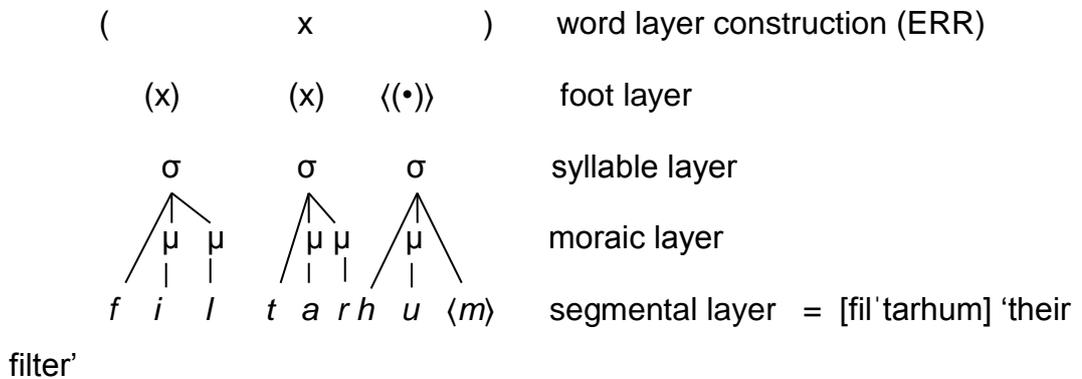
However, stress shifts to the right in the loanwords in 5.2.10.25.g through 5.2.10.25.k in which the final foot is invisible to stress rules before suffixation, as in 5.2.10.28 and 4.2.10.29. The following is the prosodic representation of the loanword ['fɪltar] 'filter'.

(5.2.10.28)



Foot parse proceeds from left to right. The final consonant /r/ is extrametrical. The first bimoraic syllable .fil. forms a foot. A second foot is constructed over the syllable .tar. The extrametrical consonant /r/ is included in the foot (tar). Therefore, the foot (tar) is extrametrical. The foot (tar) is rendered peripheral on the foot layer and thus it is invisible to stress rules. ERR assigns stress to the head of the rightmost visible foot (fil). The following is the prosodic representation of the form [fil'tarhum] 'their filter'.

(5.2.10.29)



Foot parse proceeds from left to right. The consonant /m/ is extrametrical. The first bimoraic syllable .fil. forms a foot. A second foot is constructed over the bimoraic syllable .tar. A third foot is constructed over the syllable .hum. The foot (hum) is rendered peripheral on the foot layer and thus it is invisible to stress rules. ERR assigns stress to the head of the rightmost visible foot (tar).

5.2.10.4.3 English Loanwords + /-ak/ (2nd per. masc. sing. possessive suffix)

The following list presents 2nd person masculine singular possessive forms of loanwords. The first column presents the input forms (i.e. loanwords plus /-ak/), the second column presents the output, and the third column presents glosses.

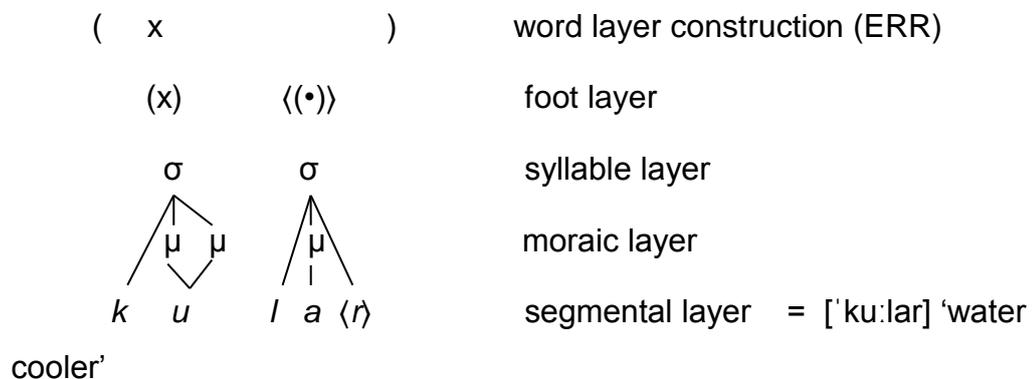
(5.2.10.30)

- | | | |
|-------------------------------|--------------------------|-------------------|
| a. /'ʒiniz + -ak/ | ['ʒinzak] | 'your jeans' |
| b. /'ʃifit + -ak/ | ['ʃiftak] | 'your shift work' |
| c. /ko:t + -ak/ | ['ko:tak] | 'your coat' |
| d. /la:b + -ak/ | ['la:bak] | 'your lab' |
| e. /ba:'lo:n, bal'lo:n + -ak/ | [ba:'lo:nak, bal'lo:nak] | 'your balloon' |

- f. /tɪlɪ'fɔ:n, tɔlɔ'fɔ:n + -ak/ [tɪlɪ'fɔ:nak, tɔlɔ'fɔ:nak] 'your telephone'
- g. /'fɪltar + -ak/ ['fɪltarak] 'your filter'
- h. /'skutar/ + -ak/ ['sku:tarak] 'your scooter'
- i. /'fɔ:ldar + -ak/ ['fɔ:ldarak] 'your folder'
- j. /'ku:lɔr + -ak/ ['ku:lɔrak] 'your water cooler'
- k. /rɪ'si:fɔr, rɪ'si:vɔr + -ak/ [rɪ'si:fɔrak, rɪ'si:vɔrak] 'your receiver'

The list above shows that word stress does not shift in the output forms when the possessive suffix /-ak/ is attached to the loanwords. This occurs regardless of the number of feet that the input forms consist of (before suffixation) and regardless of the final foot being visible or invisible to stress rules in the loanwords which consist of more than one foot (see 5.2.10.31 and 5.2.10.32 below). This is because the vowel-initial suffix /-ak/ is attached to the final consonant in the loanwords constituting two moras to the derived syllable. The consonant /k/ in the derived syllable is extrametrical and therefore the foot where the extrametrical consonant is contained is deemed extrametrical, as well. The extrametrical foot is rendered peripheral on the foot layer and thus it is invisible to stress rules. The following is the prosodic representation of the loanword ['ku:lɔr] 'water cooler'.

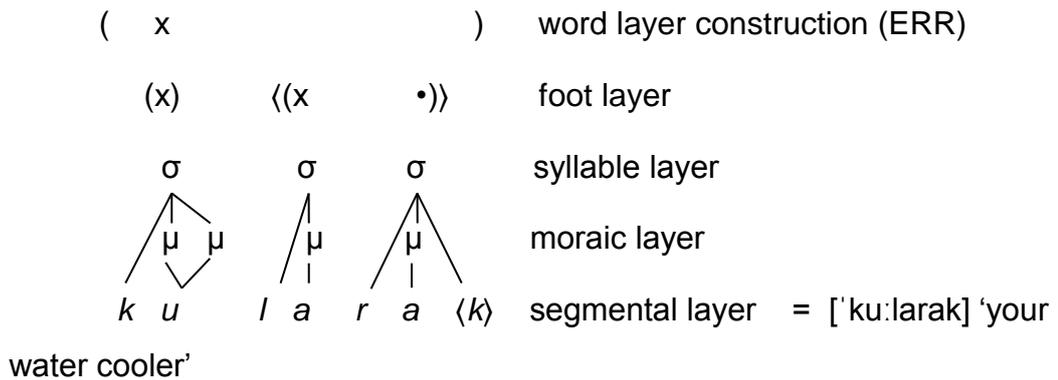
(5.2.10.31)



Foot parse proceeds from left to right. The final consonant /r/ is extrametrical. The first bimoraic syllable .ku:. forms a foot. A second foot is

constructed over the syllable .lar. The foot (lar) is extrametrical. It is rendered peripheral on the foot layer and thus it is invisible to stress rules. ERR assigns stress to the head of the rightmost visible foot (ku:). The following is the prosodic representation of the form [ˈku:larak] ‘your water cooler’.

(5.2.10.32)



Foot parse proceeds from left to right. The consonant /k/ is extrametrical. The first bimoraic syllable .ku: forms a foot. A second foot is constructed over the two light syllables .la. and .rak. The extrametrical consonant /k/ is contained in the foot (larak). The foot (larak) is extrametrical. It is rendered peripheral on the foot layer and thus it is invisible to stress rules. ERR assigns stress to the head of the rightmost visible foot (ku:).

5.2.10.4.4 English Loanwords + /-i:/ (1st per. sing. possessive suffix)

The following list presents 1st person singular possessive forms of loanwords. The first column presents the input forms (i.e. loanwords plus /-i:/), the second column presents the output, and the third column presents glosses.

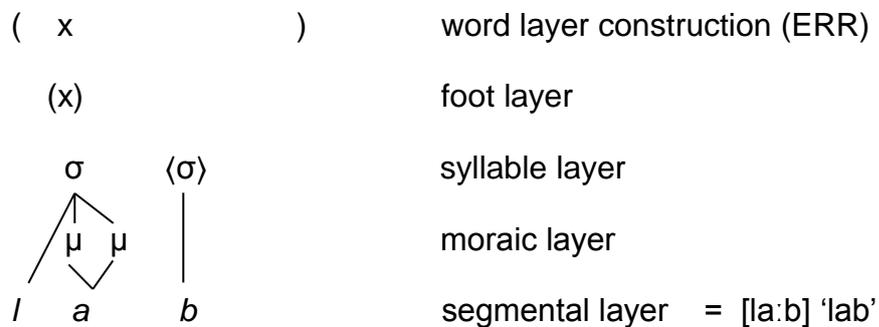
(5.2.10.33)

- | | | |
|-------------------|----------|-----------------|
| a. /ˈʒiniz + -i:/ | [ˈʒinzi] | ‘my jeans’ |
| b. /ˈʃift + -i:/ | [ˈʃifti] | ‘my shift work’ |

c. /ko:t + -i:/	['ko:ti]	'my coat'
d. /la:b + -i:/	['la:bi]	'my lab'
e. /ba:'lo:n, bal'lo:n + -i:/	[ba:'lo:ni, bal'lo:ni]	'my balloon'
f. /tili'fo:n, tala'fo:n + -i:/	[tili'fo:ni, tala'fo:ni]	'my telephone'
g. /'filtar + -i:/	['filtari]	'my filter'
h. /'skutar + -i:/	['sku:tari]	'my scooter'
i. /'fo:ldar + -i:/	['fo:ldari]	'my folder'
j. /'ku:lar + -i:/	['ku:lari]	'my water cooler'
k. /ri'si:far, ri'si:var + -i:/	[ri'si:fari, ri'si:vari]	'my receiver'

The list above shows that word stress is not likely to shift in the output forms when the possessive suffix /-i:/ '1st person singular possessive suffix' is attached to the loanwords. This occurs regardless of the number of feet that the input forms consist of (before suffixation) and regardless of the final foot being visible or invisible to stress rules in the loanwords which consist of more than one foot, as in 5.2.10.34 and 5.2.10.35 below. This is because the vowel-initial suffix /-i:/ is attached to the final consonant in the loanwords constituting two moras to the derived syllable. The derived syllable is rendered peripheral on the foot layer and thus it is invisible to stress rules. The following is the prosodic representation of the loanword [la:b] 'lab'.

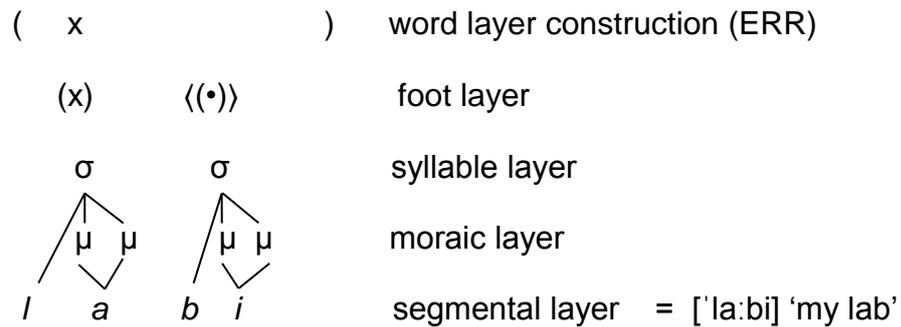
(5.2.10.34)



Foot parse proceeds from left to right. The first bimoraic syllable .la: forms a foot. The consonant /b/ is extrasyllabic. The foot (la:) is rendered

non-peripheral on the foot layer due to the presence of the extrasyllabic consonant /b/. ERR assigns stress to the head of the rightmost visible foot (la:). The following is the prosodic representation of the loanword ['la:bi] 'my lab'.

(5.2.10.35)



Foot parse proceeds from left to right. The heavy (bimoraic) syllable .la: forms a foot. The syllable .bi: forms a second foot. The foot (bi:) is rendered peripheral on the foot layer and thus it is invisible to stress rules. ERR assigns stress to the rightmost visible foot (la:).

5.3 Conclusion

Chapter five provided the analysis of the data. It presented frequencies and percentages of the loanwords and their JUA translation equivalent words, pronunciations of all loanwords with JUA consonantal substitutes, as well as covering pronunciations which maintain English phonemes, pronunciations of all loanwords with the epenthetic short vowel [i] in a word-final position and the pronunciations with final clusters in the speech of E and non-E groups. It provided an account of consonantal substitution, one of the phonological repair strategies that the loanwords undergo, from the perspective of Odden's (2005) presentation of Distinctive Feature Model. A number of phonological rules were formulated using a set of distinctive features. The optimal substitutes for the English phonemes which are illicit in

JUA were defined in terms of the Substitution Optimality Principle, which was proposed in the current study.

This chapter provided a Moraic-theory-based account of using the epenthetic short vowel [i], the glottal stop [ʔ] prosthesis, syncope, closed syllable shortening, de-clustering, vowel lengthening, vowel shortening, and gemination in terms of the Phonological repair Principle (PRP) and the Prosodic Hierarchy (PH) which were proposed in the present study. The phonological level at which the phonological repairs occur was defined in the PRP. Moraic Theory helped analyse the prosodic structures of the loanwords. Word primary stress shift was discussed in the framework of Hayes (1995) Metrical Stress Theory. Bracketed grids, which captured word stress shift, were used to present the metrical structures of suffixed and unsuffixed loanwords. The next chapter presents the findings of the study and their relation to the previous research, theoretical and methodological implications, and implications for research and practice.

Chapter 6

Findings and Implications

6.1 Findings of the Study

In this chapter, the findings of the study are reported and analysed in relation to previous research, and their implications are discussed. The present study has explored the prosodic repair strategies which deal with moraic structures of, affixed and unaffixed loanwords and, loanwords in phrases and sentences as well as metrical structure of suffixed and unsuffixed loanwords. The strategies include syncope, epenthesis, glottal stop [ʔ] prosthesis, closed syllable shortening, de-clustering, vowel lengthening, vowel shortening, gemination, and word primary stress shift which occur at the segmental level, the lowest phonological level in the PH, in order to satisfy phonological constraints at word level, foot level, syllable level, or moraic level – the higher phonological levels in the hierarchy. It has also explored the strategy of consonantal substitution which deals with separate consonantal segments in the loanwords. These findings answer the first research question: What phonological repair strategies do English loanwords undergo in the speech of JUA-speaking female university students?

It has been found that frequent use of English and the use of both loanwords and the strategies of consonantal substitution and epenthesis are correlated. There is a clear difference in the percentages of the pronunciations of the loanwords and the use of the strategies in the speech of E and non-E groups; students who specialise in English are more likely to use loanwords and to maintain the English phonemes /p, v, θ, dʒ, tʃ, ŋ/ and the final clusters /-nz, -ps, -lm, ŋk, -ft, -sk/ in loanwords than students who do not specialise in English. These findings answer the second research question: Is there a relationship between frequent use of English and the use of English loanwords and phonological repair strategies in the speech of JUA-speaking female university students?

The phonological adaptation of loanwords in JUA shows that JUA phonological system is the dominant system in loanword adaptation although English consonantal phonemes and word-final clusters are prevailing in loanwords in the speech of E group members. JUA moraic and metrical stress systems play the most significant role in the adaptation of the moraic structure and metrical stress patterns of loanwords in the speech of both E and non-E groups. This reveals that there is no separate phonology for loanwords but rather a single phonology that works for both JUA words and English loanwords in JUA. The present study has two main contributions to loanword phonology, they are summarised as follows:

1. The vague notion of 'the closest' sound in consonantal substitution in loanwords in the literature has been resolved and the optimal substitute for the foreign phoneme has been defined precisely on a phonological basis. According to the SOP, which has been proposed in the present study, consonantal substitution applies in a predictable fashion: a consonantal phoneme constitutes an optimal substitute if it shares more phonological features with the foreign one than does any other consonantal phoneme; redundant phonological features do not count. For example, the substitution optimality principle predicts that the JUA phoneme /f/ will constitute the optimal substitute for the English phoneme /v/ in loanwords. This is due to the fact that JUA /f/ shares more phonological features with the English one than does any other JUA phoneme. The JUA /f/ shares the features [+cont], [+ant], [-cor] with English /v/. The feature [-voice] is not contrastively specified for JUA /f/; this is connected with the fact that there are no voiced-voiceless pairs in JUA involving the upper teeth against the lower lip. Every language decides which phonological features are redundant.
2. The fashion in which phonological repairs occur in loanwords has been clearly defined in the PRP in the present study. According to the PRP, phonological repairs occur at the segmental level, which is defined by the PH as the lowest phonological level, in favour of satisfying phonological constraints at higher phonological levels in the PH. For example, the PRP predicts that gemination will occur at the

segmental level in order to resolve a syllabic problem at the syllabic level, a higher level in the PH.

The present study has also a contribution to the literature on Jordanian Arabic; this work is the first reference that provides a detailed account of distinctive features of JUA phonemes, moraic structure and metrical stress analyses of JUA words (see sections 4.11.7, 4.12, and 4.13 above).

The present study has come out with a number of phonological rules which are related to the strategies that the loanwords undergo. The rules will be presented in the following paragraphs. It has been found that the loanwords undergo two types of syncope: vowel syncope and consonant syncope. In vowel syncope, the unstressed high short vowel /i/ in suffixed loanwords is syncopated to reduce the number of monomoraic syllables and maximize bimoraicity, as in [ˈdiski] ‘my disc’ (the loanword /ˈdisik/ ‘disc’ + /-i:/). The mora of the syncopated vowel is assigned to the onset of the syllable that undergoes syncope. In consonant syncope, the glottal stop /ʔ/ of the definite article /ʔil-/ ‘the’ in the prefixed loanwords is syncopated, as it occurs medially through post-lexicalization, as in /jaˈre:t + ʔilˈko:t/ ‘bought + 1st person sing. possessive suffix + the coat’ > [ʃare:til ko:t] ‘I bought the coat’. The /il/ of the definite article /ʔil-/ ‘the’ is linked to the final consonant of the preceding utterance constituting two moras for the derived syllable .til. in [ʃare:til ko:t] ‘I bought the coat’.

The SOP predicts that the JUA phonemes /f/, /b/, /t/, /ʃ/, /z/, /n/ will be substituted for the English phonemes /v/, /p/, /θ/, /tʃ/, /dʒ/, /ŋ/, respectively, in loanwords which are more integrated into JUA. The SOP also predicts that those phonological features which are underlyingly redundant in the phonology of JUA will not be preserved in the loanwords. For example, it has been found in the present study that the features [-voice] and [+voice] are not contrastively specified for JUA /f/ and /b/, respectively. Therefore, English /v/ and /p/ are adapted as /f/ and /b/, respectively. The English phonemes /dʒ/ and /tʃ/ assign a minus value for the feature [cont]. The JUA phonemes /z/ and /ʃ/ are the optimal substitutes for English /dʒ/ and /tʃ/, respectively; the feature [+cont] is not contrastively specified for JUA /z/ and /ʃ/ because,

unlike in English, there are no postalveolar affricates in JUA. The features [+ant], [+cor]⁵⁹, [-hi], [-back] are not contrastively specified for the JUA substitute /n/ and thus the JUA /n/ constitutes the ideal replacement for English /ŋ/.

It has been found that the epenthetic short vowel [i] is inserted in word-final clusters, word-initial tri-consonantal clusters, and tri-consonantal sequences in loanwords to resolve a phonotactic problem at the syllabic level, a higher phonological level in the PH. The epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant in the loanwords due to the fact that JUA is a VC dialect (see § 4.12.6.2 above). The findings show that onset and coda formation in the loanwords can cross word boundaries, as in /'rbiħit + 'sku:tar/ 'won + 1st person sing. possessive suffix + scooter' > [rbiħit i sku:tar] 'I won a scooter', where the first /t/ constitutes an onset for the derived syllable .tis. and /s/ constitutes a coda for that syllable. This also occurs when the peripheral consonant (the first consonant in the bi-consonantal initial cluster) is integrated into the prosodic hierarchy through the strategy of de-clustering. The peripheral consonant constitutes a coda for the derived syllable when it is preceded by a vowel-final utterance, as in /wi + 'skanar/ > [wis'kanar] 'and a scanner'.

According to the PRP, vowel lengthening occurs at the segmental level in a loanword like /la:b/ 'lab' in order to satisfy a constraint at the word level, a higher phonological level in the PH. A constraint in JUA requires that the minimal (content) phonological word must consist of a foot of two moras in addition to an incomplete syllable. The PRP also predicts that the ultimate CVC syllable in polysyllabic loanwords will be expanded in order to satisfy a metrical constraint at the word level, a higher phonological level in the PH, as in [kara'me:l] 'caramel' (UK /'kærəməl/). The findings show that stress falls on the ultimate syllable if super-heavy in disyllabic or polysyllabic loanwords, as in [ru:'ti:n] 'routine', [ban'zi:n] 'benzene', and [sata'lait] 'satellite'.

⁵⁹ JUA /n/ does not have to be specified as [+cor] to distinguish it from /m/, as the latter phoneme is distinguished from /n/ by assigning a plus value for the feature [lab].

Otherwise, stress falls on the penult syllable if heavy in polysyllabic loanwords as in [kun'si:lɑr] 'concealer' or in disyllabic loanwords whether the penult syllable is light as in ['skɑlʊb] 'scallop', heavy as in ['kɔ:lɑ] 'Cola', or super-heavy as in ['bɔ:stɑr] 'poster'. In the case that neither the ultimate nor the penult in polysyllabic loanwords meet the requirements of attracting stress – in other words, if the the ultimate is not super-heavy or the penult is not heavy – then the ultimate has the priority to be rendered superheavy and attracts stress, as in /kɑrɑ'me:l/ 'caramel' and /mika'ni:k/ 'mechanic'. The ultimate syllable has the priority to be rendered super-heavy in this case is due to the fact that according to JUA rules of stress placement, it is the ultimate syllable that has priority to attract stress if super-heavy, and since there is a possible way to modify illicit ultimate syllables in loanwords, then the ultimate syllable has the priority to attract stress in loanwords after it has been rendered super-heavy.

The findings show that the Peripherality Condition is blocked from applying in loanwords if the phonological word has only one foot, as in the loanwords /'ʒiniz/ 'jeans', /'skɑnɑr/ 'scanner', /'skɑlʊb/ or /'skɑlʊp/ 'scallop', and /'stikɑr/ 'sticker'. The medial consonant which is no longer extrametrical due to suffixation is parsed as a semisyllable in suffixed loanwords. This semisyllable is assigned a mora which is linked directly to the word node, such as the semisyllable /z/ in ['ʒinizhʊm] 'their jeans'. It has been also found that the CVV in the super-heavy ultimate CVVC syllable in loanwords is assigned a foot, and this foot cannot be rendered peripheral on the foot layer due to the presence of the degenerate syllable C', as in [bɑrɑsɪtɑ'mo:l] 'paracetamol', [sɑtɑ'lɑɪt] 'satellite', [bɑdɪk'ju:r] 'pedicure', [tɪlɪ'fo:n] or [tɑlɑ'fo:n] 'telephone', [bɑn'zi:n] 'benzene', [kʊk'te:l] 'cocktail', [ru:'ti:n] 'routine', and [brɔ:'ti:n] 'protein'.

The findings show that two loanwords with the same moraic structure have the same metrical stress pattern but not vice versa. For example, the loanwords ['pɔ:stɑr, 'bɔ:stɑr] 'poster' and ['fɔ:lɑr] 'folder' share the underlying pattern /CVVC.CVC/ with the primary stress on the penult syllable. However, the loanwords [ri'si:vɑr, ri'si:fɑr] 'receiver' and ['pɔ:stɑr, 'bɔ:stɑr] 'poster' share the same stress pattern where stress falls on

the penult syllable, but they have different moraic structures: /CV.CVV.CVC/ and /CVVC.CVC/, respectively.

A significant finding has to do with the phonological situation in which two phonological constraints are violated at the same time. According to the PRP, the JUA constraint which requires that the epenthetic short vowel [i] be inserted to the left of the unsyllabified consonant is violated at the segmental level, the lowest phonological level in the PH, in favour of satisfying the JUA moraic constraint which requires that each foot consist of exactly two moras at the moraic level, as in the loanword [ʔisbi'rissu] 'espresso' where the illicit tri-consonantal sequence /-spr-/ (which is rendered as -sbr-; see § 5.2.1.3 above) is repaired by inserting the epenthetic short vowel [i] to the right of the unsyllabified consonant /b/.

One of the most interesting findings is that the prosodic elements which are part of the underlying representations are not deprived of their prosodic characters in the loanwords although they do not survive to the surface. For example, the vowel /i/ in [la:bi] 'my lab' is underlyingly long /i:/ in /la:bi:/. The loanword [filaru] 'his filter' has the underlying representation /filaruh/. The loanwords [ʔisbi'rissu] 'espresso' and [sib're:] 'spray' end with the glottal fricative /h/ underlyingly as in /ʔisbi'rissuh/ 'espresso' and /sib're:h/ 'spray', respectively.

The findings show that word primary stress shifts from the penult syllable in the singular forms of loanwords into the ultimate syllable in the feminine sound plural and dual forms of loanwords, as in /fo:ldar + -a:t/ 'folder + fem. plural suffix' > [fo:lda'ra:t] 'folders' and /fo:ldar + -e:n/ 'folder + dual suffix' > [fo:lda're:n] 'two folders'. However, stress shifts from the penult syllable in the singular form /filter/ 'filter' to the right in the broken plural [fa'la:tir] 'filters'. The findings also show that when primary stress falls on the ultimate syllable in the singular forms of loanwords, stress shifts to the right in the feminine sound plural and dual forms of the loanwords, as in /mo:l/ 'mall' > [mo:'la:t] 'malls' and [mo:'le:n] 'two malls'.

The findings show that primary stress is not likely to shift in loanwords which consist of only one foot of two consecutive light syllables or the heavy CVV syllable in addition to an incomplete syllable when possessive suffixes

are attached to them, as in the loanword /'ʒiniz/ 'jeans' plus the suffix /-ha/ 'her' which becomes [ʒinizha] 'her jeans' and /la:b/ 'lab' plus /-ha/ 'her' which becomes [la:bha] 'her lab'. Stress does not shift in loanwords which consist of more than one foot in which the final foot is visible to stress rules when possessive suffixes are attached to them, as in /ba:'lo:n + -ha/ 'balloon + 3rd person fem. sing. possessive pronoun' > [ba:'lo:nha] 'her balloon'. Stress shifts to the right in loanwords which consist of more than one foot in which the final foot is invisible to stress rules when the consonant-initial possessive suffixes /-ha/ and /-hum/ are attached to them, as in /'fɪltar + -ha/ 'filter + 3rd person fem. sing. possessive pronoun' > [fil'tarha] 'her filter'. This is because the foot (tar) in [fil'tarha] is no longer peripheral due to the presence of the degenerate syllable .ha. However, stress is not likely to shift when the vowel-initial possessive suffixes /-i:/ and /-ak/ are attached to the same loanwords, as in /'fɪltar + -ak/ 'filter + 2nd person masc. sing. possessive pronoun' > [fɪltarak] 'your masc. sing. filter'. The loanword /'fɪltar/ 'filter' comprises two feet where the rightmost foot (tar) is extrametrical and thus it is rendered peripheral on the foot layer. The syllable .tar. in the suffixed loanword [fɪltarak] 'your masc. sing. filter' is contained within the peripheral foot (tarak), in which the extrametrical consonant /k/ is contained. Therefore, the foot (tarak) is invisible to stress rules.

6.2 Relation to Previous Research

The findings of the study show that the English phonemes /p, v, θ, dʒ, tʃ, ŋ/ are either maintained in the speech of the respondents or substituted with the JUA phonemes /b, f, t, ʒ, j, n/, respectively. The study has explored the fact that English phonemes in loanwords are more likely to be maintained in the speech of those respondents who specialise in English than in the speech of the respondents who do not. These findings disagree with those of Suleiman (1985) on Jordanian Yarmouk university students whose formal learning is in English and other Arab university students from other Arab countries whose formal learning is in Arabic. He states that the students do not maintain the English phonemes /p, v/ in loanwords although the Jordanian students report using loanwords far more than the students from

other Arab countries. This conflict in the findings supports the view that the phonological change that has occurred in loanwords in the speech of Jordanian university students since the 1980s. However, the current findings support Suleiman's finding that students who use English use the loanwords more than students who do not. The vague notion of 'the closest' sound in consonantal substitution in loanwords in the literature (e.g. Sa'id, 1967; Suleiman, 1985, Hafez, 1996) has been resolved precisely on a phonological basis and the optimal substitute has been defined. The findings of the present study in regard to the optimal substitute agree with Herd's (2005) and Arsenault's (2009) findings.

The findings of the study show that epenthesis is preferred to deletion in the process of repairing illicit clusters in the loanwords. This finding is in line with what Singh (1985), Yip (1993), Hafez⁶⁰ (1996), Paradis and LaCharité (1997), Mwihaki, 2001, Rose and Demuth, 2006, and Adler (2006) found in their studies. The findings of the present study show that illicit clusters or sequences in the loanwords such as [disik] 'disc', [filim] 'film', and [ʔisbirissu] 'espresso' undergo two phonological repairs maximally. These findings support Paradis and LaCharité's (1997) Preservation Principle and Threshold Principle, as the consonantal material has been preserved as much as possible and the preservation is within the limits of the Threshold Principle.

It has been found that the final clusters /-nz, -ps, -lm, -ŋk, -ft, -sk/ in loanwords are either maintained or modified by epenthesis. The findings show that final clusters are more likely to be maintained in the speech of respondents who specialise in English than in the speech of respondents who do not. These findings provide an account of the borrowing patterns which are confusing in Suleiman (1985) who states that the final cluster /-sk/ is preserved in the loanword /disk/ 'disc' whereas the final cluster /-lm/ is not maintained in the loanword /'filim/ 'film'. Suleiman (1985) does not provide an account of why final clusters are either maintained or modified by epenthesis. Since final clusters of two non-identical consonants are not

⁶⁰ Based on my observation of her data.

permitted in JUA, the only satisfactory account of this phenomenon, based on the findings of the present study, is that frequent use of English plays a role in maintaining final clusters in loanwords.

The fashion in which phonological repairs occur in loanwords has been clearly defined in the PRP in the present study. For instance, the PRP predicts that gemination will occur at the segmental level in order to resolve a syllabic problem at the syllabic level, a higher level in the PH. However, Hafez (1996) does not provide a theory-based account of gemination in loanwords, and her analysis of gemination is inconsistent. Hafez (1996) claims that gemination occurs in loanwords in order to bring them into line with Egyptian Arabic word patterns or possibly due to the effect of orthography. However, gemination in some loanwords is left unaccounted for in her work.

Previous literature (e.g. Sa'id, 1967; Suleiman, 1985, Hafez, 1996) focused on exploring phonological repairs which deal with separate segments only in unaffixed loanwords. It did not pay attention to the phonological repair strategies in loanwords when native-language affixes are added and the prosodic strategies that deal with moraic and metrical structures of loanwords at word, phrase and sentence levels. The present study has helped provide a thorough theory-based account of phonological repair strategies in affixed and unaffixed loanwords and the prosodic repair strategies which deal with moraic structures of, affixed and unaffixed loanwords and, loanwords in phrases and sentences and metrical structure of suffixed and unsuffixed loanwords.

6.3 Evaluation of the Study

This section provides an evaluation of the theoretical framework and the methodology that have been adopted in the present study. The theoretical framework comprises Distinctive Feature Theory as presented in Odden (2005), Hayes' (1989) Moraic Theory, and Hayes' (1995) Metrical Stress Theory. The former has been adopted to cope with segmental issues in the loanwords and the last two theories have been adopted to cope with non-

segmental issues (i.e. links and relations between segments). The universal set of distinctive features has made it easier to provide an account of consonantal substitution in a structured way and to explore the optimum JUA consonantal substitutes for English phonemes.

Moraic theory has proved its capability to provide an account of a number of phonological issues in the current study. The minimality constraint which requires that the minimal phonological word consist of a foot and an incomplete syllable helped provide an account of vowel lengthening in loanwords, as in /ka:b/ 'cap', /la:b/ 'lab', and /fa:nta/ 'Fanta' (see § 4.12.2 above). Hayes' extrametricality constraints have helped provide a good justification for why a word-final CVC syllable is unstressable in the loanwords, as in ['fɪltar] 'filter', ['hi:tar] 'heater', and ['ku:lɑr] 'water cooler' (see § 4.12.3). However, due to the limited scope of the theory, Kiparsky's (2003) approach to semisyllables in Arabic dialects was adopted to deal with the consonants which are no longer extrametrical due to suffixation, such as the consonant /k/ in the suffixed loanword ['disikha] 'her disc' (see sections 4.12.3 and 4.12.6.2 above). The same approach has been adopted to cope with illicit tri-consonantal clusters in English input forms. For example, the epenthetic short vowel [i] is inserted to the left of the unsyllabified consonant (i.e. the second consonant in the cluster) in the loanwords [sib're:] 'spray' and [sib'rait] 'Sprite' because JUA is a VC dialect.

Broselow's (1992) findings on syncope in Arabic dialects have helped provide an explanation for vowel syncope in suffixed loanwords, as in the loanword /'disik/ plus the suffix /-uh/ which is rendered as ['disku] 'his disc' in JUA (see § 4.12.6.1 above). Hayes' extrasyllabicity constraints have provided an account of the stressable loanword-final CVVC syllable (see § 4.12.4). Again, due to the limitations on the scope of this theory, Broselow's (1992) Adjunction-to-Mora rule has been adopted to account for the final consonant in CVVC when a consonantal-initial suffix is attached to the loanword which ends with CVVC, such as /'la:b + -ha/ > ['la:bha] 'her lab'. The consonant /b/ in /'la:bha/ 'her lab' is no longer extrasyllabic due to suffixation, such that the consonant /b/ in ['la:bha] is adjoined to the second mora of the preceding long vowel (see § 4.12.5 above). Previous literature (e.g. Broselow, 1992; Kenstowicz, 1994) on CSS in Arabic dialects has

helped provide an account of closed syllable shortening (CSS) in loanwords in the present study, as in /fi: + ʔil'bo:star/ > [fil'bo:star] 'in the poster' in which the derived syllable /fi:l/ undergoes CSS (see 4.12.6.3 above). Metrical Stress Theory has played a significant role in providing an account of word primary stress shift in suffixed loanwords by virtue of the bracketed grids which are enriched with feet constituency (see sections 5.2.10.2, 5.2.10.3, and 5.2.10.4 above).

It has been a challenge to deal with loanwords in the framework of the three theories which have been adopted in the present study. This is due to the fact that there are no previous references dealing with JUA phonology in general, and the moraic rules and metrical stress of JUA and distinctive features of JUA consonantal and vocalic phonemes in particular. However the application of the three theories provided the framework and context for analysing the data and answering the research questions. The literature on various varieties of Arabic (e.g. McCarthy and Prince, 1990; Broselow, 1992; Kenstowicz, 1994; Kiparsky, 2003, among others) and the use of my own JUA native-speaker intuitions and personal observation resulted in the sections on JUA phonology (see sections 3.1, 4.11.8, 4.12, and 4.13 above).

The method that has been used in the present study has proved its validity; it would not have been feasible to capture the pronunciations of the loanwords and word primary stress patterns without the use of the verbal questionnaire and the audio-recordings. The questionnaire has included sufficient questions covering a large number of phonological repairs. It has also included monosyllabic, disyllabic, and polysyllabic loanwords, affixed and unaffixed loanwords, loanwords in phrases and sentences, and loanwords with a large set of different phonemes. The study has been conducted on two groups where members of one group specialise in English and therefore they use, and have frequent exposure to, English and members of the other group specialise in different fields of studies where Arabic is the medium of formal learning. The use of close-ended questions along with three answer options including the option *other, specify your answer* helped gather a large amount of data in a structured way. The

answer choice *other, specify your answer* in the questionnaire helped explore other pronunciations that the respondents use.

The present study has proved to be reliable within itself; members across the two groups were asked to pronounce the same set of loanwords in the same circumstances, bearing in mind that the two groups were homogeneous. All members of the E group were females, JUA-native speakers, university students, and whose formal learning is in English and members of non-E group were females, JUA-native speakers, university students, and whose formal learning is in Arabic. The pronunciations of the loanwords across the members of the two groups show consistency. Most members of the E group maintain the English phonemes /v, p, θ, dʒ, ɲ/ in their pronunciations of all loanwords, and the majority of the members of the non-E group show stability in their pronunciations of all loanwords. British English was used consistently in the transcriptions of the English input forms and the identifications of the distinctive features of English phonemes throughout the thesis.

The data of the present study have been gathered from JUA-speaking female students at the University of Jordan. The findings would be strengthened further by conducting similar studies in other Jordanian higher educational institutes.

6.4 Implications of the Study

Since the main focus of the present study has been to explore the phonological strategies that JUA-speaking university students have adopted to bring the loanwords in line with the JUA phonological system, the current study has come out with a suggestion to enhance the process of adapting the loanwords into JUA phonology.

The University of Jordan, where the respondents of the study were from, would play a significant role in enhancing the process of the adaptation of loanwords. This may occur by setting up what could be called 'Loanword Zone' at the Languages Centre in the university. The purpose of this zone

would be to raise awareness, among university students, of the importance of using the phonological rules that have been proposed in the present study to help adapt English loanwords in a consistent way. Other roles of the zone would be to make YouTube videos on the pronunciations of loanwords and to create a Facebook group, a Pinterest board, or a blog to help members of the zone to communicate and post up-to-date loanwords. It may encourage university students to apply the rules when they take in new English words by presenting those rules in different venues such as posters, webpages on the university website, or brochures. This would encourage other higher educational institutes in Jordan to work on loanword adaptation.

6.5 Future Research

Some issues in the present study need further investigation in the future. A quantitative study needs to be conducted in regard to the correlation of the use of frequent English and the use of both English loanwords and the phonological repair strategies in the speech of JUA-speaking female university students. This would provide the reader with inferential statistical findings – to explore if the association between the use of English and the use of English loanwords and phonological repair strategies are statistically significant. This in turn would strengthen the descriptive statistical findings of the present study.

A study needs to be conducted to explore vocalic substitution in the loanwords. The aim of the study would be to explore the optimal JUA vocalic substitutes for English vowels. Odden's (2005) presentation of Distinctive Feature Theory would make a good framework for exploring the optimum substitutes. Phrasal stress shift and destressing in loanwords at the phrasal level have not been studied yet due to time and space restrictions. Further study needs to be conducted to cover these phonological issues.

The same methods and framework could also be used to look at loanwords in other forms of Jordanian Arabic, e.g. Jordanian Rural Arabic and Jordanian Bedouin Arabic. Finally, it would be beneficial to apply the same framework as has been adopted in the present study to loanwords in

the speech of students at other Jordanian higher educational institutes or in the speech of other Jordanian people in health or financial institutes. This would add to the findings of the present study.

6.6 Conclusion

Chapter six has reported the findings of the study and analysed them in relation to previous research. It has shown how the theoretical framework has proved adequate to provide an account of the phonological issues in the loanwords. It has presented an evaluation of the method that has been used in the present study. The implications of the study and some recommendations for further work have been suggested in the chapter.

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Appendix A

Advertisement (English Version)

A.1 Study respondents (from the Department of English Language and Literature)

Would you like to share your own forms of English borrowed words?

I am recruiting respondents for a PhD project looking at the phonological repair strategies that English loanwords undergo in the speech of Jordanian female university-students. I have prepared a questionnaire consisting of three main sections. The first section provides an introduction to the questionnaire, instructions, and a list of phonemic symbols. The second one consists of 100 questions where each question has three pre-coded alternatives. Respondents will be asked to choose the form that they use in their daily life, and if the form that they use is not included in the alternatives, they should choose the last alternative (i.e. c) which asks them to specify the form that they use. The third section consists of 182 questions where the respondents are asked to pronounce English loanwords in phrases. The questionnaire will be conducted verbally and answers will be recorded.

To take part in the study, respondents should be:

1. Jordanian.
2. Native speakers of Jordanian urban Arabic (not using MSA in oral communication).
3. Not native speakers of English.
4. Studying English.
5. People who have done their school studies in a school where English was the medium of formal learning.
6. Exposed frequently to English (frequently using/doing any of the following: English-language-software, English training courses, talking to native speakers of English or to bilinguals in Arabic/English, reading English books or magazines, listening to English-language music, watching English-language films,

using English-language websites such as Facebook, Twitter, and YouTube, English-language DVDs, and cinema, etc.).

7. Female.

To make sure that a respondent is eligible to take part in this study, all respondents will be asked some general questions beforehand.

Please note that if you complete the study correctly you will be rewarded with JD5.

If you are interested and would like to receive further information regarding the study please contact:

mlzasa@leeds.ac.uk

A.2 Study respondents (from the schools of Arts, Archaeology and Tourism, Law, Physical Education, International Studies, Fine Arts and design, and Agriculture)

Would you like to share your own forms of English borrowed words?

I am recruiting respondents for a PhD project looking at the phonological repair strategies that English loanwords undergo in the speech of Jordanian female university-students. I have prepared a questionnaire consisting of three main sections. The first section provides an introduction to the questionnaire, instructions, and a list of phonetic symbols. The second one consists of 100 questions where each question has three pre-coded alternatives. Respondents will be asked to choose the form that they use in their daily life, and if the form that they use is not included in the alternatives, they should choose the last alternative (i.e. c) which asks them to specify the form that they use. The third section consists of 182 questions where the respondents are asked to pronounce the loanwords in phrases. The questionnaire will be conducted verbally and answers will be recorded.

To take part in the study, respondents should be:

1. Jordanian.

2. Native speakers of Jordanian urban Arabic (not using MSA in oral communication).
3. Not native speakers of English.
4. Not studying English.
5. People who have done their school studies in a school where Arabic was the medium of formal learning.
6. Not frequently exposed – or had only a little exposure – to English (not using or doing any of the following: English-language-software, English training courses, talking to native speakers of English or to bilinguals in Arabic/English, reading English books or magazines, listening to English-language music, watching English-language films, using English-language websites such as Facebook, Twitter, and YouTube, English-language DVDs, and cinema, etc.).
7. Female.
8. Haven't finished the courses English 99 and English 101.

To make sure that a respondent is eligible to take part in my study, all respondents will be asked some general questions beforehand.

Please note that if you complete the study correctly you will be rewarded with JD5.

If you are interested and would like to receive further information regarding the study please contact:

mlzasa@leeds.ac.uk

Appendix B Advertisement (Arabic Version)

ب.1 المشاركات في الدراسة (من قسم اللغة الانجليزية)

هل ترغبين في ان تشاركينا كلماتك المستعارة من اللغة الانجليزية؟

أعلن عن حاجتي لطالبات اردنيات يرغبن في المشاركة في دراسة دكتوراة تبحث في الاصلاحات الصوتية في الكلمات المستعارة من اللغة الانجليزية التي تستخدمها طالبات الجامعة الاردنيات. لقد قمت بتجهيز استبيان مكون من ثلاثة أقسام رئيسية. يقوم القسم الاول بتزويد مقدمة للاستبيان، تعليمات، وقائمة بالرموز الصوتية. يتكون القسم الثاني من 100 سؤال حيث أن كل سؤال يتكون من ثلاثة خيارات. سوف تقوم الطالبة المشاركة باختيار الكلمة التي تستخدمها في حياتها اليومية، في حال ان الكلمة التي تستخدمها غير مذكورة من ضمن خيارات الاجابة المتوفرة، ينبغي اختيار خيار الاجابة الاخير(ج) والذي يطلب من الطالبة المشاركة تحديد الكلمة التي تستخدمها. يتكون القسم الثالث من 182 سؤال حيث يطلب من المشاركة أن تلفظ الكلمات المستعارة من اللغة الانجليزية في أشباه جمل. سوف تتم الاجابة على أسئلة الاستبيان شفويا وسوف يتم تسجيل الاجابات على مسجل.

من أجل المشاركة في الدراسة، ينبغي على الطالبة المشاركة أن تكون:

1. أردنية.
2. لغتها الام هي اللهجة الاردنية المدنية (لا تستخدم العربية الفصحى في التواصل الشفوي).
3. لغتها الام ليست اللغة الانجليزية.
4. تدرس اللغة الانجليزية.
5. من اللواتي درسن في مدارس تدرّس مناهجها باللغة الانجليزية.
6. تستخدم اللغة الانجليزية بشكل متكرر: اسخدام برمجات باللغة الانجليزية، دورات تدريبية انجليزية. التحدث الى اشخاص لغتهم الام الانجليزية او الى من يتقنون الانجليزية والعربية، قراءة الكتب والمجلات الانجليزية، الاستماع الى الاغاني المنطوقة بالانجليزية، متابعة الافلام المنطوقة بالانجليزية، استخدام مواقع اتصال باللغة الانجليزية: فيسبوك، تويتر، ويوتيوب، استخدام اقرص مدمجة بالانجليزية، ودور العرض، الخ).

من اجل التأكد ان الطالبة المشاركة مؤهلة لأن تأخذ دورا في الدراسة، سوف يتم طرح بعض الأسئلة على جميع المشاركات قبل البدء بالاجابة على اسئلة الاستبيان.

سوف يتم اعطاء كل مشاركة JD5 بعد الانتهاء من الاجابة على جميع الاسئلة.

إذا كنت ترغبين في المشاركة في الدراسة وترغبين في الحصول على معلومات إضافية عن الدراسة، الرجاء التواصل على:

mlzasa@leeds.ac.uk

ب.2 المشاركات في الدراسة (من الأقسام: الفنون والآثار والسياحة، القانون، التربية الرياضية، الدراسات الدولية، الفنون الجميلة والتصميم، والزراعة)

هل ترغبين في ان تشاركينا كلماتك المستعارة من اللغة الانجليزية؟

أعلن عن حاجتي لطالبات اردنيات يرغبين في المشاركة في دراسة دكتوراة تبحث في الاصلاحات الصوتية في الكلمات المستعارة من اللغة الانجليزية التي تستخدمها طالبات الجامعة الاردنيات. لقد قمت بتجهيز استبيان مكون من ثلاثة أقسام رئيسية. يقوم القسم الاول بتزويد مقدمة للاستبيان، تعليمات، وقائمة بالرموز الصوتية. يتكون القسم الثاني من 100 سؤال حيث أن كل سؤال يتكون من ثلاثة خيارات. سوف تقوم الطالبة المشاركة باختيار الكلمة التي تستخدمها في حياتها اليومية، في حال ان الكلمة التي تستخدمها غير مذكورة من ضمن خيارات الاجابة المتوفرة، ينبغي اختيار خيار الاجابة الاخير (ج) والذي يطلب من الطالبة المشاركة تحديد الكلمة التي تستخدمها. يتكون القسم الثالث من 182 سؤال حيث يطلب من المشاركة أن تلفظ الكلمات المستعارة من اللغة الانجليزية في أشباه جمل. سوف تتم الاجابة على أسئلة الاستبيان شفويا وسوف يتم تسجيل الاجابات على مسجل.

من أجل المشاركة في الدراسة، ينبغي على الطالبة المشاركة أن تكون:

1. أردنية.
2. لغتها الام هي اللهجة الاردنية المدنية (لا تستخدم العربية الفصيحة في التواصل الشفوي).
3. لغتها الام ليست اللغة الانجليزية.
4. لا تدرس اللغة الانجليزية.
5. من اللواتي درسن في مدارس تدرس منهاجها باللغة العربية.
6. لا تستخدم اللغة الانجليزية بشكل متكرر: (عدم اسخدام برمجيات باللغة الانجليزية، لا يوجد دورات تدريبية انجليزية. عدم التحدث الى اشخاص لغتهم الام الانجليزية او الى من يتقنون الانجليزية والعربية، قراءة الكتب والمجلات الانجليزية، عدم الاستماع الى الاغاني المنطوقة بالانجليزية، عدم متابعة الافلام المنطوقة بالانجليزية، عدم استخدام مواقع اتصال باللغة الانجليزية: فيسبوك، تويتر، ويوتيوب، استخدام اقرص مدمجة بالانجليزية، وعدم الذهاب الى دور العرض، الخ).
7. لم تستكمل متطلبات اللغة الانجليزية 99 واللغة الانجليزية 101.

من اجل التأكد ان الطالبة المشاركة مؤهلة لأن تأخذ دورا في الدراسة، سوف يتم طرح بعض الأسئلة على جميع المشاركات قبل البدء بالاجابة على اسئلة الاستبيان.

سوف يتم اعطاء كل مشاركة JD5 بعد الانتهاء من الاجابة على جميع الاسئلة.
إذا كنت ترغبين في المشاركة في الدراسة وترغبين في الحصول على معلومات اضافية عن الدراسة،
الرجاء التواصل على:

mlzasa@leeds.ac.uk

Appendix C

Questionnaire (English Version)

Consent to take part in: Aspects of the phonology of English loanwords in Jordanian Urban Arabic: a distinctive feature, moraic, and metrical stress analysis.

	Add your initials next to the statements you agree with
I confirm that I have read and understand the information sheet dated 3/06/2013 explaining the above research project and I have had the opportunity to ask questions about the project.	
I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. Contact: <u>mlzasa@leeds.ac.uk</u>	
I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research. I understand that my responses will be kept strictly confidential.	
I agree for the data collected from me to be used in relevant future research.	
I agree to take part in the above research project and will inform the lead researcher should my contact details change.	

Name of respondent	
--------------------	--

Respondent's signature	
Date	
Name of lead researcher	ZAINAB SA'AIDA
Signature	
Date*	

*To be signed and dated in the presence of the respondent.

Once this has been signed by all parties the respondent should receive a copy of the signed and dated respondent consent form, the letter/ pre-written script/ information sheet and any other written information provided to the respondents. A copy of the signed and dated consent form should be kept with the project's main documents which must be kept in a secure location.

Part I:

The present study aims at exploring the phonological modifications that English loanwords undergo in Jordanian urban Arabic. It also aims at exploring the relationship between the use of English and the use of both the loanwords and phonological repairs in the loanwords. Findings will contribute to the literature of loanword phonology. It will be a starting point for other researchers to study the relationship between the loanwords and other Jordanian dialects.

Note 1: please pay attention to the pronunciation of the following vowel marks and consonants:

1. پ / پ / پ /p/ is pronounced /p/ as in apple.
2. ف / ف /v/ is pronounced /v/ as in very.
3. ح / ح /tʃ/ is pronounced /tʃ/ as in church.
5. ز / ز /z/ is pronounced /z/ as in pleasure.
6. و /u:/ is pronounced as in /ʕu:d/ 'lute'.
7. و /o:/ is pronounced as in the JUA-pronounced word /ʂo:t/ 'sound'.
8. ـِ /i:/ is pronounced as in the JUA-pronounced word /ʕi:d/ 'feast'.
9. ـِ /e:/ is pronounced as in the JUA-pronounced word /be:t/ 'house'.
10. َ is pronounced as in the JUA-pronounced word /damm/ 'blood'.
11. ُ is pronounced as in the JUA-pronounced word /buryul/ 'bulgar'.
12. ِ is pronounced as in the JUA-pronounced word /binit/ 'girl'.
13. َ /a:/ is pronounced as in the JUA-pronounced word /ma:t/ 'he died'.

Part II:

The following list consists of 100 English loanwords in Jordanian urban Arabic. The loanwords are classified into 10 groups according to their semantic fields: loanwords related to accessories, loanwords related to

clothes and footwear, loanwords related to colours, loanwords related to food, loanwords related to cars and transportation, loanwords related to profession, loanwords related to TV, radio, mobile phones, and computers, loanwords related to buildings and institutions, loanwords related to office, and miscellaneous. Recordings will be used for the purpose of academic research only.

Please choose one answer in the following questions. After you decide which form that you use, you need to pronounce it aloud in order to be recorded. If the form that you use is not mentioned in the given alternatives, choose the alternative c and specify the form that you use and pronounce it aloud.

1. Loanwords related to accessories and cosmetics:

- | | | |
|----------------------|---------------|-----------------------|
| 1. a. bro:ʃ | b. bro:tʃ | c. other/specify..... |
| 2. a. me:kʔab | b. me:kʔap | c. other/specify..... |
| 3. a. badikju:r | b. padikju:r | c. other/specify..... |
| 4. a. sibre: | b. sipre: | c. other/specify..... |
| 5. a. wafim | b. tattu: | c. other/specify..... |
| 6. a. ʔaħmar xdu:d | b. blaʃar | c. other/specify..... |
| 7. a. kre:m | b. kri:m | c. other/specify..... |
| 8. a. xa:fi ʕuju:b | b. kungsi:lar | c. other/specify..... |
| 9. a. miska:ra | b. maska:ra | c. other/specify..... |
| 10. a. ʔalam taxti:t | b. ʔailainar | c. other/specify..... |
| 11. a. ʔalam ħumra | b. ro:ʒ | c. other/specify..... |

2. Loanwords related to clothes:

- | | | |
|--------------------|-----------|-----------------------|
| 12. a. ʒiniz | b. dʒi:nz | c. other/specify..... |
| 13. a. ʔami:ʃ no:m | b. ro:b | c. other/specify..... |
| 14. a. miʕtaf | b. ko:t | c. other/specify..... |
| 15. a. ka:b | b. ka:p | c. other/specify..... |

3. Loanwords related to colours:

- | | | |
|---------------------|-----------|-----------------------|
| 16. a. mo:f | b. mo:v | c. other/specify..... |
| 17. a. bunni fa:tiḥ | b. be:ʒ | c. other/specify..... |
| 18. a. silfar | b. silvar | c. other/specify..... |

4. Loanwords related to food:

- | | | |
|------------------------|---------------|-----------------------|
| 19. a. sibrait | b. siprait | c. other/specify..... |
| 20. a. f̣ibis | b. f̣ips | c. other/specify..... |
| 21. a. ʔisbirissu | b. ʔispirissu | c. other/specify..... |
| 22. a. ʕaʕi:r mtallaʒ | b. sla:f | c. other/specify..... |
| 23. a. kaʕki | b. ke:k | c. other/specify..... |
| 24. a. ʕaʕi:r mʕakkal | b. kukte:l | c. other/specify..... |
| 25. a. maʕru:b ya:zi | b. ko:la | c. other/specify..... |
| 26. a. maʕru:b ya:zi: | b. fa:nta | c. other/specify..... |
| 27. a. ʕari:ḥit laḥim | b. ste:k | c. other/specify..... |
| 28. a. sukkar maḥru:ʔ | b. karamel | c. other/specify..... |
| 29. a. skalub | b. skalup | c. other/specify..... |
| 30. a. raqa:ʔiq haʕʕih | b. we:far | c. other/specify..... |

5. Loanwords related to cars and transportation:

- | | | |
|------------------------|---------------|-----------------------|
| 31. a. nifiṭ | b. banzi:n | c. other/specify..... |
| 32. a. sbe:r | b. spe:r | c. other/specify..... |
| 33. a. halikubtar | b. halikuptar | c. other/specify..... |
| 34. a. fara:mil | b. bre:k | c. other/specify..... |
| 35. a. ḥa:filih ʕyi:ri | b. ko:star | c. other/specify..... |
| 36. a. darra:ʒih | b. sku:tar | c. other/specify..... |
| 37. a. su:bar | b. su:par | c. other/specify..... |

6 Loanwords related to professions:

- | | | |
|---------------------------|--------------|-----------------------|
| 38. a. brufiso:r | b. prufiso:r | c. other/specify..... |
| 39. a. muʕalliḥ ma:kina:t | b. mikani:k | c. other/specify..... |
| 40. a. ʕa:hi | b. ʕe:f | c. other/specify..... |

7. Loanwords related to TV, radio, mobile phones, and computers:

- | | | |
|---------------------------|-------------|-----------------------|
| 41. a. risi:far | b. risi:var | c. other/specify..... |
| 42. a. kafar | b. kavar | c. other/specify..... |
| 43. a. filim | b. film | c. other/specify..... |
| 44. a. fa:ra | b. maus | c. other/specify..... |
| 45. a. ?amar ?iřtina:fi | b. satalait | c. other/specify..... |
| 46. a. skaib | b. skaip | c. other/specify..... |
| 47. a. tilifo:n | b. talafo:n | c. other/specify..... |
| 48. a. ramiz | b. ko:d | c. other/specify..... |
| 49. a. zawwa:l | b. mo:bail | c. other/specify..... |
| 50. a. ?uruř taxzi:n | b. fla:f | c. other/specify..... |
| 51. a. disik | b. disk | c. other/specify..... |
| 52. a. řandu:? ?ilħa:su:b | b. ke:s | c. other/specify..... |
| 53. a. masiř | b. masiř | c. other/specify..... |

8 Loanwords related to buildings and institutes:

- | | | |
|-------------------------|-------------|-----------------------|
| 54. a. banik | b. bařk | c. other/specify..... |
| 55. a. risibfin | b. risipfin | c. other/specify..... |
| 56. a. muxtabar | b. la:b | c. other/specify..... |
| 57. a. maqřaf | b. kanti:n | c. other/specify..... |
| 58. a. zana:h | b. swi:t | c. other/specify..... |
| 59. a. yurfi kbi:ri | b. ma:star | c. other/specify..... |
| 60. a. muřammař tiřa:ri | b. mo:l | c. other/specify..... |

9. Loanwords related to office:

- | | | |
|-----------------------|------------|-----------------------|
| 61. a. bo:star | b. po:star | c. other/specify..... |
| 62. a. řari:ħit řamal | b. slaid | c. other/specify..... |
| 63. a. mulřaq | b. stikar | c. other/specify..... |
| 64. a. ma:siħ řaw?i | b. skanar | c. other/specify..... |
| 65. a. muřallad | b. fo:ldar | c. other/specify..... |

96. a. fre:zar b. fri:zar c. other/specify.....
97. a. muraffih b. filter c. other/specify.....
98. a. barafo:t b. parafo:t c. other/specify.....
99. a. muha:ɗara b. kla:s c. other/specify.....
100. a. niza:m ilmawza:t ɓa:lijit ittaraddud b. ra:da:r c. other/specify...

Part III:

a) Pronounce the following English loanwords in phrases/sentences. If you do not use the loanwords mentioned below, provide the form that you use and pronounce it along with the JUA words provided in phrases/sentences:

1. /ħabbe:t + skalub, skalup/
2. /rbihit + sku:tar/
3. /binit + brufiso:r, prufiso:r/
4. /ħabbe:t + bro:ʃ, bro:tʃ/
5. /ħɗirit + kla:s/
6. /filim, film + ʒdi:d/
7. /ʃifit, ʃift + ɗwi:l/
8. /ʃibis, ʃips + kbi:r/
9. /ʒiniz, dʒi:nz + kbi:r/
10. /disik, disk + ʒdi:d/

b) Add the prefixes or suffixes to the loanwords that you use and pronounce them in phrases. If you do not use the loanwords mentioned below, add the prefixes or suffixes to the word that you use and pronounce it in phrases/sentences:

11. /ʔil- + satalait/
12. /ʔil- + risi:far, risi:var/
13. /ʔil- + ʃe:f/
14. /ʔil- + tilifo:n, talafo:n/
15. /ʔil- + risibʃin, risipʃin/

16. /ʔil- + la:b/
17. /ʔil- + te:rmus, θe:rmus/
18. /ʔil- + ʃifit, ʃift/
19. /ʔil- + ru:ti:n/
20. /ʔil- + ro:ʒ/
21. /ʔil- + disik, disk/
22. /ʔil- + ra:da:r/
23. /disik, disk + -i: (1st person possessive suffix)/
24. /disik, disk + -uh (3rd person masculine sing. possessive suffix)/
25. /ʃifit, ʃift + -i:/
26. /ʃifit, ʃift + -uh/
27. /ʒiniz, dʒi:nz + -i:/
28. /ʃufit + ʔil- + mo:l/
29. /ʃare:t + ʔil- + ko:t/
30. /biʃit + ʔil- + kafar, kavar/
31. /ʔadde:ʃ + ʔil- + saiz/
32. /rame:t + ʔil- + ro:b/
33. /fi: + ʔil- + fo:ldar/
34. /fi: + ʔil- + bo:star, po:star/
35. /fi: + ʔil- + ke:k/
36. /fi: + ʔil- + ra:da:r/
37. /fi: + ʔil- + silfar, silvar/
38. /wi + slaid/
39. /wi + bla:star, pla:star/
40. /wi + bre:k/
41. /wi + stikar/
42. /wi + kla:s/
43. /ʒiniz, dʒi:nz + -ha (3rd person feminine sing. possessive suffix)/
44. /ʃifit, ʃift + -ha/
45. /sku:tar+ -ha/
46. /fo:ldar + -ha/
47. /ku:lar + -ha/
48. /risi:far, risi:var + -ha/
49. /ba:lo:n + -ha/

50. /ko:t + -ha/
51. /la:b + -ha/
52. /tilifo:n, talafo:n + -ha/
53. /faltar + -ha/
54. /ʒiniz, dʒi:nz + -hum (3rd person plural possessive suffix)/
55. /ʃifit, ʃift + -hum/
56. /sku:tar + -hum/
57. /fo:ldar + -hum/
58. /ku:lar + -hum/
59. /risi:far, risi:var + -hum/
60. /ba:lo:n + -hum/
61. /ko:t + -hum/
62. /la:b + -hum/
63. /tilifo:n, talafo:n + -hum/
64. /faltar + -hum/
65. /ʒiniz, dʒi:nz + -ak (2nd person masculine sing. possessive suffix)/
66. /ʃifit, ʃift + -ak/
67. /sku:tar + -ak/
68. /fo:ldar + -ak/
69. /ku:lar + -ak/
70. /risi:far, risi:var + -ak/
71. /ba:lo:n + -ak/
72. /ko:t + -ak/
73. /la:b + -ak/
74. /tilifo:n, talafo:n + -ak/
75. /faltar + -ak/
76. /ʒiniz, dʒi:nz + -ak (1st person sing. possessive suffix)/
77. /ʃifit, ʃift + -i:/
78. /sku:tar + -i:/
79. /fo:ldar + -i:/
80. /ku:lar + -i:/
81. /risi:far, risi:var + -i:/
82. /ba:lo:n + -i:/
83. /ko:t + -i:/

- 84. /la:b + -i:/
- 85. /tilifo:n, talafo:n + -i:/
- 86. /faltar + -i:/

c) Give the plural forms of the following loanwords. If you do not use the loanwords mentioned below, give the plural form of the word that you use.

- 87. /disik, disk/
- 88. /ʒiniz, dʒi:nz/
- 89. /kafar, kavara/
- 90. /stikar/
- 91. /ʃifit, ʃift/
- 92. /bo:star, po:star/
- 93. /sku:tar/
- 94. /fo:ldar/
- 95. /ku:lar/
- 96. /risi:far, risi:var/
- 97. /ba:lo:n/
- 98. /ko:t/
- 99. /la:b/
- 100. /mo:l/
- 101. /slaid/
- 102. /tilifo:n, talafo:n/
- 103. /faltar/
- 104. /kanti:n/
- 105. /fail/
- 106. /saiz/
- 107. /kre:m, kri:m/
- 108. /bre:k/
- 109. /bla:star, pla:star/
- 110. /te:rmus, θe:rmus/
- 111. /bro:ʃ, bro:tʃ/
- 112. /brufiso:r, prufiso:r/

- 113./banik, banjk/
- 114./filim, film/
- 115./fla:f/
- 116./fi:za, vi:za/
- 117./fitami:n, vitami:n/
- 118./tanik, tanjk/
- 119./satalait/
- 120./ro:b/
- 121./fe:k, tje:k/
- 122./mo:bail/
- 123./ka:b, ka:p/
- 124./fju:z/
- 125./ke:s/
- 126./kauntar/
- 127./bro:ti:n, pro:ti:n/
- 128./kla:s/
- 129./ra:da:r/
- 130./skanar/
- 131./masiʒ, masidʒ/
- 132./barafo:t, parafo:t/
- 133./hi:tar/
- 134./fre:zar, fri:zar/

d) Give the dual forms of the following loanwords. If you do not use the loanwords mentioned below, give the plural form of the word that you use.

- 135. /disik, disk/
- 136. /ʒiniz, dʒi:nz/
- 137. /kafar, kavar/
- 138. /stikar/
- 139. /ʃifit, ʃift/
- 140. /bo:star, po:star/
- 141. /sku:tar/
- 142. /fo:ldar/

- 143. /ku:lar/
- 144. /risi:far, risi:var/
- 145. /ba:lo:n/
- 146. /ko:t/
- 147. /la:b/
- 148. /mo:l/
- 149. /slaid/
- 150. /tilifo:n, talafo:n/
- 151. /faltar/
- 152. /kanti:n/
- 153. /fail/
- 154. /saiz/
- 155. /kre:m, kri:m/
- 156. /bre:k/
- 157. /bla:star, pla:star/
- 158. /te:rmus, ðe:rmus/
- 159. /bro:ʃ, bro:tʃ/
- 160. /brufiso:r, prufiso:r/
- 161. /banik, banj/
- 162. /filim, film/
- 163. /fla:ʃ/
- 164. /fi:za, vi:za/
- 165. /fitami:n, vitami:n/
- 166. /tanik, tanj/
- 167. /satalait/
- 168. /ro:b/
- 169. /je:k, tje:k/
- 170. /mo:bail/
- 171. /ka:b, ka:p/
- 172. /fju:z/
- 173. /ke:s/
- 174. /kauntar/
- 175. /bro:ti:n, pro:ti:n/
- 176. /kla:s/

177./ra:da:r/

178./skanar/

179./masiʒ, masidʒ/

180./baraʒo:t, paraʒo:t/

181./hi:tar/

182./fre:zar, fri:zar/

Thank you

The researcher

Zainab Saaida

Appendix D

Questionnaire (Arabic Version)

نموذج الموافقة على المشاركة في الدراسة: السمات الصوتية للكلمات المستعارة في اللهجة الاردنية المدنية: تحليل عروضي, خاص ببنية الكلمة والخاصية المميزة.

قومي بكتابة اسمك بجانب العبارة التي توافقين عليها	
	أود التأكيد على انني فرأت التعليمات المرفقة بتاريخ 3/06/2013 التي توضح البحث اعلاه وقمت بالسؤال عن بعض المواضيع التي يهدف البحث الى دراستها.
	أود التأكيد على انني على علم تام بأن مشاركتي تطوعية ويحق لي الانسحاب متى ما شئت وبدون ذكر الاسباب. اضافة الى ذلك, اذا لم أرغب في الاجابة على اية سؤال, فيحق لي فعل ذلك. للتواصل: mlzasa@leeds.ac.uk
	أود التأكيد على انني أوافق على ان يقوم فريق البحث بالاطلاع على اجاباتي والتي لا تحمل اسمي. انا على فهم تام بأن اسمي لن يتم ذكره في البحث ونتائج البحث. انا على اطلاع تام بأن اجاباتي سوف يتم حفظها بسرية تامة.
	أود التأكيد على انني أوافق على ان يقوم فريق البحث باستعمال اجاباتي في البحث المناسب.
	أود التأكيد على انني أوافق على ان اشارك في الدراسة وبأنني سوف اقوم باخبار الباحثة اذا قمت بتغيير عنواني.

	اسم المشاركة
	توقيع المشاركة

التاريخ	
اسم الباحثة	
التوقيع	
*التاريخ	

* على ان يتم توقيعها بحضور المشاركة

بعد ان يتم توقيع هذا النموذج من قِبَل جميع الاطراف ينبغي اعطاء نسخة منه ومن اية أوراق اخرى تحمل معلومات اخرى للمشاركات في الدراسة. يجب الاحتفاظ بنسخة من نموذج الموافقة الى جانب الوثائق الاخرى التي تخص البحث في مكان امن.

القسم الأول:

تهدف هذه الدراسة إلى البحث في قضيتين حيث تبحث القضية الأولى في التعديلات الصوتية التي طرأت على الكلمات الانجليزية المستعارة الى اللهجة الأردنية المدنية. كما تهدف إلى البحث في العلاقة بين استخدام اللغة الانجليزية واستخدام الكلمات المستعارة من جهة والتعديلات التي طرأت عليها من جهة اخرى. سوف تضيف هذه الدراسة نتائج جديدة في علم دراسة أصوات الكلمات المعارة. سوف تكون هذه الدراسة نقطة بداية للبحث في العلاقة بين استخدام الكلمات الانجليزية المستعارة و اللهجات الاردنية الاخرى.

ملاحظة 1: أرجو إعرارة الانتباه للحركات الإعرابية والحروف الآتية التي تبين كيفية نطقها.

1. /پ/ /پ/ /پ/ تُلفظ p كما في كلمة apple.
2. /ف/ /ف/ تُلفظ v كما في كلمة very.
3. /چ/ /چ/ /چ/ تُلفظ ch كما في كلمة church.
4. /ژ/ /ژ/ تُلفظ كما حُط تحتها في كلمة pleasure.

5. و تُلفظ كما في اللفظ العامي لكلمة عُود.
6. وو تُلفظ كما في اللفظ العامي لكلمة صوت.
7. يـ تُلفظ كما في اللفظ العامي لكلمة عيد.
8. يبيـ تُلفظ كما في اللفظ العامي لكلمة بيت.
9. َ تُلفظ كما في اللفظ العامي لكلمة يَم.
10. ُ تُلفظ كما في اللفظ العامي لكلمة يُرغِل.
11. ِ تُلفظ كما في اللفظ العامي لكلمة بنت.
12. آ تُلفظ كما في اللفظ العامي لكلمة مآت.

القسم الثاني:

تتكون القائمة الآتية من 100 كلمة انجليزية مستعارة إلى اللهجة الأردنية المدنية. لقد تم توزيع الكلمات إلى 10 مجموعات حسب الصيغة الدلالية للكلمات: كلمات ذات علاقة بأدوات الزينة، الملابس و الأحذية، الألوان، الطعام، السيارات ووسائل النقل، المهن، التلفاز و المذياع و أجهزة الهاتف النقال و أجهزة الحاسوب، البنائيات و المؤسسات، المكتب، وموضوعات أخرى متنوعة. سوف يتم استخدام التسجيل لغايات البحث العلمي.

الرجاء اختيار إجابة واحدة فقط في الأسئلة الآتية و بعد اختيار الكلمة التي تستخدمها في حياتك اليومية سوف تقوم بنطق الكلمة وسيتم تسجيل إجاباتك. في حالة عدم استخدامك أيًا من الكلمات المذكورة، قومي باختيار الإجابة (ج) التي تبين أنك لا تستخدمين أيًا من الكلمات المذكورة و قومي بإضافة الكلمة التي تستخدمينها في الفراغ المعطى و قومي بنطقها.

أ: كلمات ذات صلة بأدوات الزينة:

1. أ. بُرُوش ب. بُرُوج ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
2. أ. مِيكَب ب. مِيكَب ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
3. أ. بادِيكُور ب. بادِيكُور ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

4. أ. سَبْرِي ب. سَبْرِي ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
5. أ. وشم ب. نَّو ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
6. أ. أحمر خدود ب. بَلْشَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
7. أ. كَرِيم ب. كَرِيم ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
8. أ. خافي عيوب ب. كُنْسِيْلَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
9. أ. مَسْكَارَة ب. مَسْكَارَة ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
10. أ. قلم تخطيط ب. آي لَآيَنَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
11. أ. قَلَم حُمْرَة ب. رُووژ ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....

ب. كلمات ذات صلة بالملابس:

12. أ. رِنَز ب. جِينَز ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
13. أ. قميص نوم ب. رُووب ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
14. أ. مِعْطَف ب. كُووت ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
15. أ. كَاب ب. كَاب ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....

ت: كلمات ذات صلة بالألوان:

16. أ. مُوَوَف ب. مُوَوَف ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
17. أ. بُني فاتح ب. بِيِيژ ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
18. أ. سِلْفَر ب. سِلْفَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....

ث: كلمات ذات صلة بالطعام:

19. أ. سَبْرَايْت ب. سَبْرَايْت ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
20. أ. شِبِس ب. چِيس ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
21. أ. إَسْبِرِيَسُو ب. إَسْبِرِيَسُو ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....
22. أ. عَصِير مَتَلَج ب. سَلَاش ج. غير ذلك/ حدد إجابتك في الفراغ المعطى.....

23. أ. كعكة ب. كيك ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
24. أ. عصير مشكّل ب. كُكْتِيل ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
25. أ. مشروب غازي ب. كُوْلا ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
26. أ. مشروب غازي ب. فاننا ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
27. أ. أ. شريحة لحم ب. سْتِيك ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
28. أ. سُكَّر مَحْرُوق ب. كَرْمِيل ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
29. أ. سَكُّب ب. سَكُّب ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
30. أ. رَقَائِقْ هَشَّة ب. وِبْيَفْر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

ج: كلمات ذات صلة بالسيارات و وسائل النقل:

31. أ. نِفْط ب. بَنْزِين ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
32. أ. سَبِير ب. سَبِير ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
33. أ. هَلِكُوبْتَر ب. هَلِكُوبْتَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
34. أ. فَرَامِل ب. بُرِيك ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
35. أ. حَافِلَة صَغِيرَة ب. كُوسْتَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
36. أ. دَرَاجَة ب. سَكُوتَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
37. أ. سُوَيْر ب. سُوَيْر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

ح. كلمات ذات صلة بالمهن:

38. أ. بُرْفُسُور ب. بُرْفُسُور ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
39. أ. مُصَلِّح مَآكِنَات ب. مَكَانِيك ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
40. أ. طَاهِي ب. شِيْف ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

خ: كلمات ذات صلة بالتلفاز، الراديو، الهاتف النقال و أجهزة الحاسوب:

41. أ. رِسِيْفَر ب. رِسِيْفَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

42. أ. كَفَّرَ ب. كَفَّرَ ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
43. أ. فِلم ب. فِلم ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
44. أ. فارة ب. مأوس ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
45. أ. قمر اصطناعي ب. سَتَلَايِت ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
46. أ. سَكَايِب ب. سَكَايِب ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
47. أ. تِلْفُوون ب. تِلْفُوون ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
48. أ. رَمِز ب. كُوود ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
49. أ. جَوَال ب. مُووبَايِل ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
50. أ. فُرُص تخزين ب. فُلاش ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
51. أ. دِسْكَ ب. دِسْكَ ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
52. أ. صندوق الحاسوب ب. كِييس ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
53. أ. مَسِيز ب. مَسِيج ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

د: كلمات ذات صلة بالبنائيات و المؤسسات:

54. أ. بِنْكَ ب. بِنْكَ ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
55. أ. رِسِبِيشِن ب. رِسِبِيشِن ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
56. أ. مَخْتَبِر ب. لَاب ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
57. أ. مَقْصَف ب. كَنْتِن ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
58. أ. جَنَاح ب. سُوِيِت ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
59. أ. غَرَفَة كبيرة ب. مَاسْتَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
60. أ. مُجْمَع تجاري ب. مُوول ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

ذ: كلمات ذات صلة بالمكتب:

61. أ. بُووسْتَر ب. بُووسْتَر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
62. أ. شَرِيحَة عمل ب. سَلَايِد ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

63. أ. أ. مُلصَق ب. سَتِكر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
64. أ. ماسح ضوئي ب. سَكَنر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
65. أ. مُجداد ب. فُوولدر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
66. أ. مَلَف ب. فَايل ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

ر : كلمات متفرقة:

67. أ. بِلَاسَنر ب. بِلَاسَنر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
68. أ. فَيِّزَا ب. فَيِّزَا ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
69. أ. منطاد ب. بَالُوون ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
70. أ. فِتَامِين ب. فِتَامِين ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
71. أ. تَيِّيرُمُس ب. تَيِّيرُمُس ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
72. أ. بَرَسَتْمُول ب. بَرَسَتْمُول ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
73. أ. استراحة ب. بَرِييك ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
74. أ. بَرَسَتِيئِر ب. بَرَسَتِيئِر ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
75. أ. ضَوّ ب. فَلَاش ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
76. أ. تَنِّك ب. تَنِّك ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
77. أ. شِفَت ب. شِفَت ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
78. أ. حَيّة ب. كُووَبَرَا ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
79. أ. عمل رَتيب ب. رُووتين ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
80. أ. نَقْد ب. كَاش ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
81. أ. شِييك ب. چِييك ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
82. أ. قاطع تَيّار ب. فَيُّوز ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
83. أ. خَزَف ب. سِرَمِيك ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
84. أ. أُسْبِرِين ب. أُسْبِرِين ج. غير ذلك/ حدد إجابتك في الفراغ المعطى
85. أ. تُرْمُوول ب. تُرْمُوول ج. غير ذلك/ حدد إجابتك في الفراغ المعطى

86. أ. بَدْوُول ب. بَدْوُول ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
87. أ. شَبَاك ب. كَاوَنْتَر ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
88. أ. بَرُووتين ب. بَرُووتين ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
89. أ. بُووز ب. بُووز ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
90. أ. حَجَم ب. سَايز ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
91. أ. فُلْتَرين ب. فُلْتَرين ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
92. أ. دَقَاية ب. هَيْتَر ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
93. أ. بَلَازما ب. بُلَازما ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
94. أ. بَرَاد ب. كُوَلَر ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
95. أ. بَاندا ب. بَاندا ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
96. أ. فُرِييزَر ب. فُرِييزَر ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
97. أ. مُرَشَح ب. فُلْتَر ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
98. أ. بَرَشووت ب. بَرَشووت ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
99. أ. مُحَاضَرَة ب. كَلَّاس ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....
100. أ. نِظَام المَوجات عَالية التردد ب. رَادَار ج. غير ذلك/حدد إجابتك في الفراغ المعطى.....

القسم الثالث:

أ) قومي بنطق الكلمات المستعارة كشبه جملة/جملة. إذا كنت لا تستخدمين ايا من الكلمات المستعارة المذكورة قومي بذكر الكلمات التي تستخدمينها وقومي بنطقها مع الكلمات العربية المذكورة كشبه جملة/جملة.

1. /حَبِيْب + سَكْلَب, سَكْلِب/

2. /رَبِحَت + سَكُوْتَر/

3. /بِنِت + بَرُفْسُوور/

4. /حَبِيْب + بَرُووش, بَرُووَج/

5. /حَضِرْتُ + كُلاس/

6. /فَلِمَ, فِلِمَ + جَدِيد/

7. /شِفِيت, شِفِيت, + طَوِيل/

8. /شِبِس, چِس + كَبِير/

9. /رِيزُ, جِينز + كَبِير/

10. /دِسِك, دِسِك + جَدِيد/

ب) قومي باضافة البادئة او الاحقة للكلمات المستعارة التي تستخدمونها وقومي بنطقها في الاسئلة الاتية.
اذا كنت لا تستخدمين ايا من الكلمات المذكورة قومي باضافة البادئة او الاحقة للكلمة التي تستخدمونها
وقومي بنطقها كشبه جملة/جملة.

11. /ال + سَتَلَايت/

12. /ال + رِسِيفر, رِسِيفَر/

13. /ال + شِييف/

14. /ال + تَلْفُون, تَلْفُون /

15. /ال + رِسِبِيشِن, رِسِبِيشِن/

16. /ال + لَاب/

17. /ال + تِييرْمُس, تِييرْمُس/

18. /ال + شِفِيت, شِفِيت /

19. /ال + رَوْتِين/

20. /ال+ رُووَج/

21. /ال + دِسِك, دِسِك /

22. /ال + رَادَار/

23. /دِسِك, دِسِك + -ي (ضمير الملكية للمتكلم)/

24. /دِسِك, دِسِك + -و (ضمير الملكية للمذكر المفرد الغائب)/

25. /شِفِيت, شِفِيت + -ي/

26. /شِفِيت, شِفِيت + -و/

27. /إزِنزُ , جِينزُ + -ي/
28. /شُفِت + ال + موول/
29. /شَرِييت + ال + كووت/
30. /بِعِت + ال + كَفَر, كُفِر/
31. /قَدِييش + ال + سايز/
32. /رَمِييت + ال + رووب/
33. /في + ال + فوولَدَر/
34. /في + ال + بووسْتَر, پووسْتَر/
35. /في + ال + كِييك/
36. /في + ال + رادار/
37. /في + ال + سِلْفَر, سِلْفَر/
38. /او + سَلَايد/
39. /او + بِلَاسْتَر, پُلَاسْتَر /
40. /او + بُرِييك/
41. /او + سُنْكَر/
42. /او + كُلاس/
43. /إزِنزُ, جِينزُ + ها (ضمير الملكية للمونث المفرد الغائب)/
44. /شِفِت, شِفِت + ها/
45. /سُكوتر + ها/
46. /فوولَدَر + ها/
47. /كولَر + ها/
48. /رِسيفر, رِسيفَر + ها/
49. /بالوون + ها/
50. /كووت + ها/
51. /لاب + ها/
52. /تَلْفوون, تَلْفوون + ها/

53. /فَلْتَرِ + ها/

54. /رِزْزِ, جِينِزِ + هُمْ (ضمير الملكية الجمع الغائب)/

55. /شِفِتْ, شِفْتِ + هُمْ/

56. /سْكوتَرِ + هُمْ/

57. /فوولْدَرِ + هُمْ/

58. /كولَرِ + هُمْ/

59. /رِسيفَرِ, رِسيفَرِ + هُمْ/

60. /بالوونِ + هُمْ/

61. /كووتِ + هُمْ/

62. /لابِ + هُمْ/

63. /تَلْفوونِ, تَلْفوونِ + هُمْ/

64. /فَلْتَرِ + هُمْ/

65. /رِزْزِ, جِينِزِ + أَكْ (ضمير الملكية للمذكر المفرد المخاطب)/

66. /شِفِتْ, شِفْتِ + أَكْ/

67. /سْكوتَرِ + أَكْ/

68. /فوولْدَرِ + أَكْ/

69. /كولَرِ + أَكْ/

70. /رِسيفَرِ, رِسيفَرِ + أَكْ/

71. /بالوونِ + أَكْ/

72. /كووتِ + أَكْ/

73. /لابِ + أَكْ/

74. /تَلْفوونِ, تَلْفوونِ + أَكْ/

75. /فَلْتَرِ + أَكْ/

76. /رِزْزِ, جِينِزِ + يِ (ضمير الملكية للمتكلم المفرد)/

77. /شِفِتْ, شِفْتِ + يِ/

78. /سْكوتَرِ + يِ/

79. /فولدر + ي/

80. /كولر + ي/

81. /رسيفر, رسيقر + ي/

82. /بالون + ي/

83. /كوت + ي/

84. /لاب + ي/

85. /تلفون, تلفون + ي/

86. /فلتر + ي/

ج) اذكري الاسم الدال على الجمع للكلمات المستعارة الاتية. اذا كنت لا تستخدمين ايا من هذه الكلمات, اذكري الاسم الجمع للكلمة التي تستخدمينها.

87. /ديسك, ديسك/

88. /ايز, جينز/

89. /كفر, كفر/

90. /ستكر/

91. /شفت, شفت/

92. /بوستر, بوستر/

93. /سكوتر/

94. /فولدر/

95. /كولر/

96. /رسيفر, رسيقر/

97. /بالون/

98. /كوت/

99. /لاب/

100. /مول/
101. /سلايد/
102. /تلفون, تلفون/
103. /فلتر/
104. /كنين/
105. /فايل/
106. /ساييز/
107. /كريم, كريم/
108. /بريك/
109. /بلاستر, بلاستر/
110. /تيرمس, تيرمس/
111. /بروش/
112. /برفسور, برفسور/
113. /بنك, بنك/
114. /فلم, فلم/
115. /فلاش/
116. /فيزا, فيزا/
117. /فتامين, فتامين/
118. /تنك, تنك/
119. /سنلايت/
120. /رؤوب/
121. /شبيك, شبيك/
122. /موبايل/
123. /كاب, كاب/
124. /فيوز/
125. /كبيس/

126. /كاونْتَر/

127. /بُرووتين, بُرووتين/

128. /كُلاس/

129. /رادار/

130. /سُكْتَر/

131. /مَسِيح, مَسِيح/

132. /بَرَشووت, بَرَشووت/

133. /هَيْتَر/

134. /فُرِيزَر, فُرِيزَر/

د) اذكري الاسم الدال على المثنى للكلمات المستعارة الآتية. اذا كنت لا تستخدمين ايا من هذه الكلمات, اذكري الاسم المثنى للكلمة التي تستخدمينها.

135. /دِسِك, دِسِك/

136. /زِنزُ, جِينز/

137. /كَفَر, كَفَر/

138. /سِتِكْر/

139. /ثِيْفَت, ثِيْفَت/

140. /بُووسْتَر, بُووسْتَر/

141. /سُكُوْتَر/

142. /فُوولْدَر/

143. /كُوَلَر/

144. /رِسِيْفَر, رِسِيْفَر/

145. /بَالوون/

146. /كُووت/

147. /لاب/

148. /موول/
149. /سلايد/
150. /تلفون, تلفون/
151. /فلتر/
152. /كننين/
153. /فايل/
154. /ساييز/
155. /كريم, كُريم/
156. /برييك/
157. /بلاستر, بلاستر/
158. /تبيرمس, تبيرمس/
159. /بروش/
160. /برفسور, برفسور/
161. /بنك, بنك/
162. /فلم, فلم/
163. /فلاش/
164. /فيزا, فيزا/
165. /قتامين, قتامين/
166. /تنك, تنك/
167. /سنلايت/
168. /رُوب/
169. /شبيك, شبيك/
170. /موبايل/
171. /كاب, كاپ/
172. /فيوز/
173. /كبيس/

174. /كاونتر/
175. /برووتين, پرووتين/
176. /كلاس/
177. /رادار/
178. /سكتر/
179. /مسيژ, مسيح/
180. /برشوت, پرشوت/
181. /هيتر/
182. /فريزر, فريزر/

شكرا على حسن تعاونكم

الباحثة

زينب السعيدة

Appendix E
Data

Loanword	Gloss	English phonemic transcription	Definition ⁶¹	Data in c in the speech of non-E	Data in c in the speech of E
a. [bro:ʃ] b. [bro:tʃ]	Brooch	/brəʊtʃ/	a type of small magazine that contains pictures and information on a product or a company	[dabbu:s]	[dab'bu:s]
a. ['me:kʔab] b. ['me:kʔap]	Makeup	/'meɪkʌp/	coloured substances used on your face to improve or change your appearance	[mawa:d taʒ'mi:l]	
a. [badik'ju:r] b. [padik'ju:r]	Pedicure	/'pedɪkjʊə/	(a) beauty treatment for the feet which involves cutting and sometimes painting the nails, and softening or massaging (= rubbing) the skin	[ʕina:ja bilʔaq'da:m]	
a. [sib're:] b. [sip're:]	Spray	/spreɪ/	(hair spray) a sticky liquid which is sprayed onto someone's hair to keep it in a particular shape	[musabbit 'jaʕir]	[musabbit 'jaʕir]
[tat'tu:]	Tattoo	/tə'tu:/	a permanent image, pattern, or		

⁶¹ Definitions are quoted from Cambridge Dictionaries Online (2013).

			word on the skin that is created by using needles to put colours under the skin		
[ˈblʌʃər]	Blusher	/ˈblʌʃə/	a powder or cream that is put on the cheeks to make them look pink		
a. [kre:m] b. [kri:m]	Cream	/kri:m/	a soft substance that you rub into your skin	[muˈrɑːtɪb], [daˈhuːn]	
a. [ˈʒiːnɪz] b. [dʒiːnz]	Jeans	/dʒiːnz/	trousers made of denim (= strong blue cotton cloth) which are worn informally		
a. [moːf] b. [moːv]	Mauve	/məʊv/	(having) a pale purple colour	[ˈnɑːdi]	[muːv]
a. [sɪbˈraɪt] b. [sɪpˈraɪt]	Sprite	/sprɑɪt/	a fizzy (= with bubbles) sweet colourless lemon-flavoured drink		
a. [ˈfɪbɪs] b. [tʃɪps]	Chips	/tʃɪps/	thin flat crisp pieces of food made from crushed maize		
a. [ˈɪsbiːrɪsu]	Espresso	/esˈpreʃəʊ/	strong coffee, or a cup of	[ˈʔɑːwi]	

b. [ʔispi'rissu]			this, made by forcing hot water through crushed coffee beans and served without milk		
[sla:]	Slush	/slʌʃ/	a thick drink made from crushed ice and a sweet liquid	[ʃaʃi:r 'mʒamma d]	
[ban'zi:n]	Benzene	/'benzi:n/	a clear liquid made from petroleum, from which plastics and many chemical products can be made		
a. [sbe:r] b. [spe:r]	Spare	/speə/	(a spare tyre) If something is spare, it is available to use because it is extra	[ʔih̄ti'ja:t]	[ʃaʒal ʔih̄ti'ja:t]
a. [hali'kubtar] b. [hali'kuptar]	Helicopter	/'helɪkoptə/	a type of aircraft without wings, that has one or two sets of large blades which go round very fast on top. It can land and take off vertically and can stay in one place in the air	[taj'ja:ra]	[taj'ja:ra]
[bre:k]	brake	/breɪk/	a device which makes a vehicle go slower or stop, or a pedal, bar or	[ka'wa:biḥ]	

			handle which makes this device work		
a. [brufi'so:r] b. [prufi'so:r]	Professor	/prə'fesə/	a teacher of the highest rank in a department of a British university, or a teacher of high rank in an American university or college	[ʔus'ta:z]	[ʔus'ta:z]
[mika'ni:k]	mechanic	/mə'kæni:k/	someone whose job is repairing the engines of vehicles and other machines	[muşalliḥ sajja:'ra:t]	
[ʃe:f]	chef	/ʃef/	a skilled and trained cook who works in a hotel or restaurant, especially the most important cook	[ʃab'ba:x]	[ʃab'ba:x]
a. [ri'si:far] b. [ri'si:var]	receiver	/ri'si:və/	a piece of equipment that changes radio and television signals into sounds and pictures		
a. ['kafar] b. ['kavar]	cover	/'kʌvə/	(a duvet cover) a cover for a duvet OR a mobile phone		

			cover		
a. ['fɪlm] b. [fɪlm]	film	/fɪlm/	a series of moving pictures, usually shown in a cinema or on television and often telling a story		
a. ['bʌŋk] b. [bʌŋk]	bank	/bæŋk/	an organization where people and businesses can invest or borrow money, change it to foreign money, etc., or a building where these services are offered		
a. [rɪ'sɪbʃɪn] b. [rɪ'sɪpʃɪn]	reception	/rɪ'sepʃən/	the place in a hotel or office building where people go when they first arrive	[ʔɪstɪq'ba:l]	[ʔɪstɪq'ba:l]
[la:b]	lab	/læb/	(a laboratory) a room or building with scientific equipment for doing scientific tests or for teaching science, or a place where chemicals or medicines are produced		
[swi:t]	suite	/swi:t/	a set of connected rooms, especially in a hotel		

[ˈmɑːstər]	master bedroom	/ˈmɑːstə ˈbedrʊm/	the largest bedroom in a house		
[mɔːl]	mall	/mɔːl/	a large, usually covered, shopping area where cars are not allowed		
a. [ˈboːstər] b. [ˈpoːstər]	poster	/ˈpəʊstə/	a large printed picture, photograph, or notice that you stick or pin to a wall or board, usually for decoration or to advertise something	[mulşaq ʔiʃˈlaːni]	[ˈmulşaq]
[slaid]	slide	/slaid/	a small piece of photographic film in a frame which, when light is passed through it, shows a larger image on a screen or plain surface		
[flɑːʃ]	flash drive	/ˈflæʃ draɪv/	(flash drive) a small object for storing electronic data that can be connected to a computer and that can be carried about easily		
[ˈstɪkər]	sticker	/ˈstɪkə/	a small piece of paper or plastic with a picture or writing on one side and	[ˈtubaʃ]	

			glue or another similar substance on the other side, so that it will fasten to a surface		
a. ['bla:stɑ:] b. ['plɑ:stɑ:]	plaster	/'plɑ:stə/	a substance that becomes hard as it dries and is used especially for spreading on walls and ceilings in order to give a smooth surface	luz'ze:ʔa	[luz'ze:ʔa]
a. ['fi:zɑ] b. ['vi:zɑ]	visa	/'vi:zə/	an official mark made in a passport which allows you to enter or leave a particular country	[taʔ'ʃi:ra]	[taʔ'ʃi:ra]
[ba:'lo:n]	balloon	/bə'lu:n/	a small, very thin rubber bag that you blow air into or fill with a light gas until it is round in shape, used for decoration at parties or as a children's toy	[bal'lo:n]	[bal'lo:n]
a. [fita'mi:n] b. [vita'mi:n]	vitamin	/'vitəmin/	any of a group of natural substances which are necessary in small amounts for		

			the growth and good health of the body		
a. ['te:rmus] b. ['θe:rmus]	thermos	/'θɜ:məs/	a vacuum flask, a container that keeps hot liquids hot, or cold liquids cold, and usually has a lid that is used as a cup	[saxxa:n 'fa:j]	
a. [barasita'mo:l] b. [parasita'mo:l]	paracetamol	/pærə'si:təmp l/	a drug used to reduce pain		
[bre:k]	break	/breɪk/	a short period of rest, when food or drink is sometimes eaten		
a. [brɪs'ti:ʒ] b. [prɪs'ti:ʒ]	prestige	/pres'ti:ʒ/	respect and admiration given to someone or something, usually because of a reputation for high quality, success or social influence		
[fla:ʃ]	flash	/flæʃ/	a sudden bright light that quickly disappears		
[maʊs]	mouse	/maʊs/	a small device that you move across a		

			surface in order to move a cursor on your computer screen		
[kən'si:lə]	concealer	/kən'si:lə/	is a type of cosmetic that is used to mask dark circles, age spots, large pores, and other small blemishes visible on the skin		
a. [mis'ka:ra] b. [mas'ka:ra]	mascara	/mæs'kɑ:rə/	a thick dark liquid make-up that is used to make eyelashes dark and make them appear thicker and longer		
[ko:t]	coat	/kəʊt/	an outer piece of clothing with sleeves which is worn over other clothes, usually for warmth		
a. [ˈtæŋk] b. [tæŋk]	tank	/tæŋk/	a container which holds liquid or gas		
a. [skaɪb] b. [skaɪp]	Skype	/skaɪp/	a system that allows you to make phone calls using your computer and the internet		

a. [ˈʃɪft] b. [ʃɪft]	shift	/ʃɪft/	(Shift work) when different groups of workers work somewhere at different times of the day and night		
[ˈkɒːbrə]	cobra	/ˈkəʊbrə/	a poisonous snake from Africa and southern Asia that makes itself look bigger and more threatening by spreading the skin at the back of its head		
[sətəˈlaɪt]	satellite	/ˈsætələɪt/	(a satellite dish) a round aerial for receiving television and radio signals broadcast from satellites		
[ruːˈtiːn]	routine	/ruːˈtiːn/	a usual or fixed way of doing things		
[rɒːb]	robe	/rəʊb/	a loose piece of clothing which is worn before or after a bath or on top of clothing that is worn in bed		

<p>a. [tɪli'fɔ:n]</p> <p>b. [tala'fɔ:n]</p>	<p>telephone</p>	<p>/'telɪfəʊn/</p>	<p>a phone, a device which uses either a system of wires, along which electrical signals are sent, or a system of radio signals to make it possible for you to speak to someone in another place who has a similar device</p>		
<p>[ʔai'lainar]</p>	<p>eyeliner</p>	<p>/'aɪləɪnə/</p>	<p>a coloured substance, usually contained in a pencil, which is put in a line just above or below the eyes in order to make them look more attractive</p>	<p>[ʔalam 'kuħul], ['kuħul]</p>	
<p>[ke:k]</p>	<p>cake</p>	<p>/keɪk/</p>	<p>a sweet food made with a mixture of flour, eggs, fat and sugar</p>		<p>['ga:tu]</p>
<p>[kuk'te:l]</p>	<p>cocktail</p>	<p>/'kɒkteɪl/</p>	<p>(fruit cocktail) a cold dish, often eaten at the start of a meal, consisting of small pieces of food</p>		
<p>['ko:lə]</p>	<p>cola</p>	<p>/'kəʊlə/</p>	<p>(coca cola) a fizzy (= with bubbles) sweet dark-brown drink</p>		<p>[ko:k]</p>

[ˈfɑːntɑ]	Fanta	/fæntə/	a fizzy (= with bubbles) sweet orange drink		
[kɑːʃ]	cash	/kæʃ/	money in the form of notes and coins, rather than cheques or credit cards		
a. [ʃeːk] b. [tʃeːk]	cheque	/tʃek/	a printed form, used instead of money, to make payments from your bank account		[tʃæk]
[steːk]	steak	/steɪk/	a thick, flat piece of meat or fish, especially meat from a cow		
[koːd]	code	/kəʊd/	a system of words, letters or signs which is used to represent a message in secret form, or a system of numbers, letters or signals which is used to represent something in a shorter or more convenient form		
[moːˈbaɪl]	mobile	/'məʊbaɪl/	a mobile phone		
a. [kɑːb] b. [kɑːp]	cap	/kæp/	a thin hat that stops your hair getting wet when		

			swimming or taking a shower		
['ko.stɑr]	coaster	/'kəʊstə/	a brand name for small coaches/buses		
a. ['disɪk] b. [dɪsk]	disc	/dɪsk/	a flat circular device, usually inside a square container, which has a magnetic covering and is used for storing computer information	['qurʊʃ]	
[fju:z]	fuse	/fju:z/	a small safety part in an electrical device or piece of machinery which causes it to stop working if the electric current is too high, and so prevents fires or other dangers	['qa:tɪʃ], [qa:tɪʃ 'kahraba]	
[kara'me:l]	caramel	/'kærəməl/	a sticky brown sweet made from sugar which has been heated with milk, butter or cream in hot water		

[kæn'ti:n]	canteen	/kæn'ti:n/	a place in a factory, office, etc. where food and meals are sold, often at a lower than usual price	['mætʃəm]	['mætʃəm]
[sɪrə'mi:k]	ceramic	/sɪ'ræmɪk/	(ceramic tiles) the objects produced by shaping and heating clay, especially when considered as art		
[ru:ʒ]	rouge	/ru:ʒ/	a red or pink powder put on the cheeks to make the face look more attractive		
[be:ʒ]	beige	/beɪʒ/	(of) a pale creamy brown colour		
a. [ʔasbi'ri:n] b. [ʔasbi'ri:n]	aspirin	/'æspɪrɪn/	a common drug that reduces pain, fever, and swelling		
[trama'do:l]	Tramadol	/'træmədɒl/	a drug used to reduce pain that is fairly bad or very bad. It is a type of opioid		

a. [bana'do:l] b. [pana'do:l]	Panadol	/'panəðɒl/	a trade name for paracetamol which is pain reliever and fever reducer		
[ke:s]	computer case	/keɪs/	(computer case) the enclosure that contains most of the components of a computer (usually excluding the display, keyboard and mouse)		
['kauntər]	counter	/'kauntə/	a long flat narrow surface or table in a shop, bank, restaurant, etc. at which people are served		
a. [bro:'ti:n] b. [pro:'ti:n]	protein	/'prəʊti:n/	one of the many substances found in food such as meat, cheese, fish, or eggs, that is necessary for the body to grow and be strong		
a. [bo:z] b. [pɔ:z]	pose	/pəʊz/	a particular position in which a person stands, sits, etc. in order to be		

			photographed, painted, etc.		
[saɪz]	size	/saɪz/	how large or small something or someone is		
[kla:s]	class	/kla:s/	a period of time in which students are taught something		
[ra:'da:r]	radar	/'reɪdɑ:/	a system that uses radio waves to find the position of objects that cannot be seen		
a. ['skalʊb] b. ['skalʊp]	scallop	/'skɒləp/	a sea creature that lives inside two joined flat, round shells and can be eaten or a thin boneless slice of meat:		
['skanər]	scanner	/'skænə/	a device for making images of the inside of the body or for reading information into a computer system		
a. [fʌltə'ri:n] b. [vʌltə'ri:n]	Voltaren	/'vɒlərən/	a nonsteroidal anti-inflammatory drug (trade name Voltaren) that is administered		

			only orally		
['fo:ldə]	folder	/'fəʊldə/	a piece of plastic or cardboard folded down the middle and used for keeping loose papers in		
[faɪl]	file	/faɪl/	any of several different types of container used to store papers, letters, and other documents in an ordered way, especially in an office		
a. ['masɪʒ] b. ['masɪdʒ]	message	/'mesɪdʒ/	a short piece of information that you give to a person when you cannot speak to them directly		
a. [bara 'fɔ:t] b. [para 'fɔ:t]	parachute	/'pærəʃu:t/	a piece of equipment made of a large piece of special cloth that is fastened to someone or something that is dropped from an aircraft, in order to make him, her, or it fall slowly and safely to the ground	[suqu:t 'hʌr]	[suqu:t 'hʌr]
['sku:tə]	scooter	/'sku:tə/	a very light motorcycle with small wheels		
['hi:tə]	heater	/'hi:tə/	a device that produces		

			heat		
['ku:lɑ:]	water cooler	/'wɔ:tə ku:lə/	a machine for cooling and providing drinking water, usually in an office or other public place		
a. ['fre:zɑ:] b. ['fri:zɑ:]	freezer	/'fri:zə/	a container, operated by electricity, which stores food at a very cold temperature so that it becomes solid and can be kept safely for a long time		
['we:fɑ:]	wafer	/'weɪfə/	a very thin, dry biscuit that is often sweet		
a. ['su:bɑ:] b. ['su:pɑ:]	super	/'su:pə/	the highest quality leaded fuel that can be used in cars	[mum'tɑ:z]	[mum'tɑ:z]
a. ['sɪlfɑ:] b. ['sɪlvɑ:]	silver	/'sɪlvə/	made of silver, or of the colour of silver	['fɪdʒi]	['fɪdʒi]
['fɪltɑ:]	filter	/'fɪltə/	any of several types of equipment or devices for removing solids from liquids or gases, or for removing particular types of light		
a. ['bɑ:ndɑ:] b. ['pɑ:ndɑ:]	panda	/'pændə/	a large, black and white mammal that lives in forests in	[hɑjwɑ:n ɪl' bɑ:ndɑ]	

			China. Pandas eat bamboo.		
a. ['bla:zma] b. ['pla:zma]	plasma screen	/'plæzmə skri:n/	a screen for showing very clear words or pictures that uses a type of gas pressed between two flat pieces of glass	[ʃa:ʃit 'bla:zma]	

English Loanword	Gloss	Other form (E group and non-E group)
['həb'be:t i 'skalub, 'həb'be:t i 'skalup]	I liked scallop	
[rbiħt i sku:tar]	I won a scooter	[rbiħit dar'ra:ʒih]
[bint i brufiso:r, bint i prufiso:r]	a professor's daughter	
['həb'be:t i bro:ʃ, 'həb'be:t i bro:tʃ]	I liked broke a brooch	['həb'be:t dab'bu:s]
[ħɖirt i kla:s]	I attended a class	[ħɖirit mu'ħa:ɖara]
[film i ʒdi:d]	a new film	
[ʃift i tʃwi:l]	a long shift	
[ʃibs i kbi:r]	a big bag of chips	
[ʒinz i kbi:r]	big jeans	
[disk i ʒdi:d]	a new disc	[qurʃ i ʒ'di:d]
[ʔissatalait]	the satellite dish	
[ʔirrisi:far, ʔirrisi:var]	the receiver	
[ʔiʃe:f]	the chef	[ʔiʃtab'ba:x, ʔiʃ'ta:hi]

[ʔittilifo:n, ʔittalafo:n]	the telephone	
[ʔirrisibʃin, ʔirrisipʃin]	the reception	[ʔilistiq'ba:l]
[ʔilla:b]	the lab	[ʔil'muxtabar]
[ʔitte:rmus, ʔiθθe:rmus]	the thermos	[ʔissaxxa:n ta:ʕif 'ʃa:j]
[ʔiʃʃifit, ʔiʃʃift]	the shift	
[ʔirru:ti:n]	the routine	[ʔilʕamalir ra'ti:b]
[ʔirro:ʒ]	the rouge	[ʔalamil 'hʊmra]
[ʔiddisik, ʔiddisk]	the disk	[ʔil'quruʃ]
[ʔirra:da:r]	the radar	
[diski]	my disc	['qurʃi]
[disku]	his disc	['qurʃu]
[ʃifti]	my shift work	
[ʃiftu]	his shift work	
[ʒinzi]	my jeans	
[ʃuftil 'mo:l]	I saw the mall	[ʃuftil ilmuʒammaʕ itti'ʒa:ri]
[ʃare:til 'ko:t]	I bought the coat	[ʃare:t il'miʕʃaf]
[biʕtil 'kafar, biʕtil 'kavar]	I sold the cover	
[ʔadde:ʃis 'saiz]	which size?	[ʔadde:ʃil 'haʒim]
[rame:tir 'ro:b]	I threw the robe	[rame:t ʔami:ʃin 'no:m]
[fil 'fo:ldar]	in the folder	[fil mu'ʒallad]
[fil 'bo:star, fil 'po:star]	in the poster	[fil 'mulʃaq, fil mulʃaq ilʔiʕ'la:ni]
[fil 'ke:k]	in the cake	[fil 'ga:tu, fil 'kaʕki]
[fir ra:'da:r]	in the radar	
[fis 'silfar, fis 'silvar]	in the silver	[fil 'fiqdi]
[wis 'laid]	and a slide	[wʃari:hit 'ʕamal]
[wib 'la:star, wip 'la:star]	and a plaster	[wluz'ze:ʔa]
[wib 're:k]	and a break	[wisti'ra:ha]
[wis 'tikar]	and a sticker	[w'ʔubaʕ, w'mulʃaq]
[wik 'la:s]	and a class	[wmu'ha:ɖara]

['ʒinizha]	her jeans	
['ʒifitha]	her shift	
[sku: 'tarha]	her scooter	[darra: 'ʒitha]
[fo:l' darha]	her folder	[muʒal' ladha]
[ku: 'larha]	her water cooler	[bar' ra: dha]
[risi: 'farha, risi: 'varha]	her receiver	
[ba: 'lo: nha, bal' lo: nha]	her balloon	
['ko: tha]	her coat	[miʕ' tafha]
['la: bha]	her lab	[muxta 'barha]
[tili' fo: nha, tala' fo: nha]	her telephone	
[fil' tarha]	her filter	[muraf' fiħha]
['ʒinizhum]	their jeans	
['ʒifithum]	their shift work	
[sku: 'tarhum]	their scooter	[darra: 'ʒithum]
[fo:l' darhum]	their folder	[muʒal' ladhum]
[ku: 'larhum]	their water cooler	[bar' ra: dhum]
[risi: 'farhum, risi: 'varhum]	their receiver	
[ba: 'lo: nhum, bal' lo: nhum]	their balloon	
['ko: thum]	their coat	[miʕ' tafhum]
['la: bhum]	their lab	[muxta 'barhum]
[tili' fo: nhum, tala' fo: nhum]	their telephone	
[fil' tarhum]	their filter	[muraf' fiħhum]
['ʒinzak]	your sing. Masc. jeans	
['ʒiftak]	your sing. Masc. shift work	
['sku: tarak]	your sing. Masc. scooter	[dar' ra: ʒtak]
['fo: ldarak]	your sing. Masc. folder	[mu' ʒalladak]
['ku: larak]	your sing. Masc. water cooler	[bar' ra: dak]
[ri' si: farak, ri' si: varak]	your sing. Masc. receiver	
[ba: 'lo: nak, bal' lo: nak]	your sing. Masc. balloon	
['ko: tak]	your sing. Masc. coat	['miʕtafak]
['la: bak]	your sing. Masc. lab	[mux' tabarak]

[tɪli'fo:nak, tala'fo:nak]	your sing. Masc. telephone	
['fɪltarak]	your sing. Masc. filter	[mu'raʃʃiħak]
['ʒɪnzi]	my jeans	[banʃalo:ni lʒi:nz]
['fɪfti]	my shift work	
['sku:tari]	my scooter	[dar'ra:ʒti]
['fo:ldari]	my folder	[muʒalladi]
['ku:lari]	My water cooler	[bar'ra:di]
[ri'si:fari, ri'si:vari]	my receiver	
[ba:'lo:ni, bal'lo:ni]	my balloon	
['ko:ti]	my coat	['miʃʃafi]
['la:bi]	my lab	[mux'tabari]
[tɪli'fo:ni, tala'fo:ni]	my telephone	
['fɪltari]	my filter	[mu'raʃʃiħi]
[dis'ka:t]	Discs	[ʔaq'ra:ʃ]
[ʒɪn'za:t]	pairs of jeans	[bana:'ʃi:l ʒi:nz]
[kafa'ra:t, kava'ra:t]	Covers	
[stika'ra:t]	Stickers	['ʃubaʃ, mulʃa'qa:t]
[ʃif'ta:t]	shift work (plural)	
[bo:sta'ra:t, po:sta'ra:t]	Posters	[mulʃa'qa:t, mulʃa'qa:t iʃla:'nijji]
[sku:ta'ra:t]	Scooters	[darra:'ʒa:t]
[fo:lda'ra:t]	Folders	[muʒalla'da:t]
[ku:la'ra:t]	Water coolers	[barra'da:t]
[risi:fa'ra:t, risi:va'ra:t]	Receivers	
[bala:'li:n]	Balloons	
[ko:'ta:t]	Coats	[ma'ʃa:ʃif]
[la:'ba:t]	Labs	[muxtaba'ra:t]
[mo:'la:t]	Malls	[muʒamma'ʃa:t tiʒa:'rijji]
[slai'da:t]	Slides	[ʃa'ra:ʔiħ'ʃamal]
[tɪlifo:'na:t, talafo:'na:t]	Telephones	
[fa'la:tir]	Filters	[muraʃʃiħa:t]

[kanti:'na:t]	Canteens	[ma'qa:ʃif]
[fai'la:t]	Files	[malaf'fa:t]
[sai'za:t]	Sizes	[ʔah'ʒa:m]
[kre:'ma:t]	Creams	
[bre:'ka:t]	Brakes	[fa'ra:mil]
[bla:sta'ra:t, pla:sta'ra:t]	Plasters	[luzze:'ʔa:t]
[te:rmu'sa:t, θe:rmu'sa:t]	Thermoses	[saxxa:'na:t [a:j]]
[bro:'ʃa:t]	Brooches	[daba:'bi:s]
[brufiso:'ra:t, prufiso:'ra:t]	Professors	
[bnu:k]	Banks	
[ʔaf'la:m]	Films	
[fla:'ʃa:t]	Flashes	[ʔaq'ra:ʃ tax'zi:n]
[fi:'za:t, vi:'za:t]	Visas	[taʔji:'ra:t]
[fitami:'na:t, vitami:'na:t]	Vitamins	
[tna:k]	Tanks	
[satalai'ta:t]	satellite dishes	
[ʔar'wa:b]	Robes	[ʔumʃa:n 'no:m]
[ʃe:'ka:t]	Cheques	
[mo:bai'la:t]	Mobiles	[ʒawwa:'la:t]
[ka:'ba:t, ka:'pa:t]	Caps	
[fju:'za:t]	Fuses	
[ke:'sa:t]	computer cases	
[kaunta'ra:t]	Counters	
[bro:ti:'na:t, pro:ti:'na:t]	Proteins	
[kla:'sa:t]	Classes	[muħa:ða'ra:t]
[ra:da:'ra:t]	Radars	
[skana'ra:t]	Scanners	
[mas'ʒa:t, mas'dʒa:t]	Messages	
[baraʃo:'ta:t, paraʃo:'ta:t]	Parachutes	
[hi:ta'ra:t]	Heaters	[daffa:'ʃa:t]
[fre:za'ra:t, fri:za'ra:t]	Freezers	

[dis'ke:n]	two discs	[qur'se:n]
[ʒin'ze:n]	two pairs of jeans	[banʔalo:'ne:n ʒi:nz]
[kafa're:n, kava're:n]	two covers	
[stika're:n]	two stickers	[mulʂa'qe:n]
[ʃif'te:n]	shift work (dual)	
[bo:sta're:n, po:sta're:n]	two posters	[mulʂa'qe:n]
[sku:ta're:n]	two scooters	[darra:ʒ'te:n]
[fo:lða're:n]	two folders	[muʒalla'de:n]
[ku:la're:n]	two water coolers	[barra:'de:n]
[risi:fa're:n, risi:va're:n]	two receivers	
[ba:lo:'ne:n, ballo:'ne:n]	two balloons	
[ko:'te:n]	two coats	[miʃta'fe:n]
[la:'be:n]	two labs	[muxtaba're:n]
[mo:'le:n]	two malls	[muʒamma'ʕe:n]
[slai'de:n]	two slides	[ʃari:h'te:n ʕamal]
[tilifo:'ne:n, talafo:'ne:n]	two telephones	
[filita're:n]	two filters	[murraʃʃi'he:n]
[kanti:'ne:n]	two canteens	[maqʂa'fe:n]
[fai'le:n]	two files	[malaf'fe:n]
[sai'ze:n]	two sizes	[ħaʒ'me:n]
[kre:'me:n]	two creams	
[bre:'ke:n]	two brakes	[ʔistira:h'te:n]
[bla:sta're:n, pla:sta're:n]	two plasters	[luzze:ʔ'te:n]
[te:rmu'se:n, ʰe:rmu'se:n]	two thermoses	[saxxa:'ne:n ʃa:j]
[bro:'ʃe:n]	two brooches	[dabbu:'se:n]
[brufiso:'re:n, prufiso:'re:n]	two professors	
[ban'ke:n]	two banks	
[fil'me:n]	two films	
[fla:'ʃe:n]	two flashes	[qur'se:n tax'zi:n]
[fi:z'te:n, vi:z'te:n]	two visas	[taʔʃi:r'te:n]
[fitami:'ne:n, vitami:'ne:n]	two vitamins	

[tan'ke:n]	two tanks	
[satalai'te:n]	two satellite dishes	
[ro:'be:n]	two robes	[ʔami:'še:n no:m]
[je:'ke:n]	two cheques	
[mo:bai'le:n]	two mobiles	[ʒawwa:'le:n]
[ka:'be:n, ka:'pe:n]	two caps	
[fju:'ze:n]	two fuses	
[ke:'se:n]	two computer cases	
[kaunta're:n]	two counters	
no dual form of bro:'ti:n, pro:'ti:n	-	
[kla:'se:n]	two classes	[muħa:dar'te:n]
[ra:da're:n]	two radars	
[skana're:n]	two scanners	
[mas'ʒe:n, mas'dʒe:n]	two messages	
[barafo:'te:n, parafo:'te:n]	two parachutes	
[hi:ta're:n]	two heaters	[daffa:j'te:n]
[fre:za're:n, fri:za're:n]	two freezers	

Appendix F

Ethical Approval Report



UNIVERSITY OF LEEDS

Performance, Governance and Operations

Research & Innovation Service

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Zainab Saaida

School of Modern Languages and Culture

University of Leeds

Leeds, LS2 9JT

PVAC & Arts joint Faculty Research Ethics Committee

University of Leeds

20 November 2012

Dear Zainab

Title of study **Aspects of the Phonology of English Loanwords in Jordanian Urban Arabic: A Distinctive Feature, Moraic, and Metrical Stress Analysis**

Ethics reference **PVAR 12-006**

I am pleased to inform you that the above research application has been reviewed by the Arts and PVAC (PVAR) Faculty Research Ethics Committee and following receipt of your response to the Committee's initial comments, I can confirm a favourable ethical opinion as of the date of this letter. The following documentation was considered:

Document	Version	Date
PVAR 12-006 Consent form. interview.doc	1	15/11/12
PVAR 12-006 Consent form.questionnaire.doc	1	15/11/12
PVAR 12-006 Questionnaire.docx	2	15/11/12
PVAR 12-006 Information_sheet,_questionnaire8.10.12.docx	2	15/11/12
PVAR 12-006 Information_Sheet,_interview8.10.12.docx	2	15/11/12
PVAR 12-006 Report 12.11.2012.docx	1	15/11/12
PVAR 12-006 EthicalReviewForm8.10.12.doc	1	11/10/12

The Committee's favourable opinion is subject to the following conditions:

- Data storage: the laptop and hard copies of the data need to be kept secure and the data should be transferred to a University server such as your M drive as soon as possible.
- A risk assessment needs to be completed.

Please notify the committee if you intend to make any amendments to the original research as submitted at date of this approval, including changes to recruitment methodology. All changes must receive ethical approval prior to implementation. The amendment form is available at

http://researchsupport.leeds.ac.uk/index.php/academic_staff/good_practice/managing_approved_projects-1/applying_for_an_amendment-1.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited. There is a checklist listing examples of documents to be kept which is available at

http://researchsupport.leeds.ac.uk/index.php/academic_staff/good_practice/managing_approved_projects-1/ethics_audits-1.

Yours sincerely

Jennifer Blaikie

Senior Research Ethics Administrator

Research & Innovation Service

On behalf of Dr William Rea, Chair, PVAR FREC

CC: Student's supervisor(s)

Appendix G

**Percentages of the pronunciations of all loanwords with JUA
consonantal substitutes and the pronunciations which
maintain English phonemes in the speech of each
respondent in the groups: E and non-E**

* O stands for other (words).

Table (1)

Responde nt	Consonantal Phonemes in English Loanwords																	
	f	v	o *	b	p	o	t	θ	o	ʃ	tʃ	o	ʒ	ʒ	o	n	ŋ	o
E1	4 3 %	57 %	0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %									
E2	4 3 %	57 %	0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0%									
E3	4 3 %	57 %	0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0%									
E4	2 9 %	71 %	0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0%									
E5	2 9 %	71 %	0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0%									
E6	1 4 %	86 %	0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0%									
E7	0 %	10 0 %	0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0%									
E8	0 %	10 0 %	0 %	96 %	0 %	4 %	10 0 %	0 %	0 %	67 %	0 %	3 %	10 0 %	0 %	0 %	10 0 %	0 %	0%
E9	0 %	10 0 %	0 %	88 %	4 %	8 %	10 0 %	0 %	0 %	67 %	0 %	3 %	10 0 %	0 %	0 %	0 %	10 0 %	0%

	f	v	o	b	p	o	t	θ	o	ʃ	ʧ	o	ʒ	ɕ	o	n	ŋ	o
E24	0 %	10 0 %	0 0 %	0 0 %	88 3 %	1 3 %	0 0 %	10 0 %	0 0 %	0 0 %	67 3 %	3 3 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %
E25	0 %	10 0 %	0 0 %	0 0 %	83 7 %	1 7 %	0 0 %	10 0 %	0 0 %	0 0 %	67 3 %	3 3 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %
E26	0 %	86 4 %	1 4 %	0 0 %	75 5 %	2 5 %	0 0 %	10 0 %	0 0 %	0 0 %	33 7 %	6 7 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %
E27	0 %	71 9 %	2 9 %	0 0 %	71 9 %	2 9 %	0 0 %	10 0 %	0 0 %	0 0 %	33 7 %	6 7 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %
E28	0 %	57 3 %	4 3 %	0 0 %	71 9 %	2 9 %	0 0 %	10 0 %	0 0 %	0 0 %	33 7 %	6 7 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %
E29	0 %	57 3 %	4 3 %	0 0 %	63 8 %	3 8 %	0 0 %	10 0 %	0 0 %	0 0 %	33 7 %	6 7 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %
E30	0 %	57 3 %	4 3 %	0 0 %	63 8 %	3 8 %	0 0 %	10 0 %	0 0 %	0 0 %	33 7 %	6 7 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %

Table (2)

Respondent	Consonantal Phonemes in English Loanwords																	
	f	v	o	b	p	o	t	θ	o	ʃ	ʒ	o	ʒ	ɟ	o	n	ŋ	o
Non-E1	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0% 0 %	0 0 %
Non-E2	86 %	0 %	4 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0% 0 %	0% 0 %
Non-E3	86 %	0 %	4 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0% 0 %	0% 0 %
Non-E4	86 %	0 %	4 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0% 0 %	0% 0 %
Non-E5	86 %	0 %	4 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0% 0 %	0% 0 %
Non-E6	71 %	0 %	2 9 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0% 0 %	0% 0 %
Non-E7	71 %	0 %	2 9 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0% 0 %	0% 0 %
Non-E8	71 %	0 %	2 9 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0% 0 %	0% 0 %
Non-E9	57 %	0 %	4 3 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0% 0 %
Non-E10	57 %	0 %	4 3 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0% 0 %
Non-E11	43 %	14 %	4 3 %	96 %	0 %	4 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0% 0 %
Non-E12	14 %	57 %	2 9 %	96 %	0 %	4 %	0 0 %	0 0 %	10 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0% 0 %
Non-E13	14 %	57 %	2 9 %	96 %	0 %	4 %	0 0 %	0 0 %	10 0 %	67 0 %	0 0 %	3 3 %	10 0 %	0 0 %	0 0 %	10 0 %	0 0 %	0% 0 %

	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	f	v	o	b	p	o	t	θ	o	ʃ	ʧ	o	z	ɔʒ	o	n	ŋ	o
Non-E14	0 %	10 %	0 %	96 %	0 %	4 %	0 %	0 %	10 %	67 %	0 %	3 %	50 %	0 %	5 %	10 %	0 %	0%
Non-E15	0 %	10 %	0 %	96 %	0 %	4 %	0 %	0 %	10 %	67 %	0 %	3 %	50 %	0 %	5 %	10 %	0 %	0%
Non-E16	0 %	10 %	0 %	88 %	0 %	3 %	0 %	0 %	10 %	67 %	0 %	3 %	50 %	0 %	5 %	10 %	0 %	0%
Non-E17	0 %	10 %	0 %	83 %	0 %	7 %	0 %	0 %	10 %	67 %	0 %	3 %	50 %	0 %	5 %	10 %	0 %	0%
Non-E18	0 %	86 %	1 %	4 %	7 %	2 %	0 %	10 %	0 %	67 %	0 %	3 %	50 %	0 %	5 %	0 %	10 %	0%
Non-E19	0 %	86 %	1 %	0 %	8 %	1 %	0 %	10 %	0 %	67 %	0 %	3 %	0 %	10 %	0 %	0 %	10 %	0 %
Non-E20	0 %	71 %	2 %	0 %	8 %	1 %	0 %	10 %	0 %	67 %	0 %	3 %	0 %	10 %	0 %	0 %	10 %	0 %
Non-E21	0 %	71 %	2 %	4 %	6 %	2 %	0 %	10 %	0 %	67 %	0 %	3 %	0 %	10 %	0 %	0 %	10 %	0 %
Non-E22	0 %	57 %	4 %	54 %	8 %	3 %	0 %	10 %	0 %	67 %	0 %	3 %	50 %	0 %	5 %	0 %	10 %	0 %
Non-E23	0 %	57 %	4 %	13 %	6 %	2 %	0 %	10 %	0 %	67 %	0 %	3 %	50 %	0 %	5 %	0 %	10 %	0 %
Non-E24	10 %	0 %	0 %	75 %	4 %	2 %	10 %	0 %	0 %	67 %	0 %	3 %	50 %	0 %	5 %	10 %	0 %	0 %
Non-E25	86 %	0 %	1 %	67 %	4 %	2 %	10 %	0 %	0 %	67 %	0 %	3 %	50 %	0 %	5 %	10 %	0 %	0 %
Non-E26	86 %	0 %	1 %	63 %	4 %	3 %	10 %	0 %	0 %	67 %	0 %	3 %	50 %	0 %	5 %	10 %	0 %	0 %
Non-E27	86 %	0 %	1 %	54 %	8 %	3 %	10 %	0 %	0 %	67 %	0 %	3 %	50 %	0 %	5 %	10 %	0 %	0 %

	f	v	o	b	p	o	t	θ	o	ʃ	ʧ	o	ʒ	ɟʒ	o	n	ŋ	o
Non-E28	86 %	0 %	1 4 %	38 %	1 7 %	4 6 %	10 0 %	0 0 %	0 0 %	67 %	0 %	3 3 %	50 %	0 %	5 0 %	10 0 %	0 %	0 %
Non-E29	71 %	0 %	2 9 %	38 %	8 %	5 4 %	10 0 %	0 0 %	0 0 %	67 %	0 %	3 3 %	50 %	0 %	5 0 %	10 0 %	0 %	0 %
Non-E30	71 %	0 %	2 9 %	38 %	4 %	5 8 %	10 0 %	0 0 %	0 0 %	67 %	0 %	3 3 %	50 %	0 %	5 0 %	10 0 %	0 %	0 %

Appendix H

JUA words with permissible consonantal clusters

JUA words with permissible initial consonantal clusters:

1. /'tkannis/ 'sweep', /'tqaddis/ 'sanctify', /'tʔallim/ 'trim', /'tbaddil/ 'exchange', /'tfallis/ 'get broke', /'tsallim/ 'shake hands', /'tʂarrif/ 'exchange currency', /'tʃammis/ 'to sun dry', /'txassis/ 'lose weight', /'tħaʂʂil/ 'get', /'thanni/ 'congratulate', /'tzajjin/ 'decorate', /'tzabbit/ 'fix', /'tʒurru/ 'drag it', /'tʃajjir/ 'change', /'tʕaddil/ 'modify', /'tmallih/ 'add salt', /'tnakkit/ 'tell a joke', /tlu:m/ 'blame', /tra:b/ 'soil', /tja:b/ 'clothes', /twa:m/ 'twins'.
2. /tqu:m/ 'sets', /tʔu:m/ 'sets', /tba:ʔ/ 'habits', /tfa:l/ 'children', /tħi:n/ 'flour', /tħu:r/ 'purification', /tlu:ʔ/ 'getting upwards', /tʀu:d/ 'packages', /tja:n/ 'pl. mud', /twa:l/ 'pl. tall'.
3. /kta:b/ 'book', /'kbi:rih/ 'big, old', /kfu:f/ 'gloves', /khu:f/ 'caves', /kma:m/ 'sleeves', /'kna:fi/ 'sort of sweets', /kla:b/ 'dogs', /kru:m/ 'fields of grapes', /kja:s/ 'sacks', /kwa:m/ 'piles'.
4. /ʔbu:r/ 'graves', /ʔza:z/ 'glass', /ʔla:m/ 'pens', /ʔru:d/ 'monkeys', /ʔja:s/ 'measurment'.
5. /'btabbiʕ/ 'he is following', /'bʔalliʕ/ 'he is getting sth out', /'bkannis/ 'he is sweeping', /'bqaddis/ 'he is sanctifying', /'bʔallil/ 'he is making less', /'bdarris/ 'he is teaching', /bɖumm/ 'he is hugging', /'bfallis/ 'he is getting broke', /'bsalli/ 'he is entertaining', /'bʂalli/ 'he is praying', /bʃu:f/ 'he sees', /bxa:f/ 'he is scared', /'bħawwil/ 'he is transferring', /bħa:r/ 'cardamom', /bzu:r/ 'he visits', /'bzabbit/ 'he is fixing', /bʒu:ʕ/ 'he is getting hungry', /bɣa:r/ 'he is getting jealous', /bʕi:d/ 'far away', /bna:m/ 'he is falling asleep', /bla:d/ 'countries', /bru:ʒ/ 'towers', /bjo:m/ 'on a day', /bwa:d/ 'in a valley'.
6. /dha:n/ 'paint', /dla:l/ 'coffee pots', /dru:ʒ/ 'drawers', /dju:n/ 'debts', /dwa:r/ 'rotas'.

7. /ḍba:ʕ/ 'hyenas', /ḍlu:ʔ/ 'ribs', /ḍra:b/ 'going on a stike', /'ḍja:fiḥ/ 'hospitality'.
8. /'fti:lih/ 'wick', /fti:ra/ 'pie', /fʃu:l/ 'seasons', /fxa:d/ 'thighs', /flu:s/ 'money', /'fra:ṭah/ 'change'.
9. /'sta:rah/ 'curtain', /ṣtu:l/ 'buckets', /sku:t/ 'silence', /squ:r/ 'falcons', /'sʔa:jih/ 'irrigation', /'sba:ḥah/ 'swimming', /sdu:d/ 'dams', /'sfi:nih/ 'ship', /'sxu:nih/ 'fever', /ʃhu:r/ 'morning meal in Ramadan', /shu:l/ 'flat areas', /sʒu:n/ 'prisons', /sʕe:'da:t/ 'a name of surname', /smi:d/ 'semolina', /sna:n/ 'teeth', /sla:ḥ/ 'weapon', /sri:r/ 'bed', /sja:ʒ/ 'fence', and /swa:rah/ 'bracelet'.
10. /ʃfu:f/ 'classrooms', /ʃxu:r/ 'rocks', /ʃna:m/ 'idols', /ʃra:x/ 'scream', /ʃja:m/ 'fastening'.
11. /ʔu:ʔ/ 'clefts', /ʃbu:l/ 'name of surname', /'ʃḥa:dih/ 'male name', /ʃha:b/ 'male name', /ʃmu:ʕ/ 'candles', /ʃlu:n/ 'coins', /'ʃri:ḥah/ 'slice', /ʃwa:l/ 'sack'.
12. /x̣tu:t/ 'fonts', /xdu:d/ 'cheeks', /'xza:nih/ 'wardrobe', /xma:r/ 'veil', /xja:r/ 'cucumber', /xwa:l/ 'uncles'.
13. /'ḥka:jih/ 'tale', /ḥba:l/ 'ropes', /ḥsa:s/ 'feeling', /ḥʃa:n/ 'horse', /ḥza:m/ 'belt', /ḥʒa:r/ 'stones', /ḥma:r/ 'donkey', /ḥlu:l/ 'solutions', /ḥra:m/ 'blanket', /ḥwa:r/ 'camel'.
14. /'hdijjih/ 'present', /hla:l/ 'crescent', /'hra:wih/ 'cudgel'.
15. /'zba:lih/ 'rubbish', /zla:m/ 'men', /zru:f/ 'plastic bags', /'zja:dih/ 'increment'.
16. /'ẓyi:ri/ 'young', /ẓru:f/ 'circumstances'.
17. /ʒba:l/ 'mountains', /ʒdu:d/ 'grandparents', /ʒma:l/ 'camels', /'ʒne:nih/ 'garden', /ʒlu:d/ 'pl. leather', /ʒra:r/ 'jars', /ʒja:l/ 'generations', /'ʒwa:ziḥ/ 'marriage'.
18. /γja:b/ 'absence'.
19. /ʕta:b/ 'reproach', /ʕʒa:l/ 'wheels', /ʕla:m/ 'flags', /ʕna:d/ 'stubbornness', /ʔja:t/ 'crying'.
20. /'ṃtabbal/ 'seasoned', /'ṃṭabbiʕ/ 'stained', /'mkassar/ 'passive participle of break', /'mqaddas/ 'passive participle of sanctify', /'ṃʔaʃʃar/ 'passive participle of peel', /'mbahhar/ 'seasoned', /'mdallal/ 'passive participle of spoil', /'ṃḍallaʕ/ 'ribbed', /'mfallis/ 'active

participle of break', /'msa:fir/ 'traveller', /'mşayyar/ 'miniature', /'mʃarriʔ/ 'active participle of travel to the east', /'mxazzin/ 'active participle of save', /'mḥawwir/ 'stained', /'mhawwil/ 'active participle of exaggerate', /'mzajjin/ 'active participle of decorate', /'mzabbīʔ/ 'active participle of fix', /'mʒarrib/ 'active participle of try', /'myajjir/ 'active participle of change', /'mʕa:kis/ 'active participle of being opposite', /'mnawwir/ 'active participle of being blush', /'mlawwi:/ 'active participle of twist', /'mrawwid/ 'active participle of tame', /'mja:wamih/ 'daily wage', /'mwarrid/ 'active participle of being blush'.

21. /'ntabbil/ 'we season', /'nṭabbiʕ/ 'we stain', /'nkassir/ 'we break', /'nqaddis/ 'we sanctify', /'nʔaffir/ 'we peel', /'nbahhir/ 'we season', /'ndallil/ 'we spoil', /'nḍalliʕ/ 'we make ribs', /'nfallis/ 'we break', /'nsa:fir/ 'we travel', /'nşayyir/ 'we reduce', /'nʃarriʔ/ 'we travel to the east', /'nxazzin/ 'we save', /'nḥawwir/ 'we stain', /'nhawwil/ 'we exaggerate', /'nzajjin/ 'we decorate', /'nzabbīʔ/ 'we fix', /'nʒarrib/ 'we try', /'nyajjir/ 'we change', /'nʕa:kis/ 'we get opposite', /'nmalliḥ/ 'we add salt', /'nlawwi/ 'we twist', /'nrawwid/ 'we tame', /'njabbis/ 'we dry', /'nwa:si/ 'we express sorrow'.

22. /lsa:n/ 'tongue', /lḥa:f/ 'duvet', /lwa:ḥ/ 'bars'.

23. /'rṯu:bah/ 'humidity', /rba:ʔ/ 'cord', /rfu:f/ 'shelves', /rşaş/ 'lead', /rxa:m/ 'marble', /rza:ʔ/ 'pl. livelihood', /rʒa:l/ 'men', /rmu:f/ 'eye lashes', /rja:l/ 'currency name', /rwa:ḥ/ 'souls'.

24. /'jtabbil/ 'to add spice', /'jṭabbiʕ/ 'to stain', /'jkassir/ 'to break', /'jqaddis/ 'to sanctify', /'jʔaffir/ 'to peel', /'jbahhir/ 'to add spice', /'jdallil/ 'to spoil', /'jḍalliʕ/ 'to mak ribs', /'jfallis/ 'to get broke', /'jsa:fir/ 'to travel', /'jşayyir/ 'to make something smaller', /'jjarrif/ 'to honour', /'jxazzin/ 'to save', /'jḥawwir/ 'to stain', /'jhawwil/ 'to exaggerate', /'jzajjin/ 'to decorate', /'jzabbīʔ/ 'to fix', /'jʒarrib/ 'to try', /'jyajjir/ 'to change', /'jʕa:kis/ 'to be opposite', /'jmalliḥ/ 'to add salt', /'jnawwir/ 'to get blush', /'jlawwin/ 'to paint', /'jrawwid/ 'to tame', /'jwa:si/ 'to express sorrow'.

25. /wla:d/ 'boys', /wra:ʔ/ 'sheets of paper'.

JUA words with permissible final consonantal clusters:

1. /sitt/ 'lady'.
2. /baʔt/ 'pl. mas. ducks'.
3. /hakk/ 'he scratched'.
4. /baʔʔ/ 'bugs'.
5. /dubb/ 'bear'.
6. /sadd/ 'dam'.
7. /ʕaɖɖ/ 'he bit'.
8. /raff/ 'shelf'.
9. /biss/ 'tomcat'.
10. /nuʃʃ/ 'half'.
11. /ʕuʃʃ/ 'nest'.
12. /muxe/ 'brain'.
13. /ʃaħħ/ 'tick'.
14. /hizz/ 'notch'.
15. /raʒʒ/ 'he shook'.
16. /damm/ 'blood'.
17. /sinn/ 'tooth'.
18. /mall/ 'he got bored'.
19. /ʃarr/ 'evil'.
20. /majj/ 'water'.
21. /ɖaww/ 'light'.