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# *The Adaptation of English Syllable Structure Borrowed by Mosuli Arabic Speakers*

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**Abstract**

Loanwords are lexical words where both form and meaning are borrowed with some adaptation to the phonological system of the new language **.**

English loanwords borrowed into Mosuli Arabic are characterized by having foreign syllable structures and as such are considered as ill-formed and need to be repaired, and second, there are limited steps, maximally two, in the repair process, if more steps are needed, the deletion of the ill-formed structure will be the result**.**

The adopted model in this research is the Theory of Constraints and Repair Strategies (TCRS). The data in this study consist of 500 transcribed productions (tokens) of English loanwords from the audio recordings of 20 Mosuli Arabic informants and are analysed in accordance with the above model. The findings show that English loan words borrowed into Mosuli Arabic are either repaired by vowel insertion or consonant deletion accordingly in agreement with the syllable structure of Mosuli Arabic. The repair in both cases does not exceed two steps and accordingly it is in consonance with the predictions of the TCRS..

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# التكييف الصوتي لبنية المقطع في الكلمات المستعارة من اللغة الإنكليزية في اللهجة الموصلية

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الكلمات المستعارة هي كلمات معجمية تتم استعارتها من لغة اخرى كوحدة متكاملة من الشكل والمعنى مع إجراء بعض التكييف لتتوافق مع النظام الصوتي للغة الجديدة. تتميز الكلمات المستعارة الإنجليزية التي تتم استعارتها إلى اللغة المصلاوية بامتلاكها مقاطع صوتية أجنبية ، وبالتالي تعدُّ سيئة التكوين وتحتاج إلى الإصلاح بخطوات محدودة ، بحد أقصى خطوتين ، في عملية الإصلاح ، إذا كانت هناك حاجة إلى مزيد من الخطوات ، ستكون النتيجة حذف البنية غير الصحيحة.

النموذج المتبع في هذا البحث هو نظرية القيود واستراتيجيات الإصلاح (TCRS). تتكون البيانات في هذه الدراسة من 500 كلمة من الكلمات المستعارة الإنجليزية من التسجيلات الصوتية لـ 20 مشاركا عربياً ويتم تحليلها بحسب النموذج المذكور. تشير النتائج إلى أن الكلمات الإنجليزية المستعارة إلى اللغة المصلاوية إما يتم إصلاحها عن طريق إدخال حرف متحرك أو حذف ساكن على وفق ذلك بالتوافق مع بنية المقطع المصلاوي. لا يتجاوز الإصلاح في كلتا الحالتين خطوتين ، وبالتالي فهو يتوافق مع توقعات نظرية TCRS.

**الكلمات المفتاحية** : اصلاح التراكيب ؛المقاطع سيئة التشكيل ؛حذف صوت .

## 1. Introduction

Loanwords are brought into the language to fill a gap in its lexical system which consequently become part of this system through the passage of time (Ruikuo, 2005:7). They are borrowings that "involve the importation of form and meaning with degrees of phonological substitution (phonologically adopted loans) which may occur as none, or complete substitution of the borrowing form." (Haugen, 1950: 213) These loanwords are "borrowed , or 'assimilated', with some adaptation to the phonological system of the new language, e.g. sputnik" ( Crystal, 1991: 205). Adaptation in loanwords is taken to indicate "transformations of foreign words that better conform to the phonotactics of the borrowing language." (Peperkamp & Dupoux, 2001: 1)

The integration of loanwords into the linguistic system of the borrowing language involves forcing these words into a series of modifications at the phonological, morphological, and grammatical levels (see, for example, Poplack and Sankoff, 1984 and Poplack, Sankoff, and Miller, 1988).The phonological adaptation of foreign features in loanwords mainly depends on using some phonological strategies including phonemic substitution, vowel epenthesis and insertion. Each language has its own phonological system which is different from the other languages in one way or another. The phonological system of every language consists of many segments, structures and patterns which act as constraints of that language. When a word is borrowed from one language to another and one or more of these constraints is violated, the loanword will be considered as ill-formed and needs to be adapted to fit into the phonological constraints of the borrowing language. When a word is borrowed by a native speaker from another language, it either resembles the phonological rules and constraints.

## 2. Hypotheses

In the light of the aims stated above, the study proceeds to verify the following hypotheses:

1. English loanwords with three- / four- element consonant clusters are considered as ill-formed and need to be repaired, either by vowel insertion or by one consonant deletion.

2. English loanwords with onsetless syllables are considered as ill-formed and need to be repaired either by consonant insertion or by vowel deletion .

## 3. Procedures and Data Sources

The data of English loanwords analysed in this study were collected from different sources and books and they make up a set of 500 loanwords that are in current use in everyday speech. The pronunciation of 20 native Mosuli Arabic speakers of these words was recorded

and transcribed to obtain the patterns of adaptation utilized by these speakers when using such words in their everyday speech.

**4. English &Mosuli Arabic**

English is the most commonly spoken language in the world. It has many regional dialects: American English, British English, Australian English, Canadian English, etc. (Huthaily, 2003). British English is generally used to refer to the dialect spoken in Southern Britain, whose pronunciation is often referred to as "received pronunciation" (RP) or BBC English (Roach, 2009: 3-4). The phonology of this variety, RP English, will be the focus of this study.

Arabic, spoken today by approximately 250 million people, is the largest of the Semitic languages. It is the official language in the eighteen countries that make the Arab homeland (Watson, 2011:1). However, 'Arabic" is used as a cover term to refer to Standard Arabic and all the colloquial varieties used within the Arab homeland. Iraqi Arabic, one of the colloquial varieties of Arabic, is likely centralized in Iraq, with 80% of its over 20 million people reportedly speaking Arabic (Martin, 2003). Among the Iraqi Arabic dialects are: Baghdadi dialect, the Southern dialects, and the Northern dialects (Abu-Haider, 1988). This study will be restricted to analyzing the adaptation of English loanwords into Mosuli Arabic. It is the dialect spoken by the people who live in the city of Mosul in the North of Iraq, over two million of the people there speak this dialect.

**5. The Syllable Structures of English and Mosuli Arabic**

It is often being stated that defining the syllable as a unit is difficult, although native speakers of English have a generally good intuitive feeling for the concept. For instance, if they are asked how many syllables there are in the word potato, their answer would usually be three. However, for the word extract, they may find it difficult to say just where one syllable ends and another begins. Collins and Mees (2013:16) define the syllable as a unit of pronunciation that is larger than a phoneme or a single sound but smaller than a word.

Roach (2000: 67) argues that the syllable is a very important unit in English, and most people think that they can count how many syllables are there in a word. The syllable in English consists of a compulsory vowel with a consonant or consonants that precede or follow that vowel. A syllable may stand alone as a single vowel in isolation, and it is called a minimum syllable, as for example the following words: 'err' /ɜ:/. This word starts and ends with a vowel; it is preceded and followed by silence, and it contains nothing but a vowel. Since there are no words in English without a vowel, this would suggest that the vocalic nucleus, the vowel, is an indispensable element of the syllable. Some syllables have more than just silence preceding the syllable centre, that is, they have an onset; the nucleus is preceded by a consonant, for example, 'key' /ki:/. The term 'onset' has been used for the consonant preceding the nucleus (see Roach, 2000: 67 and Gussmann and Edmund, 2002: 67). The traditional term 'open syllable' has been used for the situation when monosyllabic words end with a vowel. Moreover, some syllables have no onset but have a coda that is, they have a consonant following the nucleus, the vowel, for example, 'ease' /i:z/. The syllable that ends in one or more consonants is called a closed syllable. Finally, some other consonants have both

an onset and a coda, i.e. they have consonants before and after the vowel, for example, 'feel' /fi:l/. Gussmann and Edmund (2002: 76) points out that the consonant /l/ together with the preceding nucleus /i:/ forms the rhyme of the syllable. Thus, the rhyme is viewed as a combination of a nucleus and a coda which are viewed as a single constituent of syllable structure. If a rhyme consists of just a nucleus, the syllable is said to be open, while the syllable is closed if a consonantal coda complements or follows the nucleus (ibid).

Phonologically, as Roach (2000: 67, 68) argues, a syllable refers to the possible combinations of English phonemes or to the different distributions that consonants and vowels have. That is to say, the syllable is described as a unit that includes a sequence of consonants and vowels as well as other aspects such as length, stress and intonation, and it may also include only vowels or only consonants. He adds that phonology deals with the syllable as a unit in the which, for example, the consonantal phoneme /s/ between /k/ and /t/ in the word extra /ekstrə/ is a problem because it is not known where this sequence /kst/ is counted as a syllable that English native speakers disagree with. However, they feel that this word has two syllables: e+kstrə, ek+strə, eks+trə, ekst+rə, or ekstr+ə. The second or third possibilities of this syllable are acceptable .

A word in English can begin with a vowel, or with one, two or three consonants, and that no word begins with more than three consonants. Moreover, a word can end with a vowel, or one, two, three or four consonants, and that no word ends with more than four consonants (Roach, 2000: 68 and 2009: 56). When two or more consonants occur together, we call them a consonant cluster. Collins and Mees (2013: 78) define a consonant cluster as a sequence of consonants at the margin of a syllable.

The English syllable structure can be stated more concisely as (C0–3) V (C0–4). O'Connor (1980: 64) and Roach (2000: 71) state that in sequences of two consonants initially, i.e. in a CC onset, C1 must be the pre-initial consonant /s/ that is followed by one of initial consonants /p, t, k, f, m, n, l, w, j/, e.g. spit, stick, sky, sphere, smitten, snow, sleep, swear, suit. Also, in a CC onset, one of /p, t, k, b, d, g, f, v, θ, ʃ m, n, h/ is followed by one of /l, r, w, j/. However, some sequences are not found. For example, /pw, dl/ don't occur. In initial three-consonant clusters, i.e. in a CCC onset, C1, the pre-initial consonant is invariably /s/ followed by one of initial consonants /p, t, k/, then followed by one of post-initial consonants /l, r, w, j/ Roach (2000: 71). In final two-consonant clusters, a pre-final consonant /m, n, ŋ, l, s/ precedes a final consonant, for example, bump, bent, bank, belt, ask. Also, a final consonant precedes a post-final consonant /s, z, t, d, θ/, as in bets, beds, backed, bagged, eighth. Moreover, in final three-consonant clusters, pre-final consonants are followed by post-final ones, as in helped, banks, bonds, twelfth, and more than one post-final consonant can occur in final cluster, as in, fifth, next, lapsed. In final four-consonant clusters, a final consonant is preceded by a pre-final and followed by post-final 1 and post-final 2, as in, twelfth, prompts, and also a final consonant is followed by a post-final plus post-final 2 plus post-final 3, as in, sixth, texts (Roach, 2000: 71). English has restrictions on the possible combination of sounds which occur in consonant clusters. For example, syllable onsets such as /pn, ps, vw/ are not permitted in English. In addition, English has no /tl/ onsets (Collins and Mees, 2013: 78). In addition, English has a number of constraints which are operative on syllable structure, for example: /ŋ/ never occurs in onsets; /h, j, w/ never occur in codas; /r/ never occurs in codas in non-rhotic varieties of English (e.g. RP English). The fricatives /v, ð, z, n/ never occur as the second

element of an onset cluster; /t, d, θ/ never combine with /l/ in onset clusters; /lg/ is not a permissible coda cluster; Nasals never combine with stops in onsets, and nasals combining with stops in coda clusters are invariably homorganic, e.g. /mp, fk/ is permissible but not */mk, np/. ( see, for example, Roach, 2000 and 2009).

The number of Arabic syllables in a word is equal to the number of vowels which constitute a subsystem in that they all occur as the essential ingredient of a syllable. Moreover, the Arabic peak or nucleus is always a short or a long vowel because there are no syllabic consonants in Arabic. An Arabic vowel always forms a syllable nucleus, and there are as many syllables in a word as there are vowels (Al-Jarf, 1994: 5).

Syllables in Standard Arabic always begin with only one consonant that is followed by a vowel which, in turn, may be followed by one or two consonants which occur in medial and final positions but not in an initial position (Al-Jarf, 1994: 5). The number of closed syllables in Arabic is more than the number of open ones, especially those that have short vowels. Arabic has no word that contains four open syllables but it has a word that contains four closed syllables such as /ʔistafhamtuhum/. For their part, Alotaibi and Meftah (2013: 1429) point out that an Arabic syllable must have at least one vowel, and that Arabic vowels cannot occur at the beginning of a syllable, but can occur either between two consonants or at the end in a syllable or word. The Arabic syllables can be classified as short or long. The permissible syllables in Arabic are: CV, CVC, and CVCC, where V refers to a (long or short) vowel and C indicates a consonant. The CV type is a short one, while all of the others are long. Therefore, the Arabic maximum syllable structure is of the canonical shape CVCC (Alotaibi and Meftah, 2013: 1429).

Standard Arabic does not permit consonant clusters at the beginning of a syllable at all. In any Arabic word, there can be just one word-initial consonant (Al-Hattami, 2010: 360). However, Arabic consonant clusters, made up of just two consonants, can occur only at the end of a syllable, as in /baħr/ ‘sea’, specifically at pause. In other words, in the syllable-final position, Arabic permits two-consonant clusters, though it mostly prefers simple codas. For example, in /rɪzq/ “fortune” and /θaldʒ/ “snow”, /-zq/ and /-ldʒ/ are some of the final consonant clusters that are permissible in Arabic. Al-Hattami (2010: 361) further argues that in English, /ðz/ in the word (clothes /kləʊðz/) is a cluster, but this cluster isn’t permissible in Arabic, because this word is thought to be pronounced as /kləʊðɪz/ by most Arabic speakers. Furthermore, to cite another example, /ŋks/ in the word (thanks) is an English permissible cluster, but since only two consonants are permissible to form a cluster at the end of a syllable in Arabic, the word (thanks) is pronounced as /'θæŋkɪs/ by most Arabic speakers. Moreover, in connected speech and in sequences where one word ends with a consonant sequence and the next word with another, Arab learners who follow Arabic patterns of speech have problems and they add a vowel, which is called an intrusive vowel to break the consonant cluster, as for example with /sprɪŋ/ spring becomes */sɪprɪŋ/, where there is an intrusive vowel at an initial position, /grændfɑ:ðə/ grandfather becomes /gra:ndifa:ðə/, where there is an intrusive vowel at a medial position, and /bɜ:nt/ burnt becomes */bə:rnit/ or /bernit/, where there is an intrusive vowel at a final position (Amer, 2011: 9). The glottal fricative /h/ in Arabic occurs in word initial, medial and final positions only if it is closing a syllable as in huwa 'he', muhmal 'neglected', 'kitaabuh 'his book', kurh 'hatred'. (Al-Jarf, 1994: 16). In Arabic a consonant may be doubled. This doubling of consonantal sounds in Arabic is accompanied by greater

muscular tension. For example, the word /ʔadʒal/ "yes" , or "certainly" or "appointed date" is pronounced with one /dʒ/ sound. However the word ʔadʒdʒala, which means "postponed" is pronounced with two /dʒ/ sounds rather than one. This process is called gemination or consonant doubling, usually represented by ◌ً above the geminate sound.

The syllable structure in Iraqi Arabic is similar to that in Standard Arabic except for minor differences. Two-consonant clusters, for example, are permissible structures in Iraqi Arabic phonology as shown by Abdul-Sattar (2015). MA seems to have similar tendencies and to impose less structural constraints on the occurrence of consonant clusters in words, especially word initially, e.g. /tqa:wal/ "He signed a contract.", /kba:ɣ/ ('big' adj. pl.). Based on the characteristics of the syllable structure in Standard Arabic and the structural license of initial two-consonant clusters in MA, the following is the formula that may represent the syllable structure in MA: $C_{1\text{-}2}VC_{0\text{-}2}$.

## 6. Model of Analysis

This study proceeds to verify the hypotheses stated in section 2 above according to the principles and strategies of the Theory of Constraints and Repair Strategies Loanword Model (TCRS-LM) following Paradis (1988a,b; 1990; 1995), Paradis and Prunet (1988), Paradis and LaCharite (1996) and Paradis et al. (1993). According to this model, loanwords are brought into the borrowing language with ill-formed segments and structures which violate the phonological constraints of the borrowing language and hence trigger the application of repair strategies to bring the ill-formed segments and structures into conformity with the phonology of the borrowing language.

The TCRS, developed by Paradis and LaCharite (1997), has been an influential framework in the field of loanword phonology. Within the perspective of the TCRS Loanword Model, a language has a set of constraints, either universal or non-universal. The violation of these constraints, through lexical borrowing, triggers the application of repair strategies. Repair strategies are defined in (1).

1. Repair Strategy

A universal, non-contextual phonological operation that is triggered by the violation of a phonological constraint, and which inserts or deletes content or structure to ensure conformity to the violated constraint (Paradis and LaCharite, 1997:384).

In other words, repair by insertion occurs when a constraint violation is caused due to lack of content/structure in a loanword, whereas by deletion when a constraint is violated by superfluous content/structure. Since the input may undergo distortion by deletion/insertion, Paradis and LaCharite (1997) govern these repairs by the Preservation Principle summarized in (2) below.

2. Preservation Principle

Segmental information is maximally preserved within the limits of the Threshold Principle. That is, the preservation principle is responsible for the preservation of the input by discouraging the rate of segment deletion. This principle resists the loss of phonological information (deletion) by giving preference to insertion, which may satisfy the demands of a constraint while preservating the input maximally (Paradis and LaCharite, 1993:146,1997:384)

Nevertheless, Paradis & LaCharite (1997) impose the Threshold Hypothesis/Principle that limits the demands for preservations. The Threshold hypothesis/principle determines the price a language can afford to preserve segmental information from complete loss. The Threshold Principle is presented in (3).

3. Threshold Hypothesis/Principle

a. All languages have a tolerance threshold to the amount of repair needed to enforce segment preservation.

b. This threshold is the same for all languages: two steps (or two repairs) within a given constraint domain (Paradise and LaCharite, 1993:148; 1997: 385).

According to the threshold principle, a problematic segment in a loanword is not protected by the preservation principle if it demands more than two steps to be adapted within a constraint domain, i.e., the scope of a constraint violation. In other words, languages have a limited budget to fix an ill-formed phonological content/structure; the budget limit is universally set at two steps/repairs, beyond which a repair becomes useless and demolition/deletion of the whole segment is necessary. This limit (2 steps/repairs) has been found to hold for Fula (see Paradis and Lebel, 1994). Although (3b) above clearly posits that "this threshold is the same for all languages", it is claimed that the threshold can be set differently in other languages, and must be parameterized, so the budget of repair can go up to three as in Wolof (Al-Qarni, 2017).

Moreover, repair, according to Paradis and LaCharite(1993, 1997), must apply economically either by deletion or insertion. This is enforced by the Minimality Principle in (4).

4. Minimality Principle

a. A repair strategy must apply at the lowest phonological level to which the violated constraint refers.

b. Repair must involve as few strategies (steps) as possible.

The "lowest phonological level" in (4a) is governed by the Phonological Level Hierarchy (PLH) defined in (5).

5. Phonological Level Hierarchy (PLH):

Metrical level > syllabic level > skeletal level > root node > feature with a dependent > feature without a dependent (ibid).

In other words, the Minimality Principle should not allow the deletion of a syllable if deleting a feature without a dependent will fix the ill-formed structure because a feature without a dependent is lower than syllables in the phonological level hierarchy. This principle ensures that the loss of phonological information is minimized as much as possible ( see Paradis and LaCharite, 1997).

Paradis and LaCharite (1997) also posit the Precedence Convention to establish which constraint has priority in case of a constraint conflict as presented in (6).

6. The Precedence Convention

In a situation involving two or more violated constraints, priority is given to that constraint referring to the highest phonological levels of PLH (Paradis, 1988a).

The Precedence Convention holds that in a situation involving two problems, the biggest problem, i.e., the problem related to the highest level in PLH, should be addressed

first. Thus, problems related to syllables should be treated before problems related to features(ibid).

## 7. Data Analysis and Results

As it was mentioned above in the previous section, there are differences in the syllable structures in Mosuli Arabic and English. There are many syllable structures which are acceptable in English and not permissible in Mosuli Arabic. Besides, there is no syllable in MA which begins with a vowel. Also, no word or syllable in MA contains a consonant cluster of more than two consonants initially or finally. The prohibited syllable structures, viz. initial onset-less syllables and three-element consonant clusters, create negative parameters as presented in (1):

(1)

| Parameter | SE | MA |
|---|---|---|
| Initial onset-less syllables | Yes | No (constraint) |
| $C_{3-4}$ consonant clusters | Yes | No (constraint) |

Table (1) summarizes the repair strategies maintained in Mosuli Arabic to modify the ill-formed-syllable structure in English loanwords. The violation of this constraint can be solved by either insertion or deletion. The insertion can either be a consonant , in the onset-less syllable, or vowels, in the ill-formed consonant clusters.

This section will be divided into three sub-sections: the first one will deal with the insertion of a consonant, the second will focus on vowel insertion, while the third will deal with deletion cases.

| **The ill-formed-syllable sequences** | **Forms N.** | **C Epenthesis** | **V Epenthesis** | **Deletion** |
|---|---|---|---|---|
| Initial onset-less syllables | 52 | 49 cases | ------ | 3 cases |
| Ccc clusters | 31 | _____ | 28 cases | 3 cases |
| Total | 83 | | | |

Table(1): The various syllabic adaptation of English loanwords in MA dataset.

### 1.The Epenthesis of a Consonant

The onset-less syllable structure is the first ill-formed syllable pattern which is found in English loanwords incorporated into MA. As this syllable structure is not permissible in MA phonological patterns, it creates the following negative parameter setting as being explained in (2):

| Parameter | SE | MA |
|---|---|---|
| Onset-less syllable | Yes | No(constraint) |

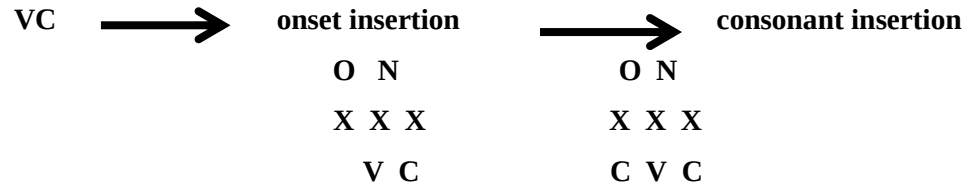
When a word with this structure is integrated into MA, it will violate the constraint in (2). This violation can be solved by either consonant epenthesis or vowel deletion. However, MA prefers the epenthesis of a consonant over the deletion of a vowel. Consider the examples in (1):

(1)

| Gloss | SE | MA | |
|---|---|---|---|
| Aerial | ˈeərɪəl | ‘ʔarjal | |
| Album | ælbəm | ʔalbo:m | |
| Air-conditioner | ˈeəkəndɪʃənə | ʔarko:ndiʃin | ʔirko:’diʃin/ ʔei:rkin’diʃin |

Based on the data analysed in this study, the only consonant which is used to repair this ill-formed syllable structure is the glottal stop /ʔ/. Almost all the cases which have an initial vowel, the glottal stop is systematically inserted adding an onset to the ill-formed syllable structure.

According to the TCRS-LM principles, the insertion of a consonant demands two steps, the first one is the insertion of the onset while the second step is the epenthesis of a consonant “glottal stop” in this case. Figure (1) illustrates this repair strategy:




Figure(**1**): The insertion of a consonant before onsetless syllables

Beside the Minimality principle, the PLH suggests that this violation should be repaired at the lowest phonological level to which this constraint refers. The lowest phonological level here, according to the TCRS-LM, is the skeletal level. As there are two repair strategies:1- adaptation by insertion, which takes two steps, and 2- deletion of the vowel which requires only one step. The Minimality principle prefers deletion over insertion depending on the number of the steps. On the other hand, the Preservation principle resists any deletion and prefers the insertion (even if it is not economical) over deletion. As the repair without deletion does not violate the limits of the Threshold principle, the repair by insertion is favoured also by the Threshold principle. So, in such cases, the repair by insertion is applied in the vast majority of the data, while deletion is applied only in three cases as it is clear in the example given in (2) below:

(2)

| Gloss | SE | MA |
|---|---|---|
| Exhaust | ɪgˈzɔːst | ʔigˈzoːz/ gzoːz |
| Elastic | ɪlæstɪk | laːstiːk |
| Influenza | ɪnflʊenzə | flaːwanza |

**2.The Epenthesis of a Vowel**

The syllable structure constraints in MA phonology does not allow clusters which consist of more than two consonants. This will create the negative parameter setting presented in (3):

(3)

| Parameter | SE | MA |
|---|---|---|
| $C^{3}VC^{3-4}$ | Yes | No(constraint) |

So, the violation of the constraint in (3) can be repaired either by deletion of a consonant (the first example) or insertion of a vowel (the second and the third ones) as in the examples in (3) below:

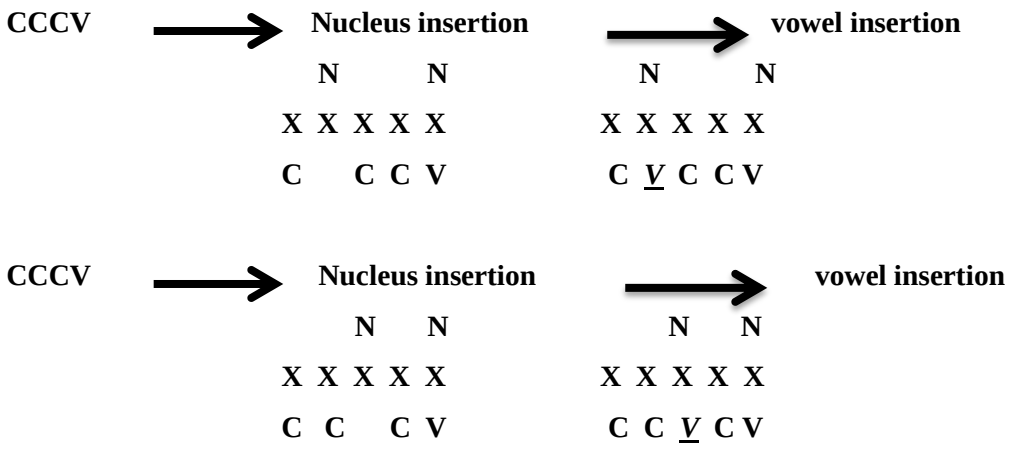
(3)

| Gloss | SE | MA |
|---|---|---|
| Spray | spreɪ | sipreː |
| Scrap | Skræp | sikraːb |
| Screen | skriːn | sikriːn |

Based on the TCRS-LM principles, this adaptation can be analysed as follows:

1. According to the PLH, the violation of this constraint must be solved at the lowest phonological level, which is the skeletal level in this case.
2. As the repair by insertion needs two steps, while the repair by deletion demands only one step, the Minimality principle prefers the deletion over insertion depending on the number of steps.
3. Although it is not the economical repair strategy, the Preservation principle prefers the insertion over deletion.
4. According to the Threshold principle, on the other hand, the two repair strategies are possible as both of them do not violate the limits of the two steps but prefer insertion as no deletion occurs.

Figure (2) represents the adaptation of onset consonant clusters:




Figure(2): The insertion of a vowel in onset consonant clusters.

Depending on the above explanation, this violation will be repaired by insertion in the vast majority of the data, while deletion will be applied in a very few cases, e.g. studio /stju:dɪəʊ/ adapted into /sto:djo:/.

To sum up, in the adaptation of ill-formed-syllable structures two types are attested, the first type is the onsetless syllable in which the syllable begins with a vowel and the second type in which three consonants or four are clustered in the English loanword. Ill-formed syllable structure with onsetless syllables are repaired mostly by the insertion of a consonant, mainly the glottal stop /ʔ/, before the vowel and by deletion in a very few cases. Ill-formed syllable structures with three- or four-consonant clusters are repaired mostly by the insertion of a vowel after the first or the second consonant, or in a very few cases by deletion, in which one of the consonants in the cluster is deleted.

## 8. Discussion and Conclusions:

This study was conducted to account for the adaptation of English loanwords into Mosuli Arabic at the syllable structure level. The collected data were analysed in the light of one of the recent models in loanwords adaptation, viz. the Theory of Constraints and Repair Strategies TCRS-LM proposed by Paradis and LaCharite (1997). The main principles of this model are the maximal preservation of the borrowed form and the minimal repair or adaptation of foreign features. The data analysed in this study proved to abide by the principles of this model to a large extent. In what follows some light will be shed on the findings of the study.

The adaptation of the ill-formed syllable structures has shown that there are two types of structures that violate the constraints of the Mosuli Arabic syllable structure, the first one is the onset-less syllables which are repaired by the insertion of a glottal stop. The second one is the adaptation of consonant clusters, which are composed of more than two consonants. This sort of violation can be repaired either by the insertion of a vowel or by the deletion of one of the consonants. In the adaptation of these ill-formed syllabic structures, there is no violation of the TCRS-LM principles, hence they abide by the principles of this model.

Following the TCRS-LM explanation of the adaptation of the two main syllabic constraint violations which are found in English loanwords, the data analysed have shown tendencies for preferring insertion over deletion in consonance with the “preservation

principle", but there is no justification for inserting a glottal stop among other consonants. The TCRS-LM, however, fails in explaining this point.

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## Appendix

| Glossary | English Form | Mosuli Arabic Form | | |
|---|---|---|---|---|
| Aerial | /eərɪəl/ | /ʔarjal/ | | |
| Agenda | /ədʒendə/ | /ʔadʒinda/ | | |
| Air-conditioner | /eəkəndɪʃənə/ | /ʔarko:ndiʃin/ | /ʔirko:diʃin/ | /ʔei:rkindiʃin/ |
| Aksil | /æksəl/ | /ʔaksil/ | /ʔaksin/ | |
| Album | /ælbəm/ | /ʔalbo:m/ | | |
| Angora | /æŋgɔ:rə/ | /ʔaŋgo:ra/ | | |
| Antique | /ænti:k/ | /ʔanti:ka/ | | |
| Armature | /a:rməʧə/ | /ʔa:rme:ʧ/ | /ʔa:rmiʧar/ | |
| Asphalt | /æsfælt/ | /ʔisfilt/ | /ʔisfalt/ | |
| Aspirin | /æsprɪn/ | /ʔaspiri:n/ | | |
| Atlas | /ætləs/ | /ʔaṭḷas/ | /ʔaṭḷaṣ/ | |
| Automatic | /ɔ:təmætɪk/ | /ʔo:to:ma:ti:k/ | | |
| Cancel | /kænsl/ | /kansil/ | | |
| Concrete | /kɒŋkri:t/ | /ko:ŋkari:t/ | | |
| Crystal | /krɪstḷ/ | /krista:l/ | /kirista:l/ | |
| Desktop | /desktɒp/ | /di:sikto:p/ | /disikto:p/ | |
| Dysentery | /dɪsəntri/ | /di:za:ntiri/ | | |
| Earphone | /ɪəfəʊn/ | /ʔa:jfo:n/ | | |
| Elastic | /ɪlæstɪk/ | /la:sti:k/ | /ʔasti:k/ | |
| Electronic | /ˌɪlektrɒnɪk/ | /ʔaliktro:nik/ | /ʔiliktro:ni:k/ | |

| | | | | |
|---|---|---|---|---|
| Email | /iːmeɪl/ | /ʔi:mi:l/ | /ʔi:me:l/ | |
| Etiquette | /etɪket/ | /ʔatake:t/ | /ʔitike:t/ | |
| Exhaust | /ɪgzɔːst/ | /ʔigzo:z/ | /gzo:z/ | |
| Eyeliner | /aɪlaɪnə/ | /ʔajlajnar/ | /ʔa:jla:nar/ | |
| Eyeshadow | /aɪʃædəʊ/ | /ʔajʃado:/ | / ʔ a:jʃa:do: / | |
| Handle | /hændl̩/ | /hindir/ | | |
| Ice-cream | /aɪs kriːm/ | /ʔa:jsikri:m/ | /ʔa:jsigri:m/ | |
| Icon | /aɪkɒn/ | /ʔa:jko:n/ | | |
| Inch | /ɪntʃ/ | /ʔindʒ/ | | |
| Influenza | /ˌɪnflʊenzə/ | /flawanza/ | /fla:wanza/ | |
| Instagram | /ɪnstəgræm/ | /ʔinstigra:m/ | | |
| Internet | /ɪntənet/ | /ʔantarne:t/ | /ʔintirne:t/ | |
| Lipstick | /lɪpstɪk/ | /lepstik/ | | |
| Off side | /ɒf saɪd/ | /ʔo:f sa:jd/ | | |
| Office | /ɒfɪs/ | /ʔo:fis/ | | |
| Omelette | /ɒmlət/ | /ʔo:mle:t/ | | |
| Online | /ɒnˌlaɪn/ | /ʔo:n lajin/ | /ʔo:la:jn/ | |
| Out side | /aʊt saɪd/ | /ʔa:wt sa:jd/ | /ʔa:wt sa:jt/ | |
| Oven | /ʌvn̩/ | /ʔo:vin/ | | |
| Over | /əʊvə/ | /ʔo:var/ | | |
| Oxygen | /ɒksɪdʒən/ | /ʔo:ksidʒi:n/ | | |
| Penalty | /penlti/ | /palanti/ | /panalti/ | |
| Puncture | /pʌŋktʃə/ | /pantʃar/ | | |
| Sandal | /Sændl/ | /ṣandil/ | | |
| Scrap | /skræp/ | /sikra:b/ | | |
| Screen | /skriːn/ | /sikri:n/ | | |
| Screw-spanner | /skru: spænə/ | /sko:lispa:na:na/ | /sku:lispa:na/ | |
| Software | /sɒftweə/ | /so:fitwe:r/ | | |
| Split | /splɪt/ | /siplit/ | /siblit/ | |
| Spray | /spreɪ/ | /sipre:/ | | |
| Spring | /sprɪŋ/ | /sipriŋg/ | | |
| Sprite | /spraɪt/ | /sibrajt/ | /siprajt/ | /sipra:jt/ |
| Studio | /stjuːdɪəʊ/ | /stidjo:/ | /sto:djo:/ | |
| Update | /ˌʌpdeɪt/ | /ʔapde:t/ | /ʔabde:t/ | |