Stress rules in loan words in Bedouin Jordanian Arabic in the north of Jordan: a metrical account

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This paper aims to analyse stress patterns in loan words spoken by natives of Bedouin Jordanian Arabic in the north of Jordan (henceforth BJAN) within the metrical model proposed by Hayes (1995). The study considers a sample of 120 words spoken by 32 native speakers of Bedouins of the north of Jordanian , 16 males and 16 females, belonging to four Bedouin dialects: Bani Hassan Arabic, Sarḥan Arabic, Bani Xalid Arabic, and Ɂahl il-Jabal Arabic, all of them spoken by Bedouins in the north of Jordan. Analyzing loan words spoken by natives of BJAN shows that they have a moraic trochaic foot where foot parsing goes from left to right, obey the End Rule Right Principle that assigns stress on the head of the rightmost foot, and absolutely ban degenerate feet. This contrasts with the Bedouin dialect of Wadi Ramm Arabic where loan words have an iambic stress pattern (μ'μ). Further, where the minimal words that receive stress are bimoraic, loan words conform to the bimoraicity condition through gemination or vowel lengthening.

Keywords: *stress, loan words, Bedouin Jordanian Arabic, metrical model*

1. Introduction

Stress is a suprasegmental feature whereby a stressed syllable is articulated more prominently than adjacent syllables. Phoneticians consider different degrees of stress: primary, secondary, tertiary and quaternary (Chomsky & Halle 1968). A stressed syllable is pronounced with a greater amount of energy than an unstressed syllable. Stetson (1928) maintains that every syllable in an utterance is pronounced with a breath pulse, where the peak of the syllable has a greater amount of sonority than the remaining segments of the syllable. Basically, four aspects that make a syllable prominent: loudness, length, pitch, and quality, where pitch and length have the strongest effect (Roach 2000). Prominent syllables can bear pitch with a strong perceptual load and they have longer duration and higher intensity (Kager 1995). Two types of stress are distinguished: fixed systems, where stress assignment is predictable (i.e. rule-governed) and free systems, where stress is unpredictable (Kager 1995). Many Arabic dialects, e.g. ᶜAjārma Arabic (Palva 1976), Bani Ḥasan Arabic (Irshied 1984), ᶜAbbādi Arabic (Sakarna 1999), and Wadi Mousa Arabic (Huneety 2015) follow a fixed-stress system where stress is rule-governed. Where all Arabic dialects exhibit word stress, they exhibit some differences in the mechanism of stress assignment (Watson 1993). Arabic stress patterns are using some common cross-linguistically features in stress-timed languages: a word exhibits one prominent syllable that is located near either edge of the word (Kager 2009).

A great deal of literature has dealt with stress patterns in Jordanian dialects, e.g. ᶜAjārma Arabic (Palva 1976), Bani Ḥasan Arabic (Irshied 1984), ᶜAbbādi Arabic (Sakarna 1999), Jordanian Arabic (al Jarrah 2002, 2011), ᶜAmmāni Arabic (al-Wer 2007), Wadi Ramm Arabic (Mashaqba 2015), Wadi Mousa Arabic (Huneety 2015). Stress assignment in these dialects is predictable and subject to three factors: the weight of the syllable, the location of that syllable, i.e. the distance of that syllable from the right edge of the word, and the number of syllables. Examining stress patterns in Wadi Ramm Arabic, a Bedouin dialect spoken in

the south of Jordan, Mashaqba (2015) shows that loan words in the dialect have an iambic system (μ'μ); thus in a word like *ša.'ṣi* 'chassis' the rightmost syllable is stressed.

Below is a presentation of the methodology used in this study followed by a descriptive and theoretical account of stress in loan words spoken in BJAN. The study ends with the conclusion.

2. Material and methodology

To examine stress patterns in the loan words of BJAN, the researchers recruited 32 participants, 16 males and 16 females, who are natives of BJAN and four language informants, one for each variety. For a comprehensive account, the data were collected from participants of various ages (35-70 years) and from four Bedouin dialects: Bani Hassan Arabic, Bani Xalid Arabic, Sarḫan Arabic, and ʔahl il-Jabal Arabic. The age of these participants ranges from 35-70 years to ensure that they speak the original Bedouin dialect, i.e., unaffected by aspects of modern life which change some of the linguistic features of young generation's speech (cf. Huneety 2015; Mashaqba 2015). Participants' level of education ranges from primary education (19 participants) to secondary education (13 participants). The researchers made sure that all these participants are healthy, have no speech impediments and are willing to answer all questions that serve this study.

A sample of 120 loan words of different syllable types were collected, transcribed, and translated into English. Two methods were employed to examine stress patterns in the collected sample. In the first method, conversations were recorded with 14 participants on topics that involve some loan words, e.g. cars, food, and modern life. During these conversations, the researchers asked frequent questions that involved participants to speak about as many loan words as possible. In the second method, further 18 participants were asked to read a list of 120 loan words aloud embedded in the sentence *ana widdi aštari*……'I want to buy…..'. All data were then double-checked with the language informants.

3. Descriptive account/results

The data analysis shows that stress placement in loan words is sensitive to two parameters: syllable weight and the distance of that syllable from the right edge of the word (syllable position) (cf. Kager 1995; Sakarna 1999; Rakheih 2009). The basic principles that govern the placement of stress in loan words are given below:

a) Final superheavy syllables attract stress.
b) Otherwise, stress the penultimate if it is heavy, i.e., CVV or CVC.
c) Otherwise, stress falls on the antepenultimate.

In monosyllabic words, stress falls on the only syllable, as shown in Table (1) below.

Table 1: Stress in monosyllable words

Example Word	Gloss
'kūp	cup
'tyūb	tube
'brēk	brake
'krēm	cream
'blikk	block
'gīr	gear
'klačč	clutch
'jakk	jack
'ʔinš	inch

In disyllabic words, stress is assigned to a final superheavy syllable; otherwise, it falls on the non-final heavy syllable. Where both syllables are light, stress falls on the penult (left-most). This characterizes loan words of BJAN as having a trochaic foot, and differentiates it from Wadi Ramm Arabic (Mashaqba 2015) which is classified as an iambic dialect. Consider the examples given in Table (2) below:

Table 2: Stress in disyllabic words

Example	Gloss
ra.'dār	radar
ma.'tōr	motor
dak.'tōr	doctor
'kī.lu	kilo
'fil.ter	filter
'ka.far	cover
'pa.war	power
'ša.ṣi	chassis
'ʔa.kis	axle

In words of more than two syllables, stress falls on the rightmost heavy syllable in the last three syllables, i.e., it never falls on any syllable that precedes the antepenultimate, as shown in Table (3). Where the last three syllables are light, stress is assigned to the antepenultimate syllable.

Table 3: Stress on the penultimate syllable

Example	Gloss
to.ma.'tīk	automatic
ka.ran.'tīn	quarantine
ṯēr.mos.'tāt	thermostat
ʔik.'sib.ris	delivery service
va.'nēl.la	vanilla
ka.'bī.na	cabin
mis.'kā.ra	mascara
baṭ.ṭa.'riy.ya	battery
ta. 'la.fu.ni	my mobile phone
ʔa.'jen.da	agenda
mi.ka.'nī.ki	mechanic
fa.la.'wan.za	influenza
'di.na.mu	dynamo
'di.ji.tal	digital
'si.na.ma	cinema
'kas.ta.ra	custard

This section provides a theoretical framework arguing for stress assignment of BJAN loanwords within the metrical model viewpoint.

4. Discussion

Metrical theory appeared during the late 17s as part of nonlinear phonology (Kager 1995) It was first proposed by Liberman (1975) and later elaborated by Liberman & Prince (1977), Halle & Vergnaud (1978), Hayes (1980, 1984, 1995) and others. The basic assumption of the theory is that word-stress patterns universally depend on the underlying organization of words into a hierarchal structure of metrical constituents and that word stress is the linguistic manifestation of this metrical structure (Hayes 1995). Under metrical theory, stress is a hierarchy of binary branching structures, one is termed strong – weak and the other is weak – strong (Kager 1995). Liberman & Prince (1977) maintain that stress is a hierarchy of rhythmic units in which syllables are parsed to form feet and feet to form words. The foot is the smallest metrical unit that consists of a group of syllables, one of which bears the main stress. Thus, stress is treated under metrical phonology as a matter of relative prominence of the syllable rather than a phonetic feature of particular segments (ibid). Where stress has been the empirical domain of metrical theory, it has been applied to some nonstress phenomena, e.g, syllable structure and vowel harmony (Kager 1995).

Based on the language, a foot is either unbounded where the parameters of the metrical foot is the whole phonological word, or bounded where the stress should "fall within
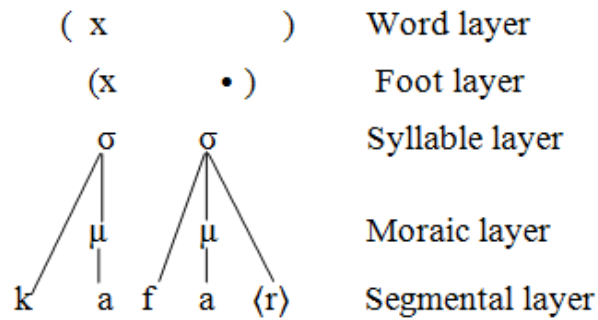
a particular distance from a boundary or another stress" (Hayes 1995: 32). Bounded feet are made up of maximum of two syllables, while unbounded feet are unrestricted (Kager 1995). Hayes (1995) identifies three types of bounded feet: the moraic trochee, the syllabic trochee, and the iamb, the most common of these being the moraic trochee and the iamb. A moraic trochee consists maximally of two syllables, where the left nodes of the foot are stressed (x.). A moraic trochaic foot can embrace either two light syllables ('L L) or a single heavy syllable ('H). The syllabic trochee consists of a stressed syllable followed by an unstressed syllable ('σ σ), and can comprise two light syllables ('L L), a heavy syllable followed by a light syllable ('H L), or two heavy syllables ('H H). Both types are distinguished in terms of weight, thus, while the moraic trochee is weight-sensitive, the syllabic trochee is not, i.e., the construction of feet is based on the number of syllables regardless of their weight. The iambic foot, by contrast, comprises a stressed syllable preceded by an unstressed one (σ 'σ), i.e. the right nodes of feet are stressed. It may include two light syllables (L 'L), a light syllable and a heavy syllable (L 'H) or a single heavy syllable ('H).

Adopting the metrical account advanced by Hayes (1995), we find that loan words as spoken by natives of BJAN have a moraic trochaic system and involve left-to-right foot parsing. Accordingly, the basic foot inventory comprises either two light syllables ('L L), e.g. *ša.ṣi* 'chassis', *ka.far* 'cover', or one heavy syllable ('H), e.g. *krēm* 'cream', *kūp* 'cup'. Further, a degenerate foot is absolutely forbidden, which means that stranded moras at either edge of the word are left unfooted and therefore ineligible to construct a foot (Watson 2002). Thus, a monosyllable word fail to construct a foot by itself unless its single syllable forms a degenerate foot (Kager 1995). This is why the final C in the minimum syllable undergoes gemination word-finally (cf. Liberman & Prince 1977; Hayes 1995; Davis 2011). Subject to the Nonexhaustivity Principle, which ensures that extrametricality cannot exhaust the domain of a rule, preventing it from applying altogether (Hayes 1995), foot extrametricality works to account for the selection of a non-final foot for the main stress. Stress is assigned to the rightmost visible foot according to the End Rule Right Principle (ERR). Below is a summary of stress assignment rules in loan words spoken by natives of BJAN (adapted from Hayes 1995; Watson 2002):

(a) Consonant Extrametricality: C → ⟨C⟩ /___] word
(b) Foot Construction: Form moraic trochees from left to right.
(c) Degenerate feet: Forbidden absolutely.
(d) Foot Extrametricality: Foot → ⟨Foot⟩ /___] word
(e) Word Layer Construction: End Rule Right

Consonant extrametricality has been proposed by Liberman & Prince (1977) to account for the fact that domain-final syllables require more elements to count as heavy. Hayes (1995: 57) states that "an extrametricality rule designates a particular prosodic constituent as invisible for purposes of rule application: the rule analyzes the form as if the extrametrical entity were not there". Extrametricality obeys the Peripherality Condition which states that a constituent might be rendered extrametrical only if it is at a designated edge (left or right) of its domain. The application of the extrametricality rule justifies why CVC syllables count light in domain-final positions after the last consonant is deemed extrametrical (Watson 2002). Thus, both final CVC and CV syllables are equal in weight and fail to attract stress. Consider below the representation of the word *kafar* 'cover' where an extrametrical consonant is placed between two brackets ⟨C⟩.

(1)

```
       ( x              )        Word layer
        (x        • )            Foot layer
         σ        σ              Syllable layer

          μ        μ             Moraic layer
         |        |
    k    a   f    a   ⟨r⟩        Segmental layer
```
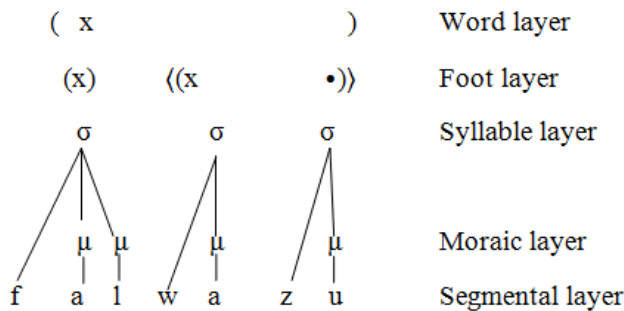
In the word *kafa⟨r⟩* 'cover', the final consonant is deemed extrametrical and ⟨r⟩ is syllabified directly to the node of the final syllable; it thus fails to be assigned a mora. This demotes the final syllable *fa⟨r⟩* to monomoraic syllable and it constitutes a trochaic foot with the previous light syllable *ka*. The foot is peripheral but cannot be deemed extrametrical according to the Exhaustivity Principle since this would exhaust the stress domain.

Foot is also subject to extrametricality to account for the selection of a non-final foot to bear the main stress. In such a case, the peripheral foot is rendered extrametrical and stress is assigned to the rightmost visible foot. This is the case in loan words of BJAN where stress is assigned to the penultimate foot in words comprising two or more feet. For illustration, consider the example given below:
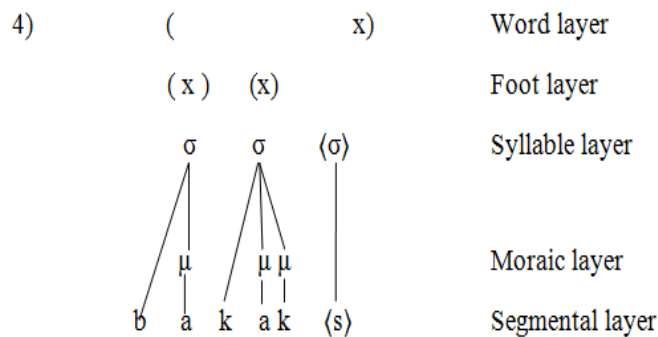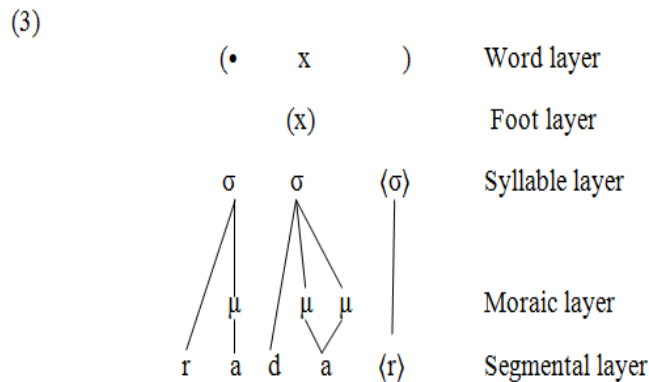
(2)

```
      ( x                     )        Word layer
       (x)      ((x      •))            Foot layer
        σ        σ       σ             Syllable layer

         μ μ      μ       μ            Moraic layer
         | |      |       |
    f    a l   w  a    z  u            Segmental layer
```

In the word, *fal.wa.zu* 'they have flu', the foot parses from left to right, constructing a foot over the heavy syllable *fal*. The last two light syllables *wa.zu* constitute the rightmost foot. The peripheral foot is rendered extrametrical since it does not violate the Exhaustivity Principle, i.e., it is not the only foot in the stress domain. Extrametricality of the peripheral foot results in stress being assigned to the head of the penultimate foot following the End Right Rule (ERR).
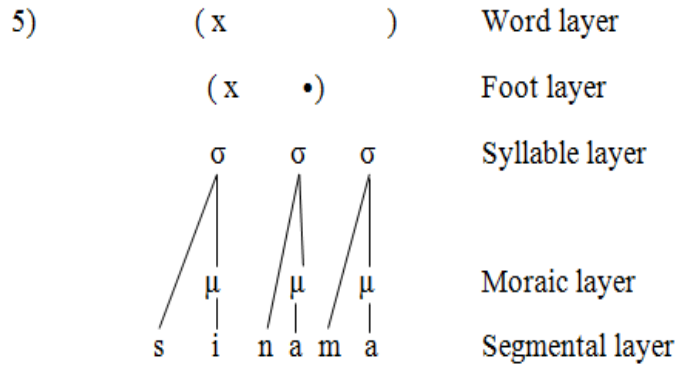
Another important notion of metrical theory is extrasyllabicity, where the final consonant of word-final superheavy syllables, i.e., CVCC and CVVC, falls outside the domain of the syllable and is left unsyllabified until a later stage in the derivation (Hayes 1995; Watson 2002). Thus, a domain-final superheavy syllable comprises a canonical syllable plus an extrasyllabic consonant that falls outside the domain of the syllable. The canonical syllable constructs a foot that receives the main stress in conformity with ERR, while the extrasyllabic consonant is left unsyllabified, preventing the rightmost foot from being peripheral and thus banning it from being extrametrical. Analyzing data shows that a

final superheavy syllable, i.e., CVCC or CVVC, always attracts stress following ERR which assigns stress to the rightmost foot. Consider the metrical representation of the word *ra.dār* 'radar', and *bakaks* 'the back-axles' below:

(3)

```
        (•      x        )        Word layer

                (x)               Foot layer

        σ       σ      ⟨σ⟩        Syllable layer


            μ     μ  μ            Moraic layer

        r   a  d   a   ⟨r⟩        Segmental layer
```

4)

```
        (              x)        Word layer

    ( x )    (x)                 Foot layer

     σ       σ      ⟨σ⟩          Syllable layer


        μ      μ μ               Moraic layer

    b   a  k   a k   ⟨s⟩         Segmental layer
```
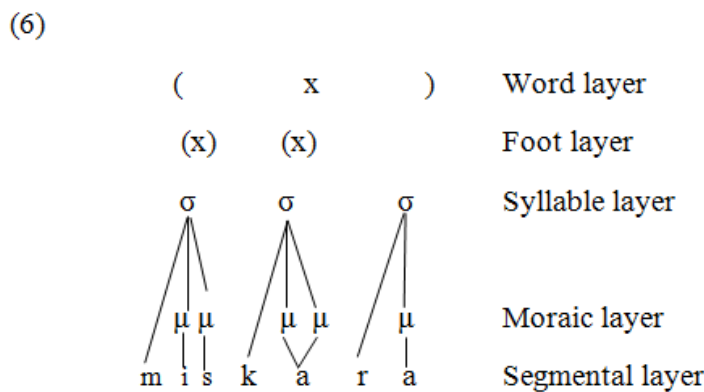
In the first instance, the initial syllable *ra* is light, and thus it fails to form a foot by itself nor can it form a foot with the following bimoraic syllable; it is therefore left unfooted. The final syllable of the word *ra.dār* 'radar' comprises a canonical syllable *dā* plus an extrasyllabic consonant ⟨r⟩. The canonical syllable is heavy and therefore constructs a foot that attracts the main stress according to ERR. The existence of the extrasyllabic ⟨r⟩ between the foot *dā* and the right edge of the word deprives the rightmost foot of peripherality, and thus prevents it from being deemed extrametrical. In the word *bakaks* 'the back-axles', the final syllable is heavy after the last consonant is deemed extrasyllabic; it therefore constructs a foot that receives the main stress following ERR.

Degenerate feet are elements that fail to be binary branching (Hayes 1995; Watson 2002). Some languages impose a ban on degenerate feet, i.e., feet consisting of one mora are not allowed in languages that respect quantity and feet consisting of one syllable are not allowed in languages that do not respect quantity (Hayes 1995). Hayes (1995) mentions two conditions for the creation of degenerate feet: a) a strong prohibition where degenerate feet are absolutely disallowed and   b) a weak prohibition where degenerate feet are allowed only in strong positions. An analysis of loan words in BJAN shows that a degenerate foot is absolutely forbidden as shown below:

8

```
5)              ( x              )        Word layer

              ( x     •)                 Foot layer

          σ      σ    σ                  Syllable layer



          /   μ   /μ  /μ                 Moraic layer
         /   |   /|  /|
        s   i   n a m a                  Segmental layer
```

In the word *sinama* 'cinema', the direction of parsing goes from left to right from the light syllable *si* towards the second syllable *na* constituting a foot that attracts stress following ERR. The syllable *ma* is light and it cannot form a foot by itself nor can it form a foot with the previous foot; therefore it is left unfooted.
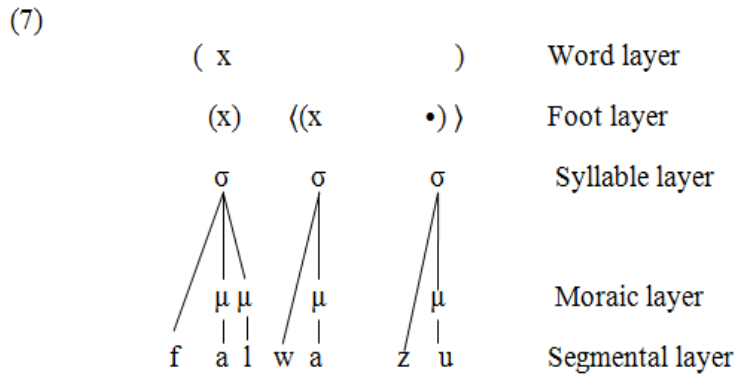
In the absence of a final superheavy syllable, stress is assigned to the rightmost heavy syllable according to ERR. Consider the metrical representation of the word *mis.kā.ra* 'mascara' below:

```
(6)
              (        x        )        Word layer

          (x)     (x)                    Foot layer

          σ       σ       σ              Syllable layer



          /μ μ    /μ μ    /μ             Moraic layer
         /  | |  /  \ /  /  |
        m i  s   k   a   r   a           Segmental layer
```

In the word *miskāra* 'mascara', the foot parse goes from left to right constructing a foot over the heavy syllable *mis*. The second syllable *kā* is heavy and it constitutes another foot. The final syllable is light (CV) and it fails to constitute a foot by itself given that degenerate foot is absolutely banned nor can it construct a foot with the previous long syllable because the maximum size of syllable is bimoraic. Following ERR, stress is assigned to the head of the rightmost visible foot, i.e., the penultimate syllable.
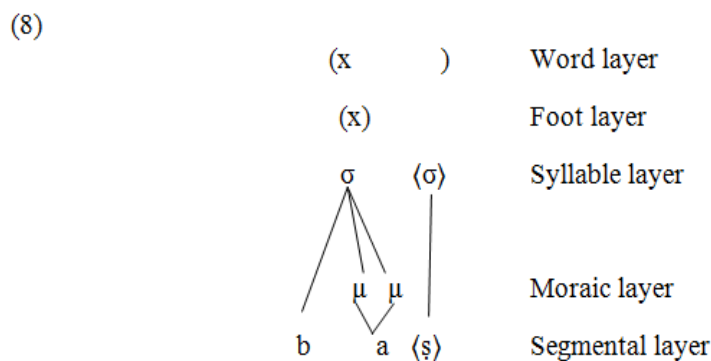
Where a three-syllable word does not have a superheavy ultimate or a heavy penult, stress is assigned to an antepenultimate heavy syllable. Applying the Peripherality and Nonexhaustivity conditions, the rightmost foot is rendered extrametrical, resulting in stress being assigned to the antepenult by ERR. For illustration, consider the example given below:
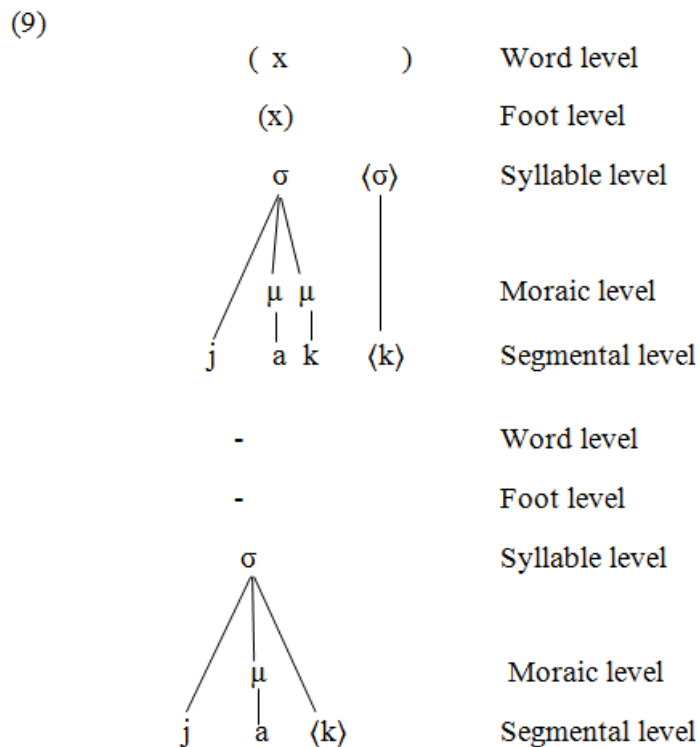
(7)

```
( x                     )        Word layer

(x)    ⟨(x      •)⟩              Foot layer

 σ      σ       σ               Syllable layer



 μ μ    μ       μ               Moraic layer

 f  a l  w  a   z  u            Segmental layer
```

In the word *fal.wa.zu* 'they had flu', a foot is constructed over the initial heavy syllable *fal*. The last two syllables are light *wa.za*, and they constitute a trochaic foot; but this foot is rendered extrametrical because of its peripherality, and thus it is invisible to stress. The extrametricality of the peripheral foot results in stress being assigned to the (rightmost visible) antepenultimate syllable by ERR.

The minimal weight for a loan word to receive stress is bimoraic, as in: *smint* 'cement', *kīlu* 'kilo', *šaṣi* 'chassis'. Sub-minimal loan words in the source language, i.e., words comprising one mora, are unstressable because a single mora is not enough to construct a foot given that BJAN has a strong ban against a degenerate foot (cf. Watson 2002; Huneety 2015). To conform to the minimality condition, monomoraic loan words undergo two processes: short vowel lengthening and final consonant gemination (cf. Hayes 1989, 1995; Watson 2002; Davis 2011). Kager (1995) claims that stressed syllables may be strengthened by either vowel lengthening or by gemination while stressless ones may be weakened by vowel reduction. Such a claim is shown valid because monomoraic loan words undergo short vowel lengthening and final consonant gemination to conform to the minimality condition (cf. Hayes 1989, 1995; Watson 2002; Davis 2011). Given that long vowels are bimoraic, once a short vowel is lengthened, the word becomes bimoraic and thus eligible to trigger stress, as in: *bāṣ* 'bus', *kūp* 'cup', *ġās* 'gas'. Consider the metrical representation of the word *bāṣ* 'bus' below.

(8)

```
      (x        )        Word layer

      (x)               Foot layer

       σ     ⟨σ⟩         Syllable layer



       μ μ    μ          Moraic layer

       b   a  ⟨ṣ⟩        Segmental layer
```
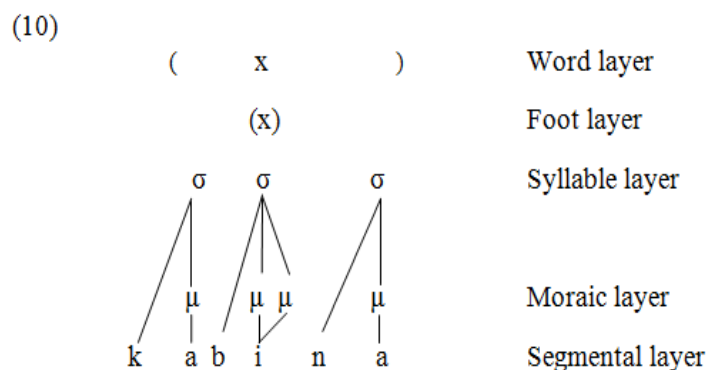
The monosyllabic word *bāṣ* 'bus' is heavy after the last consonant is deemed extrasyllabic. It thus constructs a trochaic foot that receives the main stress following ERR. Moreover, some sub-minimal loan words meet the minimality condition by geminating their last consonant. Since geminate consonants are moraic (Hayes 1989; Watson 2002; Davis 2011), they add to the weight of the word and make it eligible to receive stress, as in: *jakk* <

10

jæk 'jack', *blikk < blɒk* 'block', *dimm < dɪm* 'dim', *šill < šɪl* 'shell'. Consider the metrical representation of the loan word *jakk* 'jack' and *jak* below:

(9)

```
( x           )        Word level

(x)                    Foot level

σ         ⟨σ⟩          Syllable level


μ μ                    Moraic level
| |
j    a k   ⟨k⟩          Segmental level


-                      Word level

-                      Foot level

σ                      Syllable level


μ                      Moraic level
|
j    a   ⟨k⟩            Segmental level
```

The loan word *jakk* 'jack' in the first metrical representation is bimoraic given that geminate consonants are moraic and therefore the foot parse accomplishes to produce the heavy syllable *jak*. However, the word *jak* 'jack' in the second example does not satisfy the minimality condition after the last consonant is deemed extrametrical. It thus fails to constitute a foot given that degenerate foot is absolutely forbidden.

The assumption that degenerate foot is absolutely banned in BJAN loan words entails that a single peripheral mora (either at the beginning or the end of a string) is left unfooted because it cannot construct a foot by itself. For illustration, consider the examples given below:

(10)

```
(      x         )     Word layer

(x)                    Foot layer

σ     σ        σ       Syllable layer


μ  / μ μ   /  μ         Moraic layer
|    | |      |
k   a b i    n   a      Segmental layer
```

In the word *kabīna* 'cabin', the foot parse goes from left to right. The sequence *ka* is light and cannot construct a foot by itself (foot is minimally bimoraic) nor cannot it form a foot with the following heavy syllable because the maximum foot weight is bimoraic. The

initial syllable *ka* is therefore left unfooted. Similarly, the rightmost light syllable *na* is left unfooted at the right-end of the word. The second syllable is heavy and it meets the requirements to construct a foot; thus, it is assigned the main stress according to ERR.

5. Conclusion

This paper has examined stress assignment rules in the loan words as spoken by natives of BJAN. The study has shown how loan words conform to the main metrical parameters applied for the Bedouin Arabic words in the north of Jordan. They have a right-headed foot that is parsed from left to right as they absolutely ban degenerate foot. However, they differ from the Bedouin dialect of Wadi Ramm Arabic in the south of Jordan where loan words have an iambic stress pattern (μ'μ). Where the minimal size of a word to receive stress is bimoraic, loan words conform to the bimoraicity condition through gemination or vowel lengthening. Stress assignment is subject to ERR Principle which places stress on the head of the rightmost foot. The study would recommend examining stress patterns in loan words spoken in both Rural and Urban Jordanian Arabic. It would also recommend examining the phonological adaptation of loan words in BJA.

References

AL-Jarrah, Rasheed. 2002. *An Optimality-theoritic analysis of stress in the English of native Arabic speakers*. Ball State University. (Doctoral dissertation.)

AL-Jarrah, Rasheed. 2011. Extrametricality revisited. *Linguistic and Literary Broad Research and Innovation* 2 (1). 3–35.

Al-Wer, Enam. 2007. Jordanian Arabic (Amman). In Versteegh, Kees, Eid, Mushira, Elgibali, Alaa, Woidich, Manfred, and Zaborski, Andrzej (eds.), *Encyclopedia of Arabic Language and Linguistics* 2, 505–517. Leiden, Boston: Brill.

Chomsky, Noam & Halle, Morris. 1968. *The sound pattern of English*. MIT press.

Davis, Stuar. 2011. Geminates. In van Oostendorp, M., Ewen, C., Hume, E. and Rice, K. (eds.). *The Blackwell companion to phonology*, vol. 2: 837–859. Malden, MA and Oxford: Wiley-Blackwell.

Halle, Morris & Vergnaud, Jean-Roger. 1978. *Metrical structures in phonology*. Ms. Cambridge, MA.

Halle, Morris & Vergnaud, Jean-Roger. 1980. Three-dimensional phonology. *Journal of Linguistic Research* 1. 83–105.

Hayes, Bruce. 1980. *A metrical theory of stress rules*. Massachusetts Institute of Technology. (Doctoral dissertation.)

Hayes, Bruce. 1984. The phonology of rhythm in English. *Linguistic Inquiry* 15. 33–74.

Hayes, Bruce. 1989. Compensatory lengthening in moraic phonology. *Linguistic Inquiry* 20. 253–306.

Hayes, Bruce. 1995. *Metrical stress theory: Principles and case studies*. Chicago: University of Chicago Press.

Huneety, Anas. 2015. *The phonology and morphology of Wadi Mousa Arabic*. University of Salford. (Doctoral dissertation.)

Irshied, Omar. 1984. *The phonology of Bani Ḥasan Arabic, a Bedouin Jordanian dialect*. University of Illinois at Urbana-Champaign. (Doctoral dissertation.)

Kager, René. 2009. Stress. In Versteegh, Kees, Eid, Mushira, Elgibali, Alaa, Woidich, Manfred, and Zaborski, Andrzej (eds.), *Encyclopedia of Arabic Language and Linguistics* 4, 344–353. Leiden, Boston: Brill.

Liberman, Mark. 1975. *The intonational system of English*. MIT. (Doctoral dissertation.)

Liberman, Mark. & Prince, Alan. 1977. On stress and linguistic rhythm. *Linguistic Inquiry* 8. 249–336.

Mashaqba, Bassil. 2015. *The Phonology and morphology of Wadi Ramm Arabic*. University of Salford. (Doctoral dissertation.)

Palva, Heikki. 1976. *Studies in the Arabic dialect of the semi-nomadic al ᶜAgārme tribe (al-Balqāʔ District, Jordan*. Göteborg: Acta Universitatis Gothoburgensia.

Roach, Peter. 2000. *English phonetics and phonology: A practical course* (3ʳᵈ ed.). Cambridge: Cambridge University Press.

Sakarnah, Ahmad. 1999. *Phonological aspects of ᶜAbady Arabic, a Bedouin Jordanian dialect*. University of Wisconsin. (Doctoral dissertation.)

Stetson, Raymond Herbert. 1928. *Motor phonetics: A study of speech movements in action*, vol. 3. NorthHolland: Amsterdam.

Watson, Janet. 1993. *A syntax of Ṣanᶜāni Arabi*. Wiesbaden: Harrassowitz.

Watson, Janet. 2002. *The phonology and morphology of Arabic*. Oxford: Oxford University Press.

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