Foot structure

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Metrical phonology recognizes a constituent that is greater than a syllable and less than a word. The constituent, composed of syllables is called a metrical foot (or simply a foot). The metrical approach guarantees that all syllables will at least be grouped into feet .

Following studies such as Liberman and Prince (1977), Hayes ,(1981)Prince (1983), and Halle and Vergnaud (1987), the basic fact about stress is that not all phonemes in a string are capable of bearing stress. It has been assumed that stress is assigned to certain phonemes in any string of phonemes in any language. In Arabic only the heads of the syllable are stress-bearing elements. In other words, only the vowels, not

the consonants, are stressable. In this paper, the framework of Halle and Vergnaud is adopted, so as to reflect the facts of Arabic stress formally.

Halle and Vergnaud (1987) discussed examples involving languages with more than one degree of stress, for example, primary stress and secondary stress. However Arabic does not have any words with secondary stress. The stress assignment process therefore in Arabic is confined to primary stress only at the word level. In this paper, we shall discuss foot structure in Arabic and the mechanism by which stress is assigned using foot structure. This paper is organised as follows: in

(1)monosyllabic words are discussed, followed by structure in (2).

those with binary

.1Monosyllabic words

Monosyllabic words that fall into one of the major categories of speech (verb, noun, adjective) may be realised phonetically as one of the syllables in (1) below

a. σ" μμ (CVVC)

b. σ " μμ (CVCC)

These two types are exemplified in (2)below, where a, b and crepresent the word categories verb, noun, and adjective respectively

.2a.	Faaf "he saw"	baat "he stayed"	gaal "he said"
b.	dars "lesson	bint "girl"	zift "bad"
c.	zeen "fine"	Feen "ugly"	Geem "cloudy"

The vowels of these words are stressable elements. The pattern of stress is accounted for by building *the foot structure on the rime projection* as illustrated in (3) below.

.3a	*	*	*	line 2 (word)
	(*)	(*)	(*)	line 1 (foot)
	(**)	(**)	(**)	
	Faa<f>	baa <t>	gaa<l>	strass bearer
b.	*	*	*	
	(*)	(*)	(*)	line 2 (word)
	(**)	(**)	(**)	
	Dar <s>	bin<t>	zif<t>	strass bearer
c .	*	*	*	line 2 (word)
	(*)	(*)	(*)	
	(**)	(**)	(**)	
	Zee<n>	fee<n>	gee<n>	strass bearer

The monosyllabic feet in (3) above dominate two morae (branching rime of the syllable). This is the maximal projection of a mora within a syllable and the minimal foot structure allowed in Arabic. McCarthy and Prince (1990) argue that "The foot is a constituent composed of at least one stressed syllable and usually an unstressed syllable as well." No feet dominate exclusively a light syllable (σμ). Functional non-lexical words (such as, bi, la, fi, etc.) do not receive stress at the surface. So far as foot structure (line 1) is concerned, there is a requirement that it must consist of one complex syllable. The complex syllable will consist of one complex rime, i. e. two morae and the extrametrical element. This is supported by the representation of monosyllabic examples.This feature of Arabic is also supported by and gas as /gaas,/ where the vowel is lengthened to meet the loan words with simple rimes which are realised in Libyan dialect (LA) as complex. For example, the English word bus, is pronounced as /baas/, bar as /baar, / requirement of the minimal foot structure in Arabic.

Monosyllabic feet are not restricted to monosyllabic words. The stress pattern of words consisting of two syllables, the second of which is superheavy, is determined by constructing feet in the normal way but allowing for the possibility of degenerate feet i.e. foot containing only one syllable as in (4) below

.4

*	*	*	word line
(*)	(*)	(*)	foot line
(*) (**)	(*) (**)	(*) (**)	stress bearer
xiTaa<b>	ba na	ka rii<m>	

.2 Binary structure

The metrical grid for words of more than two syllables which requires the construction of more than one foot will necessitate the marking of right-headed constituent heads on line 2. An example of this can be illustrated by the initial representation of words such as /magafaat" ,/salaries" and /nabataat/, "plants."

5.

*	*	*	word line
(* *)	(* *)	(* *)	foot line
(* *) (**)	(* *) (**)	(* *) (**)	stress bearer
ma9a faa <t>		naba taa<t>	

In bisyllabic words, the first syllable is stressed, regardless of its weight, if and only if, the second is not superheavy, as shown in (6)

6. a

*	*	line2 (word)
*	*	line1 (foot)
(* *)	(* *)	line0
kata<b>	wala<t>	

b.

*	*	line2
*	*	line1
(* *)	(* *)	line0
kata<b>	saafa<r>	

*

A bisyllabic foot would account for the placement of stress in the example in.(6a and b). The stress foot in this case is left-headed.

To conclude this paper, I assume the following statement for foot structure

a. the minimal foot structure

	*	*
	*	*
	(**)	(**)
i. Monosyllabic	ccv <c>	cvc <c>
	*	*
	(* *)	(* *)
ii. Bisyllabic	ccv <c>	cvc <c>

b. The maximal foot structure

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        *
        *
    (* *) (*)
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iii. trisyllabic cvcvcv<c>

c. The foot structure used to account for the facts of Arabic, in terms of Halle and Vergnaud (1987) is quantity sensitive, bounded, left-headed on line O and right-headed on line 1.

This paper has dealt with word stress in Arabic. Following the formal mechanism of metrical constituent structure proposed in Halle and Vergnaud (1987).

Reverence

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