Prosodic Morphology

Gender in Arabic Perfect Active and Passive 3rd Person Singular Verbs

Omar Abu Hammad
(h06omaah@du.se)
C-Essay in Linguistics
Högskolan Dalarna
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Supervisor: J. White

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1. Introduction

1.1 Abstract

Arabic is a Semitic language spoken, roughly, by 291 million people in Census 2000[1] "in an area stretching from Morocco in the West to parts of Iran in the East"[2]. "In Semitic morphology much of the word formation takes place root-internally. Infixing and modification of the root, rather than stringing together of discrete morphemes, is the norm" (Katamba, F. 1993: 163). Any morpheme theory based on inflections, agglutination, incorporation or "concatenat(ion), i.e. (where morphemes) are attached to one after the other" (Katamba, F. 1993: 165), will fail in analyzing Arabic words where the words can not be segmented into morphemes, but rather inserted within the root. Here *Prosodic/template Morphology* is the best analysis that can handle Arabic morphology.

Prosodic morphology, henceforward referred to as *PM*, "draws heavily on the theoretical apparatus and formalisms of the generative phonology model known as **autosegmental phonology**" (Katamba, F. 1993: 154). According to McCarthy (1979, 1981; quoted in Katamba, F. 1993:165), he said that there is a similarity between the vowels that are inserted within the "consonantal roots by morphological processes in Arabic…and that of phonological prosodies " (Katamba, F. 1993: 165)." (McCarthy, who initiated *PM*) hypothesised that the verb in Arabic has elements arranged on three independent tiers at the underlying level of representation in the lexicon, the three tiers being the **root tier** (also called the **consonantal** tier), the **skeletal tier** and the **vocalic melody tier**" (Katamba, F. 1993: 165). "In Arabic writing system, primary symbols (are used) to represent consonants and diacritics to represent vowels" (Aronoff, M. and Fudeman, K. 2005: 77). Since Arabic is an infixing language, vowels are inserted within the root (consonants) to form words. By this analogy, we

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[1]   Translated from "http://www.aljazeera.net/NR/exeres/A3DB408B-AD02-457A-B7CC-DFC4732B60A9.htm"

[2]   http://www.amazon.com/Phonology-Morphology-Arabic-Worlds-Languages/dp/0199257590

can say that the *root tier* represents the consonants, the *vocalic melody tier* represents the diacritics (vowels) and the *skeletal tier* represents the given word (form). This underlying level of representation of the three independent tiers is shown in [**1**] below.

It is a must, in this paper, to talk about the *morpheme tier hypothesis* since "(*PM*) … incorporates the **morpheme tier hypothesis**" (Katamba, F. 1993: 172). "In the lexicon, the representation of each morpheme in a word occupies a separate tier" (McCarthy 1981; quoted in Katamba, F. 1993)."So lexical representations contain another tier, namely the morpheme tier… conventionally symbolized by μ" (Katamba, F. 1993: 172). As stated earlier, Arabic is a nonconcatenative language whereby the *vowel morpheme* is inserted within the *consonant morpheme* (**root**); as shown in the lexeme[3] *DARASA* 'to study' in [**1**]. The problem, which can be handled easily by *PM*, we face when analyzing Arabic morphology (and Semitic languages in general) is that "words are not necessarily made up of sequence of morphemes in a row, it is common to find **discontinuous morphemes** which are interrupted by infixes" (Harris 1951 and McCarthy 1981; quoted in Katamba, F. 1993). This infixing of a morpheme within another one is clear in the representation of the lexeme *darasa* 'to study' in [**1**]

[**1**] *DARASA* 'to study'
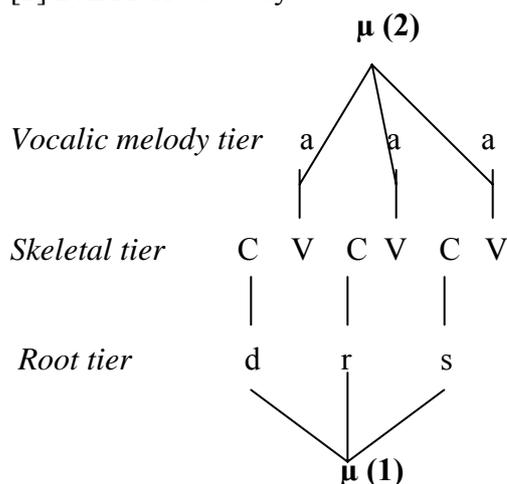
As represented in [**1**] above, there are two discontinuous morpheme tiers **μ (1)** and **μ (2)**. Since the **root** is the *consonant morpheme tier* (**drs**) 'the notion of studying'), it is represented by **μ (1)** while the *vocalic morpheme tier* is represented by

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3   Each word in Arabic is derived from a lexeme (root) that has different realizations.

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μ (2) which carries inflectional and derivational meanings. We can note that **μ (1)** is interrupted by **μ (2)** to form the lexeme *darasa* 'to study'. To clarify more, let's analyze the verb *darasat* (she studied), which is derived from the lexeme *darasa* (to study), in order to show how more than two morphemes[4] are represented in a word as shown in [**2**].

[**2**] *Darasat* 'she studied'
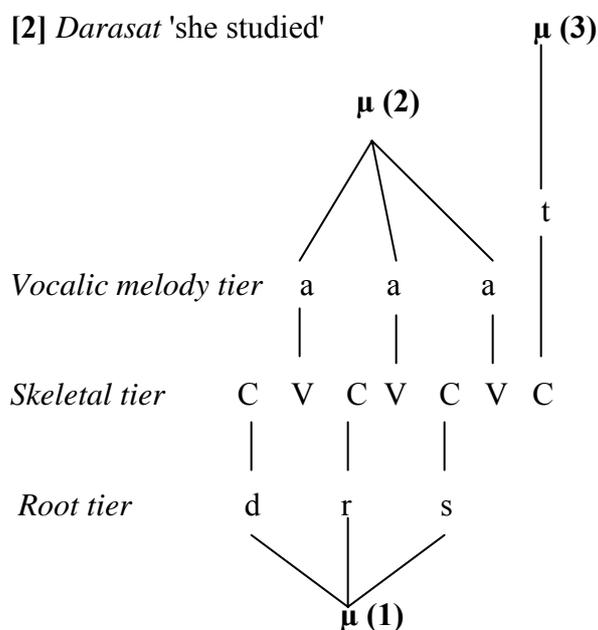
As shown in [**2**] and represented in **μ (1), μ (2)** and **μ (3),** there are three different *morpheme tiers* representing the root - **μ (1)**- the diacritics (vowels) - **μ (2)**- and the (**t**) **-feminine - morpheme - μ (3)** – which refers to the omitted 3rd person-singular-feminine subject. This one-consonant morpheme tier, (**t**) **- feminine – morpheme**, always follows the last diacritic of the *vocalic melody tier*, which is the last (**a**) in [**2**], in all 3rd person singular active and passive feminine perfect verbs[5]. Having introduced *PM* and the *morpheme tier hypothesis*, the reader may find it easy, now, to understand the analysis of Arabic morphology.

1.2 Aim

Due to the limitation of space and the richness of Arabic, I shall not present many aspects of Arabic morphology. I shall present gender in triconsonantal perfect active

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4   Some Arabic verbs have more than 3 morpheme tiers depending on case, tense and agreement.
5   I shall clarify this point more in sections 2.2 and 2.3

and passive 3rd person singular verbs[6] on the basis of *PM*. I shall, too, cast the light on some vowel changes that some verbs undergo when voice changes. We shall see how to convert masculine triconsonantal perfect active and passive 3rd person singular verbs into feminine ones. The focus of the analysis shall be drawn heavily on the most common Arabic verbs; triconsonantal verbs, with brief introduction of the less common verbs; quadriconsonantal perfect active and passive masculine and feminine 3rd person singular verbs. As stated earlier in the *Abstract*, the root of Arabic verbs is basically consonants. To form words, we need diacritics (vowels) whereby they are inserted within the root. Some root vowels may undergo changes due to the change in the two tenses (perfect and imperfect). Another reason for this change is the change in voices (active and passive). Number, case and person may lead to some phonological changes; however, I shall not discuss them due to the limitation of space.

1.3 Method

The *analysis* is divided into three sections. The first section deals with *understanding language*. I shall discuss what I stated, in brief, in the *Abstract* regarding *PM* and the *morpheme tier hypothesis* with the underlying representation of the independent tiers. This representation will be shown by considering gender in different triconsonantal perfect active and passive 3rd person singular verbs. Applying *PM*, we shall see the change that some vowels may undergo in some verbs when changed from active into passive. The second section deals with triconsonantal perfect verbs. This section is divided into two subcategories; gender agreement in active and passive triconsonantal verbs. The third section is about quadriconsonantal perfect active and passive verbs. I shall give more examples to show how successfully *PM* works in Arabic perfect 3rd person singular verbs.

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[6]In Arabic, the verb should correspond in agreement (number, person and gender) with the agent that usually follows the verb
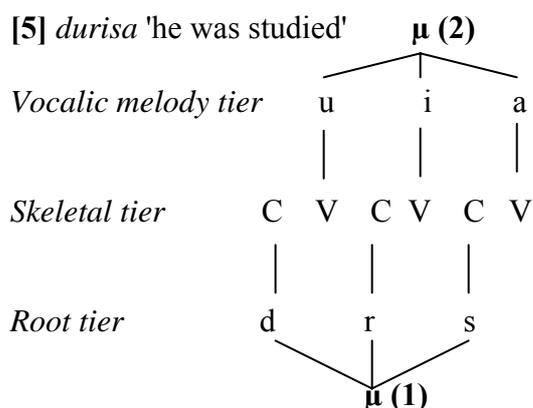
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2. Discussion

2.1 Understanding Language

As mentioned in the *Abstract*, there are three independent tiers at the underlying level of representation in the lexicon – the *root tier*, the *skeletal tier* and the *vocalic melody tier* as shown in the representation of the lexeme *hafara* 'to dig' in **[3]** below. From the lexeme *HAFARA* 'to dig', which is composed of the **root** *tier* **(hfr***)* 'the notion of digging' and the **vowel** (diacritic) *tier* **(aaa),** we can derive different words by changing the vowels and adding other affixes to the root **(hfr)** such as *hufrah* 'hole', *haffara* ' he caused to dig', *hafaru* 'they (masculine) dug', *tahfiru* 'she digs' etc. As discussed in the *Abstract* and shown in **[3]** regarding the *morpheme tier hypothesis***,** the form *HAFARA* 'to dig' contains two discontinuous tiers - **μ (1);** the *root tier* and **μ (2);** the *vocalic melody tier*. **μ (2),** which is inserted within **μ (1),** "convey(s) grammatical information" (Katamba, F. 1993: 173).

[3] *HAFARA* 'to dig'
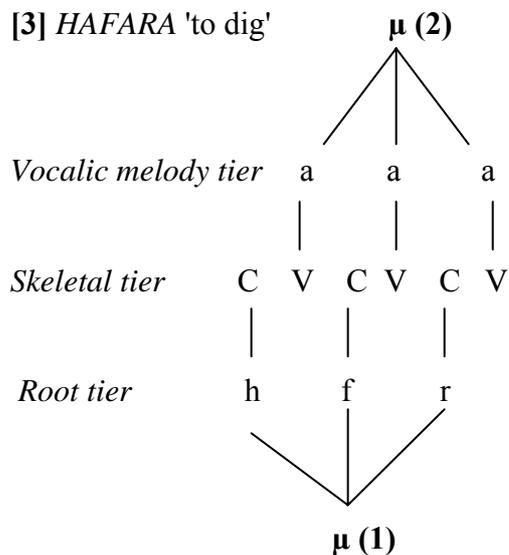
The most common Arabic verb is triconsonantal that follows the **CVCVCV** pattern, in perfect 3rd person masculine singular verbs, whereby the *diacritics* (a, i, u) are inserted within the *root tier* (the consonants) to form the *skeletal tier* (the given word). *Darasa* 'he studied', as represented in **[4]**, is a triconsonantal perfect nominative 3rd person singular masculine verb where the first diacritic (**a**) on the left, in all perfect Arabic verbs, marks the active voice.

[4] *darasa* 'he studied'   **μ (2)**

Vocalic melody tier   a   a   a

Skeletal tier   C   V   C   V   C   V

Root tier   d   r   s

μ (1)
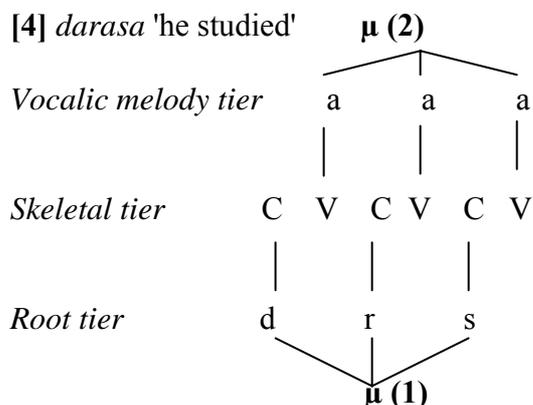
Regarding the second diacritic, there is no general rule to govern its function. In some triconsonantal perfect verbs, the middle diacritic can be **a**, **i** or *sukuun* (absence of vowel) such as *rasama* (he painted), *rakadha*[7] (he ran) and *zurtu* (I visited), respectively. This variance depends basically on many systematic factors Arabic has; that the limitation of space, in this paper, makes it very difficult to discuss. The last diacritic, in this case[8], marks number, person and gender (singular, 3rd person and masculine). On the other hand, if we want to change the voice of *darasa* 'he studied' into passive; *durisa* 'he was studied[9]', as shown in **[5]**, the first diacritic becomes (**u**) instead of (**a**) to show the voice. This change, in the first diacritic, leads to a change in the second diacritic from (**a**) into (**i**). The third diacritic is not affected by this syntactic change and keeps its original form to refer to the agreement as being singular, 3rd person and masculine.

[5] *durisa* 'he was studied'   **μ (2)**

Vocalic melody tier   u   i   a

Skeletal tier   C   V   C   V   C   V

Root tier   d   r   s

μ (1)

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[7]   The sound [dh], pronounced (**dhadh**), is one consonant that exists only in Arabic and this is why Arabic is known as the language of (**dhadh**).

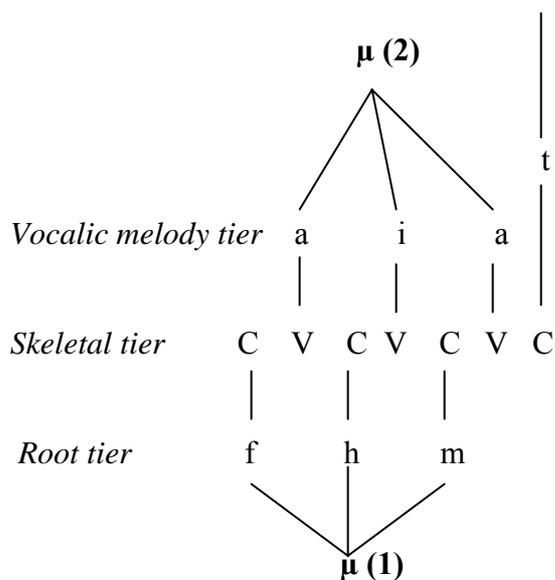[8]Agreement   is marked on verbs in different ways depending on case, tense, number, gender and person.

[9]   Gender in Arabic is grammatical i.e. it is either masculine or feminine regardless of being animate or inanimate. 'He' in this example may refer to 'a book or an essay' which is masculine.

The same phonological change is applied to the perfect active verb *dharaba* 'he hit' and the perfect passive verb *duriba* 'he was hit'; where the first two diacritics – **a** and **a**- change into **(u)** and **(i)**, consequently, with keeping the last **(a)** as it is; as represented in **[6]** and **[7]**.

[6] *dharaba* 'he hit' μ **(2)**

Vocalic melody tier a a a

Skeletal tier C V C V C V

Root tier dh r b

μ **(1)**

[7] *dhuriba* 'he was hit' μ **(2)**

Vocalic melody tier u i a

Skeletal tier C V C V C V

Root tier dh r b

μ **(1)**

2.2 Triconsonantal Perfect Verbs

2.2.1 Gender Agreement in Active Perfect Verbs

Having introduced triconsonantal masculine 3rd person singular active and passive perfect verbs, we can move to gender agreement. Gender in Arabic is grammatical regardless of being animate or inanimate. Each noun, pronoun, verb and adjective is either masculine or feminine e.g. tree is feminine, book is masculine, etc. Since the aim of this paper is to discuss gender in Arabic perfect active and passive 3rd person singular verbs, I shall not discus how masculine gender in nouns, pronouns and adjectives is converted into feminine. The distinction between masculine and feminine in 3rd person singular perfect verbs is the **(t) – feminine - morpheme**[10] that is added

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[10]   Beside the **(t) – feminine – morpheme**, there are two ways of marking perfect feminine verbs in Arabic; namely, **noon alniswah'** *the' n' feminine plural morpheme'* that is used in 2nd and 3rd person -

to the end of the perfect active and passive 3rd person singular masculine verbs to form feminine ones. Knowing that the default gender in most languages, including Arabic, is masculine and that the feminine gender, in perfect 3rd person singular nominative verbs, is formed by adding the **(t) – feminine – morpheme** to the end of the verb, we can clearly understand the distinction between masculine and feminine verbs; as represented in the verb *fahima* ' he understood' in **[8]** and *fahimat* 'she understood' in **[9]** that represent masculine and feminine perfect active verbs, consequently.

[8] *fahima* 'he understood'   **μ (2)**

| Vocalic melody tier | a | i | a |

Skeletal tier   C V C V C V

Root tier   f   h   m

μ (1)

[9] fahimat 'she understood'   **μ (3)**

μ (2)

t

Vocalic melody tier   a   i   a

Skeletal tier   C V C V C V C

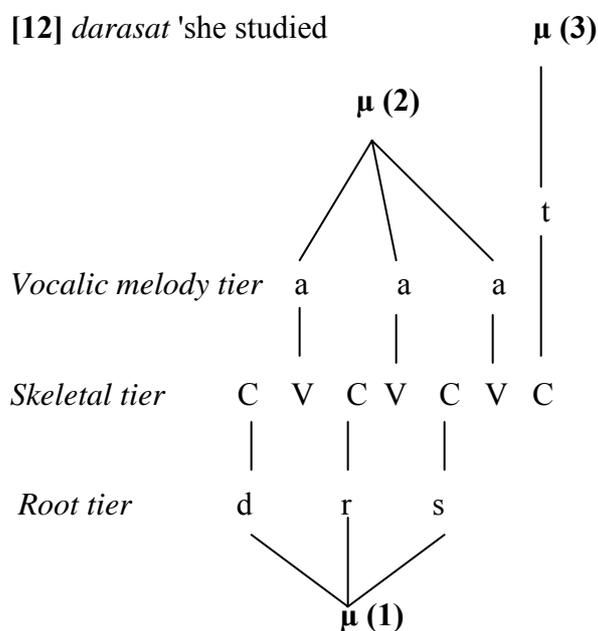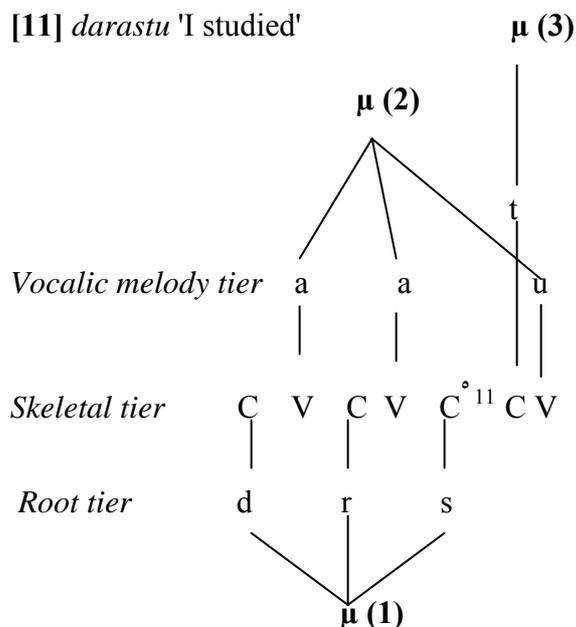Root tier   f   h   m

μ (1)

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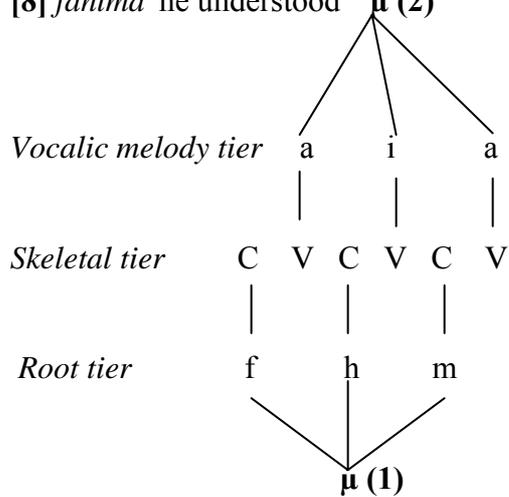
plural feminine; e.g. *darastunna* ' you (plural feminine) studied' *and darasna* 'they (feminine) studied' and the **(ti) – feminine morpheme** that is used in 2nd person singular feminine; e.g. *darasti* 'you - (singular feminine) studied'. One of these three morphemes is added to the end of perfect masculine verbs to become feminine; depending on number and person.

As shown in **[8]** and **[9],** both representations have the same *morpheme tiers* - **μ (1)** and **μ (2)**. The only difference is that **[9]** has an additional *morpheme tier*; namely, the **(t) – feminine – morpheme**, which is added to the end of the default gender, masculine, to form feminine verbs. By the same token, we can form any feminine perfect active and passive 3rd person singular verb by adding the **(t) – feminine – morpheme** to the end of the masculine verb. *Sakabat* 'she poured' is another example to emphasize the function of the **(t) – feminine – morpheme**; as represented in **[10].** As seen in **[9]** and **[10]**, **μ (3)**, the **(t) – feminine – morpheme,** has an independent tier of representation; placed at the end of the masculine 3rd person singular active verb.

[10] sakabat 'she poured'

Vocalic melody tier

Skeletal tier

Root tier
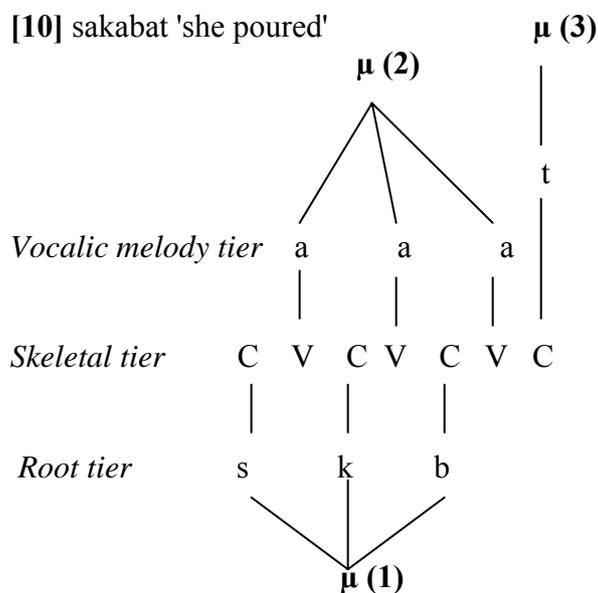
In addition to the **(t) – feminine – morpheme**, there is another **(t) – morpheme**; namely, the **omitted-subject- (t) - morpheme,** that is used to refer to the omitted masculine and feminine subject in 1st and 2nd person verbs and (it) is followed by one of the diacritics **(i, u,a)** depending on case, person, number and voice; while the **(t) – feminine – morpheme** is used to indicate feminine verbs, marked with **'0'** which denotes the diacritic '*Sukuun*'; absence of vowel, and (it) has no syntactic functions. I shall not discuss the **omitted-subject-(t) morpheme** in depth; however, I shall clear the ambiguity, that may arise, when faced by the two different **(t) – morphemes**; as represented in **[11]** and **[12]**.

[11] *darastu* 'I studied'   **μ (3)**

μ (2)

t

Vocalic melody tier   a   a   u

Skeletal tier   C   V   C   V   C ° [11] C V

Root tier   d   r   s

μ (1)

[12] *darasat* 'she studied   **μ (3)**

μ (2)

t

Vocalic melody tier   a   a   a

Skeletal tier   C   V   C   V   C   V   C

Root tier   d   r   s

μ (1)

Apart from the syntactic difference; as presented above, the morphological difference between the **omitted-subject- (t) morpheme** and the **(t) – feminine – morpheme** is clearly represented in **μ (3)** in **[15]** and **μ (3)** in **[16]**. **μ (3)** in **[15]**, the **omitted-subject - (t) morpheme**, is preceded by **(0)**; '*sukuun*' and followed by a vowel **(a,i,u);** depending on case, number, voice and person. Moreover, the *vocalic melody tier* is interrupted by the **omitted-subject- (t) – morpheme** separating the first two diacritics – (**a** and **a**) from the last one; (**u**). The last difference is the pattern of the *skeletal tier*, in **[15]**, which is **CVCVC ° tV**; compared to the pattern of the **(t) –**

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[11]   The *Sukuun* (**0**) is placed after the last consonant of the **root tier** to indicate the absence of vowels.
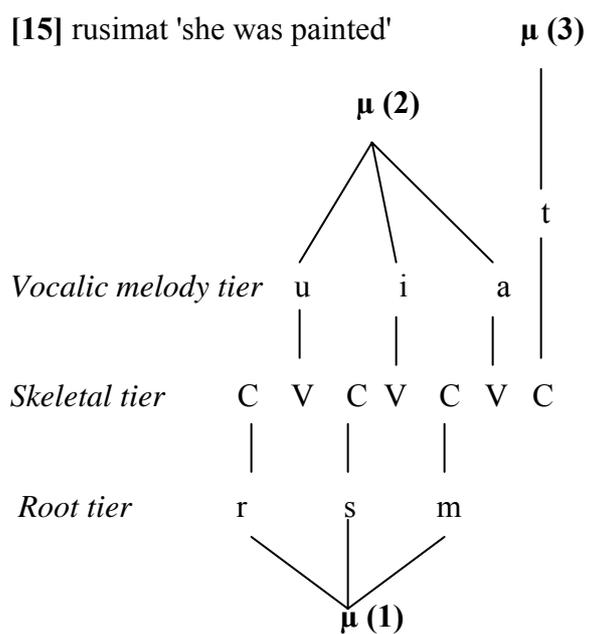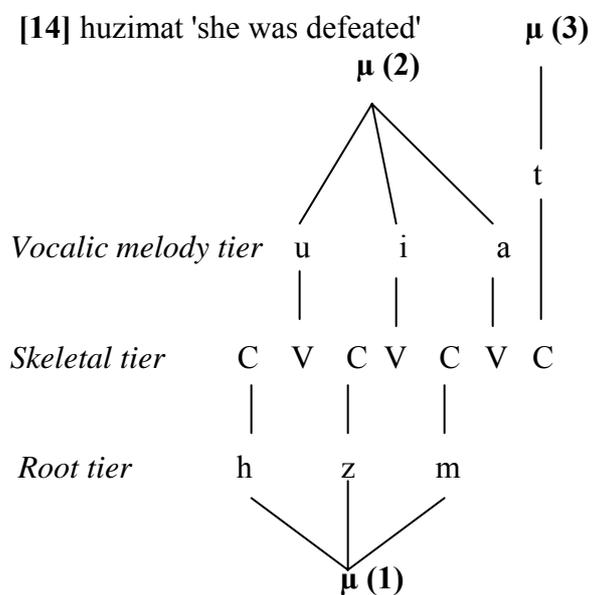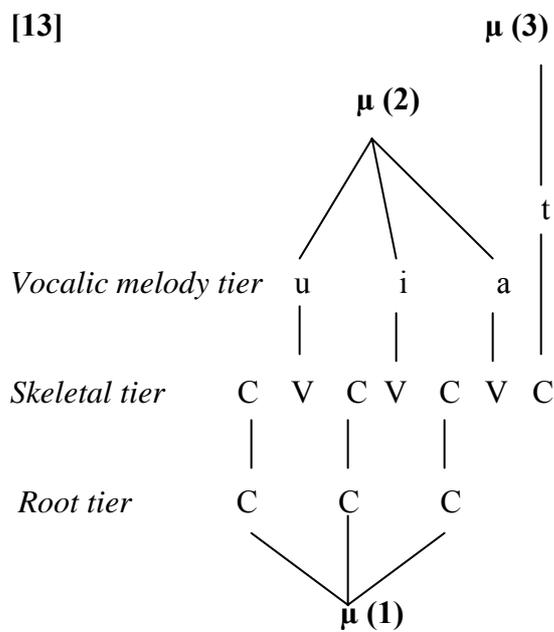
feminine – morpheme (CVCVCVt) in **[16]**. You can apply the abovementioned analysis, in **[15]**, on the following 2nd person perfect verbs[12]: *darasˁti* 'you (singular-feminine) studied' and *darasˁta* 'you (singular – masculine) studied'.

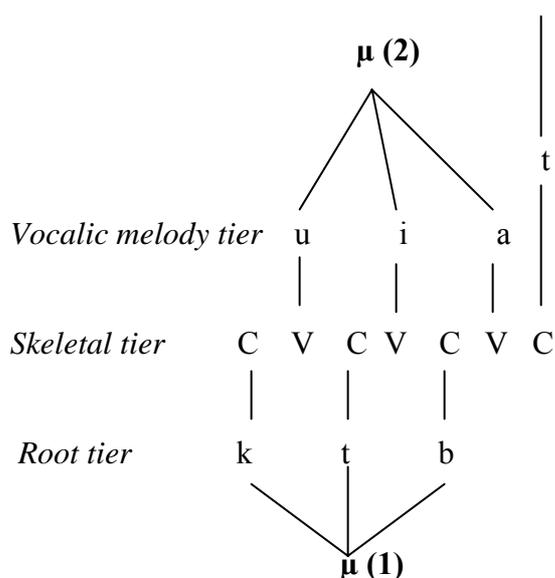## 2.2.2 Gender Agreement in Passive Perfect Verbs

Having introduced and discussed gender in perfect active 3rd person singular verbs, I shall move now to discuss how gender in perfect passive 3rd person singular verbs is formed. We noticed that triconsonantal 3rd person singular masculine passive verbs follow the **CuCiCa**[13] pattern (see **[5]** and **[7]** in the *Understanding Language Section*). The *vocalic morpheme tier*, which is inserted within the root **CCC,** is always **(uia)** in the passive voice. Knowing that the masculine triconsonantal 3rd person passive verb follows the **CuCiCa** and that feminine verbs are formed by adding the **(t) – feminine – morpheme** to the end of the 3rd person singular masculine perfect verbs, it is clear that feminine perfect triconsonantal 3rd person singular passive verbs follow the **CuCiCat** pattern; as represented in **[13]** that functions as the template for feminine triconsonantal 3rd person singular passive verbs. In **[13],** we can replace **μ (1), CCC**, by any triconsonantal **root** to form any perfect feminine 3rd person singular passive triconsonantal verb with keeping **μ (2)** and **μ (3)** as they are. Now, let's replace **μ (1)**, in **[13]**, by the roots **(hzm)'**the notion of defeating, (**rsm**) 'the notion of painting' and (**ktb**) 'the notion of writing'; as represented in **[14], [15]** and **[16]** consequently, to make sure that the template in **[13]** works properly for all perfect feminine 3rd person singular passive triconsonantal verbs.

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[12]   You can replace the last diacritic **(u)** in **[15]** by the last diacritics (**i** and **a)** in *darasti* and *darasta*, consequently, to clearly understand the difference.
[13]   The **CuCiCa** pattern is applicable in all triconsonantal perfect masculine 3rd person singular passive verbs.

[13]
μ (3)

μ (2)

				t
Vocalic melody tier	u	i	a	
Skeletal tier	C V	C V	C V	C
Root tier	C	C	C	

μ (1)

[14] huzimat 'she was defeated'
μ (3)

μ (2)

				t
Vocalic melody tier	u	i	a	
Skeletal tier	C V	C V	C V	C
Root tier	h	z	m	

μ (1)

[15] rusimat 'she was painted'
μ (3)

μ (2)

				t
Vocalic melody tier	u	i	a	
Skeletal tier	C V	C V	C V	C
Root tier	r	s	m	

μ (1)

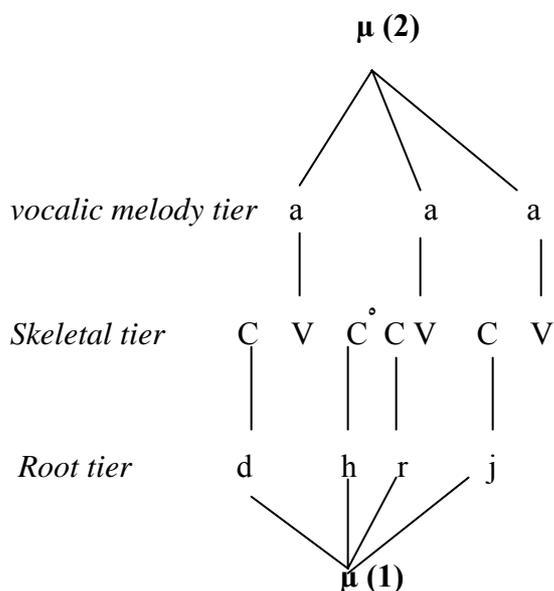**[16]** kutibat 'she was written'   **μ (3)**
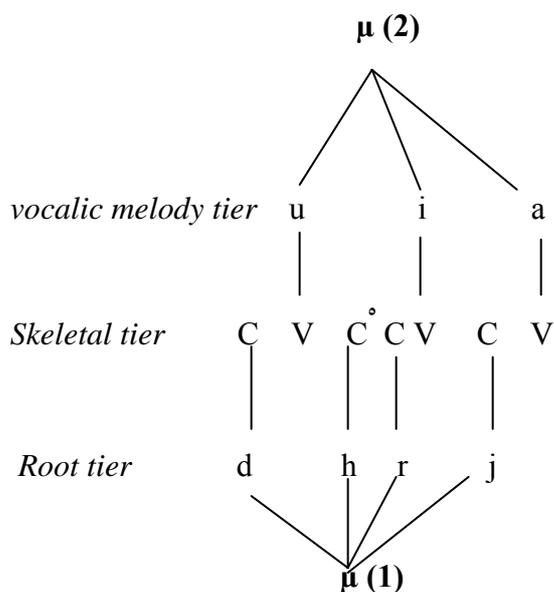

2.3 Quadriconsonantal Perfect Verbs

Having introduced triconsonantal perfect active and passive masculine and feminine
3rd person singular verbs as being the most common pattern of Arabic verbs, I find it
useful to cast the light on quadriconsonantal perfect verbs which is less common
compared to triconsonantal ones. *Dahraja* ' he rolled', as shown in **[17],** is a
quadriconsonantal perfect masculine 3rd person singular nominative verb where the
root consists of four consonants - (**dhrj**). The pattern of the quadriconsonantal perfect
active 3rd person singular masculine verb is **CVC°CVCV.** There is *sukuun* (absence of
vowels) separating the second and third consonants. As in all triconsonantal perfect
3rd person singular nominative verbs, the *vocalic melody tier* of the quadriconsonantal
perfect 3rd person singular nominative verbs consists of three vowels, too. Regarding
passive construction of the quadriconsonantal perfect 3rd person singular masculine
verb, as shown in **[18]**, it follows the pattern **CuC°CiCa**. Knowing that the pattern of
the triconsonantal perfect passive 3rd person singular masculine verb is **CuCiCa** and
the pattern of the quadriconsonantal perfect passive 3rd person singular masculine verb
is **CuC°CiCa,** we can notice that the *skeletal tier* is identical except for the addition of

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the second *sukuun* consonant of the quadriconsonantal perfect verbs (compare **[7]** and **[18]**).

[17] *dahraja* 'he rolled'

μ (2)

vocalic melody tier   a   a   a

Skeletal tier   C   V   C̊ C V   C   V

Root tier   d   h   r   j

μ (1)

[18] *duhrija* 'he was rolled'

μ (2)

vocalic melody tier   u   i   a

Skeletal tier   C   V   C̊ C V   C   V

Root tier   d   h   r   j

μ (1)

To convert quadriconsonantal perfect active 3rd person singular masculine verbs into feminine ones, we add the **(t) – feminine – morpheme** to the end of the masculine verb; as shown in **[19]**. When converting 3rd person singular masculine verbs into feminine ones, there is no difference if the verb is triconsonantal or quadriconsonantal (compare **[12]** and **[19]**). The **(t) – feminine - morpheme** is added to the end of all masculine active and passive 3rd person singular Arabic verbs to have

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feminine ones. To form quadriconsonantal passive feminine 3rd person singular verbs, we add the **(t) – feminine – morpheme** to the end of the 3rd person singular masculine passive quadriconsonantal pattern (**CuC°CiCa**) to have (**CuC°CiCat**); as represented in **[20]**.

[19] *dahrajat* 'she rolled'

[20] *duhrijat* 'she was rolled'
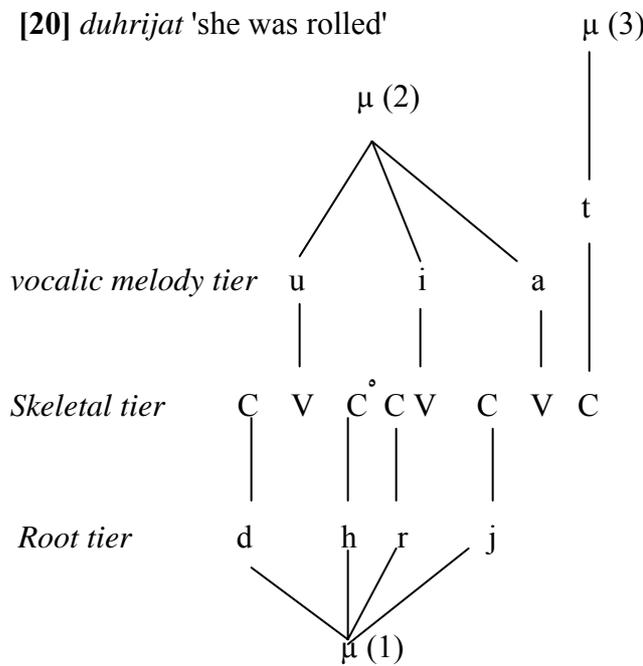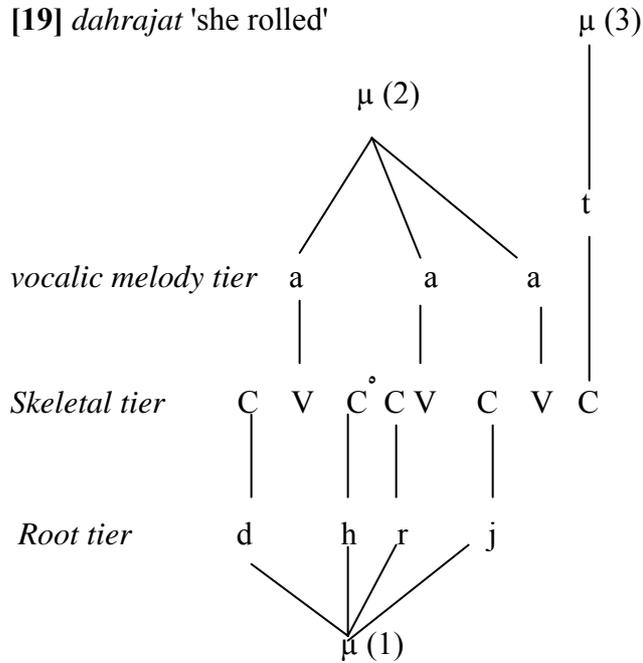
3. Conclusion

I have limited the scope of analysis to gender in perfect active and passive 3rd person singular verbs due to the limitation of space in this paper which makes it difficult to extend the analysis on more categories of the rich Arabic morphology. I do not claim perfection in this paper; however, I just tried to introduce a certain sample; perfect verbs, of Arabic, my mother tongue, morphology in a way that enables anyone interested in studying or even analyzing Arabic for academic reasons, to understand how systematic and easy Arabic is. I can not claim that I am going to turn you into specialists in Arabic morphology after reading these few pages; however, it is just a way of familiarizing the readers of this paper of Arabic morphology.

We have seen how *PM* works properly in analyzing gender in Arabic perfect active and passive 3rd person singular verbs. It is easy to understand Arabic morphology when applying *PM* since it is based on infixing, which can best serve in analyzing nonconcatenative morphology. We can apply *PM* on other categories of Arabic morphology such as nouns, imperfect verbs, adjectives, etc since they are all composed of discontinuous morphemes that are inserted within each other. Understanding *PM* and the *morpheme tier hypothesis* makes it easy to understand how Arabic words are formed by nonconcatenative morphemes. We have noticed that the **root** of Arabic words is consonantal that is interrupted by *diacritics* (**vowels**) to form words. Each Arabic perfect masculine verb has three independent tiers at the underlying level of representation in the lexicon, the three tiers being the *root tier* (**consonants**), the *skeletal tier* (**form**) and the *vocalic melody tier* (**vowels**). These tiers are discontinuous; i.e. they are inserted within each other.

We have seen how masculine perfect active and passive 3rd person singular verbs are converted into feminine ones by adding the **(t) – feminine – morpheme** to the end of the default gender; masculine. I have introduced different representations of different triconsonantal 3rd person singular masculine and feminine verbs to see how

gender is formed in perfect 3rd person singular active and passive verbs. I have also tried to clear the ambiguity that may arise when faced by the **omitted-subject- (t) morpheme**. Moreover, I have discussed the phonological change in vowels when changing voice from active into passive. I have presented the template for passive triconsonantal perfect 3rd person singular masculine verbs (**CuCiCa)** that can be filled by any triconsonantal **root** to have perfect 3rd person singular masculine passive verbs. We have also seen the template for passive triconsonantal perfect 3rd person singular feminine verbs (**CuCiCat)**. Moreover, I have introduced quadriconsonantal perfect verbs that follow the pattern **CVC˚CVCV** in active quadriconsonantal perfect 3rd person masculine verbs compared to **CVC˚CVCVt** in feminine ones. Finally , we have also seen the template for perfect quadriconsonantal passive masculine 3rd person singular verbs that follow the pattern **CuC˚CiCa**; compared to the feminine ones that follow the pattern **CuC˚CiCat**).

References

1. Aronoff, M. and Fudeman, K. 2005. *What is Morphology*? Oxford: Blackwell.

2. Katamba, F. 1993. *Morphology*. London: Macmillan Press.

3. http://www.aljazeera.net/NR/exeres/A3DB408B-AD02-457A-B7CC-DFC4732B60A9.htm

4. http://www.amazon.com/Phonology-Morphology-Arabic-Worlds-Languages/dp/0199257590