An Overview of Verb Morphology in Arabic

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Résumé:

In spite of the complexities of the linguistic structures in Arabic when compared with Western languages, its morphology displays logical regularities that have long been observed, first by Arabic grammarians in the first centuries of Islam, and then, much later on, by "Arabists" who attempted to map its structural systems within modern linguistic theories. One field of research that has attracted the attention of many linguists is Arabic verb formation of the various patterns.

In this paper, we attempt to have an overall look at how Arabic derivational and inflectional processes allow a wide range of verb morphological variation. As a matter of fact, while English or French verbal morphological operations are only characterized by suffixation, Arabic morphology displays three types of affixation to the verb-root: prefixation, suffixation, as well as infixation. What is interesting in the analysis of root-and-pattern verb morphology in Arabic is that it provides useful applications in computational linguistics which, in turn, enhance the design of computer-based morphological parsers, programmes of translation and automatic treatment of languages.

1. Introduction

Morphology is certainly one of the most important components of language grammar as a whole. Traditional grammarians and modern linguists alike have always focused on the phenomenon as part of the linguistic competence related to human beings' ability to form and interpret words in their language. As a matter of fact, individual words and how they are formed is what speakers are most aware of, first in the spoken form and soon in written text. Radford et al. (1999:145) write in this respect: "All languages have words, and words are probably the most accessible linguistic units to the laymen…" while, as they say, "most speakers of a language cannot easily identify" the sounds in an utterance. Indeed, a little child quickly learns to associate objects with the first words he utters and readily classifies them as separate items in his mental lexicon. Just as we acquire the knowledge of simple lexical items, we learn, rather unconsciously, to construct more complex forms on the basis of the application of general derivational and inflectional rules to basic word stems.

A good example is the widespread use of the plural form of nouns represented by the affixation of an {*–s*} at the end of the word in many Western languages, as in 'book*s*' in English, for instance, 'livre*s*' in French, 'libro*s*' in Spanish... Other languages may have other types of plural markers, usually added as suffixes. This is the case of the Arabic 'sound' plural (*al-žam'u ssaliim*) which uses {*–uun(a)*} in the masculine and {*–aat*} in the feminine: the two forms *mu'minuun(a)* and *mu'minaat(u)* for example, stand for 'believers', masc. and fem. But

another type, termed 'broken' plural (*žam'u attaksiir*) is more complex in its morphology as it is derived from the singular noun stem or the consonantal verb root by means of infixation, but also for its being highly allomorphic: the plural of [kita:b] 'book' is [kutub], but ['ajn] 'eye' has two plural allomorphs, ['a'jun] and ['uju:n]. Hence, the various processes of word formation and declensional paradigms may differ quite substantially from one language to another, albeit some may reflect similarities, particularly in genetically related languages.

The concept of verb 'infinitive', for example, is structurally similar in Western languages, though it is represented in different manners: i.e. *to* + verb stem in English, as in 'to think' or 'to take'; in French, infinitives are classified in a few categories (or groups) distinguished by the suffixation of *-er*, *-ir* or *-re*, to the verb stem, as in 'penser', 'sortir' or 'prendre'. In Arabic, it is the perfect verb stem in the 3rd person masculine singular that is used to represent the infinitive; *kataba*, for instance, 'He has written/ He wrote', is also used to mean the Arabic infinitive for *to write*.

Arabic displays a singular type of morphological organisation, first because of its Semitic origin, but also for having preserved its overall linguistic structure for at least fifteen centuries. There is no doubt that the fact that the Qur'an, the Holy Book of Islam, was 'sent down' in Arabic was a powerful stimulus that set off systematic investigation of the language on all structural levels and an incentive for its preservation for the next generations. Fearing that people may make mistakes in reading the Qur'anic verses – which some started doing indeed – some learned persons (namely Aboul-Aswad Ad-du'ali,

and later on Al-Khalil, his disciple Sībawayhi and other followers) set out to establish the rules of Arabic syntax and morphology, *naḥw* and *ṣarf*, respectively, as well as the prescription of correct pronunciation, particularly for correct reading of the Qur'anic verses. Amongst the huge work done on the Arabic language, with all the facets of its structure and in different periods since the advent of Islam, one field to which great attention was attached is verb morphology.

2. Arabic Verbal Morphology

A careful look at Arabic verb generation, with its derivational and inflectional processes, reveals specific rules that govern word formation. The consonantal roots, or radicals, to which prefixes and suffixes are added for inflectional purposes – in particular those associated with subject and object personal pronouns – are also organised and manipulated in a non-concatenative manner; that is, morphological operations occur *within* the verb-root by means of vowel infixation – and, less often, consonant infixation – thus generating a large number of derivations standing for canonical verb patterns, on the one hand, and fixed forms representing tenses and moods, on the other.

Following Ratcliffe (1990), we believe it is fruitful to accept the view, based on Koskenniemi 1983 [1], which considers Arabic morphology on a two-level basis distinction: an infixal process level that affects the base

[1] In opposition with Chomsky and Halle's *rewrite rules* (1968), Koskenniemi's two-level morphology (1983) assumes two levels of analysis: lexical strings and surface strings with a mapping between the two types of strings, the former representing morphemes, and the latter surface forms.

form to generate new stems, and another level of word productivity which allows initial and/or final affixation to produce verbal paradigms and inflections, for example.

The following example may illustrate these types of affixation: *yataḍaarabaani*, meaning 'they (two) hit each other', consists of the verb-root ⟨ḍrb⟩ that expresses the notion of hitting, to which two prefixes, *ja*+*ta*, are added (*ja*- for the 3rd person in the imperfect, and *ta*- standing for a pronominal function); the infix *alif*, which 'lengthens' the vowel carried by the first radical *ḍ*, conveys the function representing reciprocity in the act of hitting; the verb then ends with the suffix -*aani*, the dual morpheme paradigm specific to Arabic conjugation.

2.1. Concatenative and non-concatenative processes

Thus, the whole complex involving concatenation and non-concatenative processes results in the production of a large number of patterns of a given root and extreme regularity in their conjugations. Unlike morphological systems in Western languages, the Arabic tri-literal and quadriliteral[2] consonantal roots, on which verbal stems are based, have been regarded as morphemes while the vowels form a 'melody' (vowels are called *ħarakaat* in traditional Arabic grammar, a word which conveys the idea of 'movement', causing, as it were, the associated

[2] The traditional Arabic grammarians used the labels 'three- letter verbs' and 'four-letter verbs', but we agree with the suggestion today that the qualifiers tri- and quadriconsonantal would be preferable to tri-literal and quadriliteral, as we are not concerned with the written form but rather with phonological and morphological structures.

consonants (*ħuruuf*) to 'move', as Ibn Jinni (I/30) says. Cavalli-Sforza, Soudi and Mitamura[3] say in this respect:

> *Stems are formed by a derivational combination of a root morpheme and a vowel melody; the two are arranged according to canonical patterns. Roots are said to interdigitate with patterns to form stems*.

That is, the Arabic verb stem *kataba* consists of the root morpheme *ktb*, bearing the concept of writing, and the vowel melody *-a-a-a*, which causes the consonantal roots to 'be in motion' yielding a CVCVCV pattern. Hence, thanks to the process of vowel insertion, the fifteen tri-consonantal verb-patterns, together with the four quadri-consonantal ones, undergo changes according to tenses, voices (active and passive) and moods (imperative, etc.). The table below taken from Cavalli-Sforza, Soudi and Mitamura (ibid.), may help clarify the organisation of tri-consonantal forms:

[3] From the website www.elsnet.org/arabic2001/cavalli.pdf

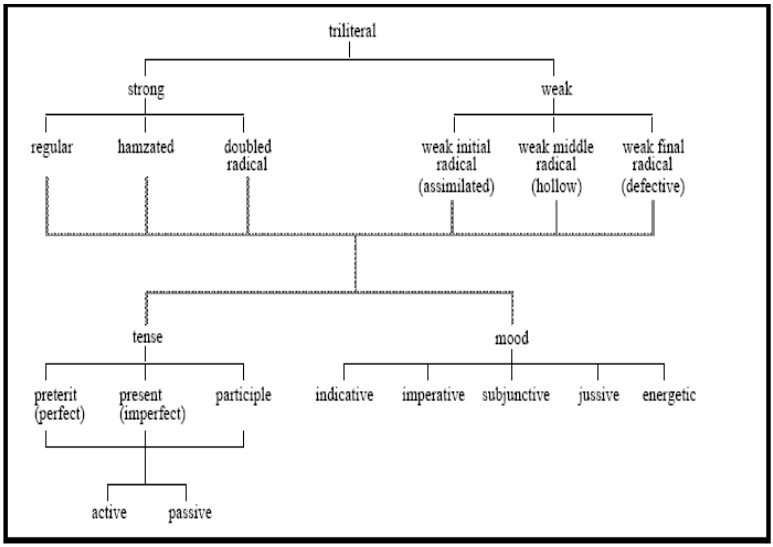

Table 1. Classification of Verbal Roots and Mood Tenses in Arabic

The table shows that the basic tri-consonantal patterns – labelled 'Form I verbs' in the Orientalist tradition as opposed to the 'augmented' forms (II, III, IV, V, etc) – are systematically structured according to forms (tenses, voices and moods) which display highly regular conjugations. The whole verbal system generated from the three-root base forms consists of 15 patterns (3 tri-consonantal patterns + 12 augmented forms) of which at least ten are of common use. There is only one basic four-root form, *fa'lala*, to which some rarely used augmented patterns can be added. With respect to the tense-mood-voice voweling, on the one hand, and under the influence of concatenative affixation related to the 13

person-number-gender combinations, on the other, all the patterns undergo changes in the stem. The whole system, thus, displays highly regular morphological processes.

Apart from a few cases of irregular patterns, such as those of weak verbs (those having the letters *waaw*, *yaa'* or *'alif*), the highly inflectional morphology of Arabic yields extremely regular root-and-pattern verb stems, traditionally called *'awzaan* (the plural of *wazn*, 'weight', meaning 'measures' here). These have been considered in recent computational linguistic research. Indeed, it is widely acknowledged that since the early 1980s, "when morphological analysis of natural language was a challenge to computational linguists" (Kartunnen 2005), the two-level model has proved to be successful in designing computational parsers for the analysis and generation of morphologically complex languages, and many have been concerned with Arabic verb formation, in particular (Cf. for example, Beesley 1991, McCarthy 1993 and Kiratz 1994). Two-level morphology systems have also been used in various applications in machine translation programmes and computer-assisted language learning.

In the next sections, we attempt to give an overall picture of Arabic verb formation, though by no means can it be exhaustive in this communication, in a longer article, nor even in a whole book, given the notorious complexities of Arabic morphological processes.

2. 2. The basic Arabic verb-form

Traditional Arabic grammarians presumed that the verb in Arabic is drawn from what they called *al*

maṣdar, the 'source' noun. Sībawayh (I:6) says in this respect:

> *Verbs are heavier than nouns because nouns come first […]. Don't you see that the verb needs the noun, otherwise there wouldn't be any speech, while the noun may well do without the verb…?* [4]

In any case, the verbs in Arabic are built on the basis of a fixed number of *binyān*, 'moulds', or templates into which three-consonantal roots mostly – but also a few four-radical roots – are inserted. The tri-consonantal root morpheme *f ' l* , used by traditional Arabic scholars as a model, carries the concept of 'doing' or 'acting' and is thus used to stand for the act itself or the verb, *al fi'l* [5].

2.2.1. Root-and-Pattern morphology

The root *f ' l* allows the generation of three verb stems (*awzaan*) in the perfect tense (*al maaḍii*) according to the vowel, *a, u* or *i*, 'seated' on the middle consonant: *fa'ala* as in *kataba*, 'to write', *fa'ila* as in *šariba*, 'to drink', and *fa'ula* as in *karuma*, 'to be generous'. Because of its association with state, not action, the pattern *fa'ula* occurs much less than the two others.

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[4] My translation. Here, Sībawahi refers to the Arabic verb-less sentence whose equivalent in English, French and other languages requires the use of the copula. Sībawayhi's example here, **اللهُ إلـهُنا** , can only be 'Allah ***is*** our God' and 'Allah ***est*** notre Dieu'…

[5] It is as if we called the verb 'the deed' or 'the act' in English, and 'le fait' or 'l'acte' in French, because the basic pattern *fa'**a**la* used as a mould also means 'to do' and 'faire'.

It is worth bearing in mind that the morphological system in Arabic also generates a number of 'augmented' verb forms, called *maziid*, by means of the addition of affixes to the primary verb stem termed as a 'bare' form, *mužarrad*. For example, the prefixation of {*'ist-*} to the radical yields the *wazn* or pattern *'istaf'ala*[6] which is used to convey the overall meaning of request, as in *'istağfara* which means 'to ask for forgiveness'. The glottal syllable [*'a*], added as a prefix to *fa'ala*, transforms the concept of doing into that of 'causing to do', *'af'ala*, as in *'aðhaba* which means something like 'to cause to go', while the bare form of 'to go' is *ðahaba*. Another interesting pattern obtains with the infixation of the letter *alif*, which represents the long open rather front vowel [a:][7], between the first and second consonants of *fa'ala* yielding *faa'ala*. As indicated above with the verb *ḏaaraba*, this pattern is often used to convey the meaning of a mutual act: while *kataba* means 'to write', *kaataba* is 'to write to each other, exchanging letters'; *qatala* is 'to kill', but *qaatala* means 'to fight each other'.

The verb in the imperfect (*al muḍaari'*), in turn, is taken from the perfect with the addition of an inflectional prefix standing for the personal pronoun: *jaf'alu*,

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[6] The symbol ' is used to represent the Arabic pharyngeal voiced fricative the Arabic *'ayn*; and ' stands for the glottal plosive, *hamza*.

[7] Actually, the long vowel /aa/, often front in Arabic, occurs as fully back in the environment of emphatic or velarized consonants such as *ṣ* and *ḍ*, as in /*ṣaama*/, 'to fast', or /*qaḍaa*/, 'to decide, to judge'. The same phenomenon of 'vowel backing' assimilation 'spreads' to the following vowels in a verb like /*ḍaraba*/, 'to beat'.

meaning 'he does, he is doing or he will do' is also seen as an infinitive; *'aktubu* means 'I (will) write', *taktubu* 'you (will) write' and *naktubu* 'we (will) write', etc. But the imperfect is also characterized by a number of stems varying according to the vowel melody, i.e., which of the three short vowels /*a, u, i*/ is 'carried' by the middle radical consonant, and this latter is in tight relation to the general perfect pattern *fa'ala* which yields three moulds for the imperfect tense: *jaf'alu*, *jaf'ulu* and *jaf'ilu*, as in, respectively, *jaftaħu*, 'He opens', *jaktubu*, 'He writes', *jamliku*, 'He owns'. It must be noted here as well that, in the 3rd person singular, which represents the infinitive at the same time, as indicated above, the final vowel of the verb pattern is always /*a*/ in the perfect, *fa'ala*, and /*u*/ in the imperfect, *jaf'alu*.

The imperative mode is obtained by the drop of the personal pronoun morpheme attached as a prefix to the imperfect: *jatakallam(u)*[8] 'he speaks', for example gives *takallam* 'Speak!' But if the second radical of the stem is unvowelled (*saakin*), a glottal onset, consisting of what is known as a *hamza* followed by a vowel, is necessary in the imperative, for in Arabic a word never begins with a consonant cluster. Thus, *jal'ab(u)* gives *'il'ab* 'Play!', *jaktub(u)* yields *'uktub* 'Write!', and *jaḍrib(u)* gives *'iḍrib* 'Hit!'. Note that the vowel associated with the glottal stop is /*i*/ in the primary verb stems (tri-radical) except for *jaf'ulu* whose imperative begins with the

[8] The final vowel, here between brackets, is usually dropped in spoken CA or MSA, and all the more so in Colloquial Arabic. This general phenomenon occurs in what is called 'pause form'.

syllable /*'u*/ for the sake of vowel harmony. The augmented forms, on the other hand, do not need a glottal onset as the second radical is vowelled. Thus, *qaatil*, 'Fight!', and *ta'addab*, 'Behave!' from *juqaatil(u)* and *jata'addab(u)*, respectively, represent the imperative form when one person is addressed.

One feature worth mentioning about the imperative mode is that, unlike the two tenses, *fa'ala* and *jaf'alu*, the final radical is unvowelled in the 2nd person. masc. sing.; it is a *saakin*, giving a closed final syllable as in *'uktub*, 'Write!' But the 2nd pers. fem. sing., the dual and the masc. plural morphemes carry a long vowel, respectively, {*ii*}, {*aa*} and {*uu*}, e.g. *'uktubii*, *'uktubaa* and *'uktubuu*; the pronoun suffix for the fem. pl. is {*na*}, *'uktubna*; all five paradigms are rendered by a single form in English, 'Write!'

The participle forms are related to the verb forms as they are drawn from the stems following certain rules: the active participle has the pattern *faa'il* for all Form I verbs, as in *žaalis(un)* 'sitting'; the passive participle is *maf'uul(un)* → *maktuub*, 'written'. The derived forms (II to X) take the prefix *mu-* before the nominals. Form II, for example, has *mufaa'il(un)* in the active, as in *muraaqib(un)* 'controlling', but the passive participle is *mufaa'al(un)*, *muraaqab(un)*, 'controlled', the distinction being, for all augmented forms, in the use of the vowel *i* in the active and *a* in the passive before the third root consonant. The pattern *'istaf'ala*, for instance, would heave *mustaf 'il(un)* and *mustaf 'al(un)*, respectively.

To recapitulate on the way the basic tri-radical forms are organised, here is a table that illustrates the relations between the three forms, and the productivity of the verbal forms (*binyān*):

Perfect	Imperfect	Imperative
fa'ala	*jaf'alu*	*'if'al*
	jaf'ulu	*'uf'ul*
	jaf'ilu	*'if'il*
fa'ila	*jaf'alu*	*'if'al*
	jaf'ilu	*'if'al*
fa'ula	*jaf'ulu*	---

Table : The three bare verb stems in Arabic and related perfect, imperfect and imperative forms

In addition to these basic verb roots and the stems they generate according to morphological rules that appear to be quite regular, there are other Form I patterns which are seen as special but very common:

- those called 'weak' verbs, characterized by the use of 'weak letters' (*ħuruuf al 'illa*),*' alif*, *waaw* and *yaa'* as one (sometimes two) of the three radicals, which we have touched upon above;
- those verbs having the glottal plosive *hamza* as a radical consonant;

- those verbs in which the second radical (*'ayn al fi'l* or mid-consonant:) is geminated.

2. 2.2 Weak Verbs

The presence of the glides *waaw* and *yaa'*, and *'alif* as one or two of the radical roots makes such verbs morphologically more complex, weak or 'ill-formed'[9] in the traditional Arabic labelling. The paradigms obtained in their conjugation are governed by rules that are somewhat different from those applicable in strong verbs: while *kataba* retains its consonantal morpheme {ktb} in the tense forms, with the various templates (*awzaan*), and whatever the morphological paradigms resulting from affixation, the surface forms of 'assimilated' verbs, with the glide in C1 (*miθaal* in Arabic), *wa*C*a*C(*a*) like *wajada* (to find), display irregular forms in different representations. The perfect form *wajada*, 'He has found', surfaces as *yajidu* in the imperfect (He finds/ He will find), a paradigm in which the basic radical /w/ 'hides' away, the underlying imperfect stem being **yawjidu*[10]. However, 'assimilated' verbs with *yaa'* in C1, type *ya*C*i*C(*a*), like *ya'isa* 'to despair', definitely preserve the glide in all paradigms.

The status of *'alif*, the third 'letter'[11] traditionally associated with weak verbs, is rather different as it seems to only represent the surface form of the underlying radical, *waaw* in the case of hollow verbs such as *qaala*, 'to say', whose underlying form is C*awa*C(*a*) /qawala/,

[9] عِلّـة *'illa* means a defect or a disease in Arabic.

[10] It is quite interesting to note here that in today's colloquial Arabic, particularly in the Maghreb, the underlying /w/ in this type of verbs reappears in the imperfect: *yajidu*→[yə**w**jəd] 'He finds'; 'She gave birth to', *waladat*→[wəldət], but in the imperfect, *talidu*, 'She will give birth to…', is realized [tə**w**ləd] in many dialects.

[11] Actually, the letter *'alif* stands for a long open vowel.

and *yaa'* with the form C*aya*C(*a*), as in /baja'a/ →*baa'a*, 'to sell'. Indeed, w*aaw and yaa'* reappear in some paradigms in the imperfect and imperative of such verbs, but as long vowels, not as glides: e.g. *yaquulu* 'He says/ He will say', and *quuluu* 'Say!' (you masc.pl.); *yabii'u* 'He sells/ He will sell' and *bii'uu* 'Sell!'(you masc.pl.). But in the case of nouns or substantive forms, the underlying *waaw* and *yaa'* are maintained in the surface form as glides; i.e., *qawl* and *bay'*, respectively. Thus, this type of hollow verbs (*ajwaf* in Arabic), which have a surface realisation C*aa*C(*a*), are actually of the same CVCVC(V) pattern as other Form I verbs.

The same kind of behaviour is attested in defective verbs (Arabic *naaqiʂ*) ending in *'alif* [12]. Whereas weak verbs may have an underlying *waaw* or *yaa'* as any one of the three radicals, the letter *'alif* can only be found in mid-position, as in the example *qaal*, or in final position, as in *šakaa*, 'to complain' and *bakaa*, 'to cry'. Again, the final radical in these defective verbs surfaces as real glides in other paradigms such as *šakawtu* 'I complained' and *bakaytu* 'I cried', and as long vowels [u:] and [i:] in conjugations of the imperfect tense: *yaškuu* and *yabkii*. The behaviour of *'alif* allows us, therefore, to consider /w/ and / j / as the real radicals that characterize 'hollow' and 'defective' verbs in the underlying representation. Initially, *'alif* is only the written 'seat' that carries the *hamza* (the glottal stop) as in *'aðina*, 'to allow' and

[12] Two types of written *'alif* are considered in defective verbs: the usual *'alif* as in عفـا, 'to forgive', and another type called *'alif maqʂuura*, as in بكـى, 'to cry'.

'akala, 'to eat'. This puts such verbs into the so-called 'hamzated' verb category at which we shall take a quick look below.

2. 2. 3 Hamzated Verbs

Hamzated verbs, *mahmuuz* in Arabic, are regarded as constituting a particular class with the glottal plosive /'/ as of one the three radicals in the root morpheme, just like any other consonant. There has been some difference of opinion as to classifying these verbs in the weak type or in the strong type, but we personally incline towards the latter view, for in the Arabic phonemic system, the glottal plosive is considered as a fully distinctive unit, in addition to the fact that it is not a glide.

The *hamza* ء can be found in all three positions of the verb-root, as shown in these *fa'ala*-type instances:

	Perfect	Imperfect	Imper.	Participles A / P	
Initial	*'akala*	*ya'kulu*	*kul* [13]	*'aakil*	*ma'kuul*
Medial	*sa'ala*	*yas'alu*	*'is'al*	*saa'il*	*mas'uul*
Final	*qara'a*	*yaqra'u*	*'iqra'*	*qaari'*	*maqruu'*

Table 3. The three positions of the *hamza* in Form I verbs.

[13] It is interesting to note that, for the sake of an easier realisation, initial *hamza* is elided in the imperative. Actually, it is the whole syllable [**'***u***'**] that is dropped, the underlying form being /**'***u***'***kul*/, following the imperative paradigm **'***uCCuC*, as in **'***uktub*, 'Write!'.

As shown in the table, the three hamzated verbs (to eat, to ask and to read) follow the same rules governing sound verbs such as *kataba*, and display the same tense and mood patterns and the same active and passive participle forms.

It is interesting to note, however, that a number of hamzated verb-roots belong to the weak class at the same time and thus behave in irregular ways from the morphological point of view. The verb *ra'aa*, 'to see', for example, loses its glottal stop in imperfect and imperative conjugations: *yaraa* and *yarawna* (He sees; They see), and, through a process of deletion, the form is shortened to one syllable in the imperative 2nd pers.sing., *ra*.

2. 2. 4 Geminated verbs

Just as vowel length is phonemic in English, and thus capable of conveying meaning, consonant length, or gemination, is indisputably distinctive in Arabic. In the written form, it is represented by the use of the diacritic ˘, called *šadda*, usually placed over the consonant to be doubled. The Arabic word *šadda*, which itself comes from the geminated verb *šadda*, meaning 'to tighten' or 'to squeeze', is a label that rightly refers to the tension and intensity used in the production of doubled consonants. In the verb *madda*, for instance (to extend), the consonant /d/ is indeed produced with a kind of tense tightening of the tongue muscle. But, for phonotactic reasons, in a number of paradigm conjugations which require the suffixation of a morpheme starting with a consonant, particularly in the perfect, the gemination is split apart by the insertion of a vowel between the two consonants, as in *šakaktu*, 'I doubted', as opposed to

šakka, 'He doubted'. The imperative, too may need such gemination split, as in *'umnun 'alaynaa*, 'Bestow your grace on us!', from the verb *manna*. An augmented form of geminated verbs yields patterns like *šakkaka* which conveys emphasis in the act of doubting.

The next section is concerned with this and other types of addition, an important facet of Arabic verbal morphology, which is often associated with morpho-semantic fields.

2. 3. Augmented verb-forms

What has been termed 'augmented' forms by most Orientalists is in fact the tri-consonantal base verb onto which affixes are put to generate a compound meaning. The *maziid* patterns obtained, are then more complex 'measures' or *awzaan*, but semantically related to the base form. Traditional grammarians took it for granted that every addition to a *mužarrad* verb form exists for the purpose of additional meaning. Pattern IV, *'af 'ala*, for instance, is regarded as characterized by a causative value. As already mentioned, *'af 'ala* may mean 'to cause to do', as in *'ažlasa* which is 'to make someone seated', while the base form *žalasa* is 'to sit'. It is worth noting here that if the bare verb is intransitive, the affixation of the prefix {*'a-*} turns it into a transitive; but we obtain a double transitivity if the bare form is already transitive and thus requires an object; e.g., *kataba risaalatan*, 'He has written a letter', as contrasted with *'aktabahu risaalatan*, 'He made him write a letter'[14].

[14] The double transitivity in the example is highlighted here by showing vthe two objects in bold type.

Other verbs of the pattern *'af 'ala*, however, may convey other meanings; this is the case of verbs built from nouns prefixed by {*'a-*}, not from base verbs. For example, very interestingly, *'aʂbaħa*, *'abħara* and *'a'šara* take on pattern IV *'af 'ala* thus: *'a+ʂabaaħ* 'morning', *'a+baħr* 'sea' and *'a+'ašara* 'ten' to mean respectively, 'to begin the day', 'to go into the sea' (to sail) and 'to reach number ten'.

We have already come across two other *maziid* patterns in 2.2 above: *faa'ala* (Form III) may express reciprocity and participation, as in *šaaraka* 'He has participated'. Other patterns are regarded as derived form already augmented forms (Cf. Larcher's 'surdérivation sémantique', 1994). The pattern *'istaf'ala* (Form X), thought to be derived from the augmented verb *'af 'ala*, suggests request or invitation: *'istaqbala* may mean 'to welcome' and *'istaʈla'a* 'to search for information'.

Another pattern worth mentioning for its tight relationship with meaning is Form II, *fa''ala*, with gemination in C_2. Among a number of semantic forms, this medial gemination may suggest emphasis on the act, as in *fattaħa l 'abwaaba* which may mean 'He vigorously opened all the doors' as opposed to *fataħa*, the normal way of opening a door; from the base form *qatala*, 'to kill', *qattala annaml*, would mean 'to destroy a great number of ants'.

All in all, each of these patterns, and others that we have no room to describe in this short paper, convey at least two or three meanings related to the base form. The overall point to retain is that the addition of one, two

or three affixes, from a limited set of particles[15], to the basic *mužarrad* Form I pattern generates a great number of patterns and determines the semantic values associated with the various *maziid* 'augmented' forms, though the addition or change in meaning is not systematic, nor is it always predictable (Cf. McCarthy 1981).

2.4 The Arabic passive voice

The basic model pattern for the passive voice in Arabic is *fu'ila*, meaning 'It has been done/It was done', and bearing a vowel melody used as a mould to show the overall fixed pattern of vowelization to be applied for all three-root verbs in the perfect tense; its counterpart in the imperfect is *yuf 'alu*. One says *kutiba* / *yuktabu* to mean 'It was written'/'It is (or it will be) written', respectively. The passive of augmented forms is characterized by the same regular vowel melody *u-i-a* in the perfect yielding, for example, *'uf'ila* from Pattern IV *'af 'ala*, e.g. *'uχriža* which means 'He was made (or forced) to go out'. 'He was welcomed' would have the form *'ustuqbila.* The vowel melody in the imperfect tense is *u-a-u* giving, for instance, *juχražu* and *justuqbalu*. Thus, vowel infixation is a phonological reflex in Arabic passivization, and, as Hallman (2001) says, "Passivization in CA is expressed through alteration of the vowel melody of a verb".

2.5 Meaning and the Arabic verb

The three basic so-called 'bare' forms (*mužarrad* in Arabic) have also been considered in terms of semantic

[15] These are ten letters grouped in the acronym سألتمونيها (meaning 'you have asked me about it'.

values, as largely documented by traditional Arabic grammarians:

- The pattern or 'wazn' *fa'ala* usually reflects verbs of action like *kataba* or *haraba* 'to run away', though we can always find examples which do not confirm to the rule.
- Much rarer, the pattern *fa'ula*, on the other hand, conveys the value of state or quality, as in *kabura* 'to become older' and *ħasuna* 'to be nice'.
- The pattern *fa'ila* is sometimes referred to as a 'mean' verb, that is, semantically corresponding to something in-between. Following a few Arab grammarians, such as Al-Astarâbâdhî and Az-Zamakhsharî, Larcher (2003)[16] situates *fa'ila* between action and state[17]. A verb like *'alima*, meaning 'to know', may be taken as a good example to illustrate this intermediary semantic representation.

3. Conclusion

We would like to emphasize the fact that, on the face of it, such a complex system of verb generation is part and parcel of Arab native speakers' competence, although we have to admit that the standard form of Arabic is no longer acquired as a mother tongue by any portion of the community, and to recognize the hardly measurable linguistic variation in the wide Arab world.

[16] In Dichy, J. *Revue des mondes musulmans et de la Méditerranée* [En ligne], N°115-116 - *La Syrie au quotidien. Cultures et pratiques du changement*, décembre 2006.

[17] Larcher (2003:24) "…le dédoublement de *fa'ila* en un verbe d'action et un verbe d'état".

But in spite of this, today's Arabic dialectal varieties are but surface realizations of an underlying system deeply rooted in native speakers' linguistic background and clearly manifest in their unconscious ability to match roots with stems and vice-versa, for example, that is, to generate modifications in the stems according to tenses, moods and voice, or to make use of the various affixes related to subject, person, number and gender. To show the importance of the verb-root in Arabic word formation, we would like to end our communication by quoting Yaghi and Yagi (2004), two computational linguistics researchers who developed a stem generation engine to specify rules for Arabic stem generation on the basis of morphological parsers and analysers. When considering how Arabic roots undergo transformations, they rightly agree to say:

> *Without the root, it is difficult to identify a word's morphosemantic template, which is necessary for pinpointing its meaning, or its morphosyntactic pattern, which is essential for realising properties of the verb,such as its tense, voice, and mode, and its subject's number*

We would like to conclude by emphasizing the fact that Arabic verb formation is based on complex and very rich morphological processes, but at the same time all patterns stem from a root-morpheme combined with a vowel melody. Such morphological processing has been an important incentive for the design of computer-based linguistic parsers and translation programmes.

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