

Standard Arabic Phonological and Morphological Tools of Morpheme-Formation, Derivation and Inflection

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أدوات اللغة العربية الفصحى الصوتية والصرفية
في صناعة اللفظ المجرد والاشتقاق والتصريف
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Abstract

Standard Arabic employs a set of phonological and morphological tools in forming morphemes, and in derivation and inflection. These tools comprise patterns, prefixes and suffixes (which are rare), proclitics, enclitics, discontinuous morphemes, and zero morph. Patterns are considered the major tools in Arabic morpheme-formation, derivation and inflection. They are classified in three categories: phonological patterns that generate morphemes (mainly morphemic past tense verbs), patterns that derive new lexical categories or new meanings for the same lexical categories, and patterns that inflect words to other words of the same lexical category, but the inflected words have different syntactic distribution. Derivational and inflectional patterns are replacive in that they replace morpheme-formation patterns in the processes of derivation and inflection.

Keywords: Arabic morphology, derivation, inflection, patterns, proclitics, enclitics, discontinuous morphemes.

1 Introduction

The present study falls in six sections. Much of the discussion in it focuses on patterns since these are the major tools employed in morpheme-formation, derivation and inflection. Derivation operates on morphemes. Inflection operates on morphemes or on derivatives. One can not first inflect a word then derive it. This morphological directionality goes as follows:

morpheme-formation → derivation → inflection

The term **morpheme-formation** is used in the present study to refer to the phonological processes by which morphemes are formed according to the phonotactics of the language. The term **word-formation** refers to the set of morphological processes, including derivation, that are employed in forming new lexical items. Morphology studies the structure or forms of words, primarily through the use of the morpheme construct. It comprises word-formation and inflection. (On the divisions of morphology and processes of word-formation, see Aronoff 1976, Bauer1983, Matthews 1993, Yule 2006.)

2 The Arabic verb and verbal noun

Before exploring the Arabic tools of derivation and inflection, we have to determine the **base** (the free morpheme) on which derivation and inflection operate . In English, for example, it is easy to sort out the free morpheme and the affix(es) attached to it in such

words as *de-frost*, *manage-ment*, *inter-nation-al*. In Arabic, however, there is no way to determine the base and the derivative in such pairs as *qatal* “killed”: *qatl* “killing”, *qaal* “said”: *qawl* “saying”, *ḥalam* “dreamt” : *ḥulum* “ a dream ”, where no affixes are used. This indeterminacy led to a linguistic argument between Basra grammarians and Kufa grammarians of the 8th century AD. (Basra and Kufa are Iraqi cities in which these two schools of grammar were established.) Basra grammarians argue that the verbal noun (ʔal-maṣḍar ʔal-ʔaṣliyy) is the base from which the morphemic past tense verb is derived since the verbal noun signals action or state, whereas the verb signals action or state and tense. The one with less features, i.e. the verbal noun, should be the base. Conversely , Kufa grammarians argue that the verb is the base from which the verbal noun is derived, (for a full discussion of this argument, see Ibnu Al-Anbaari, 1998: vol. 1, problem 28).

I may add five more features that distinguish between the verb and the verbal noun. Firstly, the Arabic surface past tense, present tense, and imperative verbs always carry with them one or two pronominal clitics except the imperative singular masculine verb, which carries no clitic, e.g. *daras-tum* “you (pl, masc) studied”, *t-adrus-uu-(na)* “you (pl, masc) study”, *ʔudrus-uu* “ Study! (imperative, pl, masc)”. Arab grammarians allege that the short vowel [a] (ʔal-faṭḥa) at the end of the past tense 3rd person singular verb is a marker indicating that the verb is indiclinable (mabniy). I, myself, analyze it as a pronominal enclitic indicating 3rd person, sing, masc, nom. Compare *ḥamal-naa* “ we carried”: *ḥamal-a-naa* “ he/it carried us”,(the enclitic-*naa* is a subject, an object and a

possessive pronoun). The verbal noun does not carry subject clitics with it. In this case, one may argue that the verbal noun is the base. Secondly, the original word-medial and word-final semivowel consonants [w,y] always show up in the surface representation of the verbal noun, but they become the long vowel [aa] in the surface representation of the past tense trilateral verb. Consider the following examples:

qawl “saying” : *qaal* “said”

sayr “walking” : *saar* “walked”

dunuww “approximation” : *danaa* “approximated”

ramy “throwing” : *ramaa* “threw”

No Arabic morphemic past tense verb contains less than three consonants, one of which may be a semivowel consonant posited in the underlying representation of the verb and shows up only in the initial position of the surface representation of the past tense verb, e.g. *wahab* “granted”, *yaʔis* “renounced”. In this case, one may argue that the verbal noun is the base. Thirdly, some nouns, verbal nouns, and adjectives contain an extra consonant or extra consonants that do not show up in their corresponding verbs. The consonant [m] shows up in the noun of place *maskan* “house”, which is derived from the verb *sakan* “dwelled”. The consonants [m , t] show up in the verbal noun *maḥabbat* “love”, which is derived from the verb *ḥabb* “loved”. In this case, one may argue that the verb is the base. Fourthly, some verbs are chronologically derived from their corresponding nouns since, we assume, the nouns were formed first, e.g. *šams* “sun”: *šamas* “became sunny”,

qamar “moon”: *qamir* “became moony”. (In English conversion, it is often extremely difficult to determine the base and the converted form. For example, both *Oxford* and *Webster* dictionaries list first *change* as the base verb and *change* as a converted noun, but they list first *work* as the base noun and *work* as a converted verb.) Fifthly, the verb, not the verbal noun, is the head of the sentence (see Jackendoff, 1977). Once a speaker uses an intransitive verb, an explicit or implicit subject must go with it to generate an SV sentence, and if he uses a monotransitive verb, an explicit or implicit subject and an object must go with it to generate an SVO sentence. Transforming the verb of the sentence into a verbal noun will transform the sentence into a noun phrase, cf. *ǰara l-maaʔu* “the water flowed”: *ǰarayaanu l-maaʔi* “the flowing of water”.

In a field study made by me (Al-Najjar, 1998) on 40 subjects (20 of whom are first grade and third grade primary schoolboys, 10 are literate adults, and 10 are illiterate adults) on whether the verb or the verbal noun is the base in derivation. The responses elicited from the population went as follows: 65.5% of the population made the past tense verb as the base, 25.08% made the verbal noun as the base, 4.42% made the imperative verb as the base, and 5% do not know.

There is also inconsistency among Arab compilers of Arabic dictionaries in fixing lexical entries. In his dictionary *Al-Sahaah* , Al-Jawhari (died 1005 AD) made the **root** (the consonants of the morpheme) the lexical entry from which the verbal noun is first formed, then the past tense verb is derived, or in other instances the past tense verb is first

formed, then the verbal noun is derived. In his dictionary *Lisaanu l-Arab* , Ibnu Manthuur (died 1311 AD) made the root the lexical entry from which the past tense verb is first formed, then the verbal noun is derived, or in other instances the adjective is first formed, then the verbal noun and the past tense verb are derived. In his dictionary *Al-Qaamuusu l-Muhiit*, Al-Fayruuzabaadi (died 1414 AD) ignored the root. He made the past tense verb the lexical entry from which the verbal noun is derived. In other instances, he made the verbal noun the lexical entry from which the past tense verb is derived. In their dictionary *Al-Mu'jamu l-Wasiit* (1960), Aniiis, et al., made the past tense verb the lexical entry throughout the dictionary. This dictionary is accredited and issued by the Egyptian Academy of the Arabic Language. It adopts the Kufa approach in making the past tense verb the base.

We now move to the Arabic phonological and morphological tools and begin with **patterns**. We will take the past tense 3rd person singular masculine verb the base since this form of the verb is the least marked and since many verbal nouns contain extra consonants not found in their corresponding verbs. The verbal noun is crucial in fixing the underlying representation of the past tense verb if the verbal noun contains one of the semivowel consonants [w, y] in medial or final position.

3 Patterns

Patterns are the most productive tools in Arabic derivation and inflection. (In English, affixes are the most productive tools in derivation and inflection.) A pattern is a sequence of fixed vowels or vowels and consonant(s) interposed between and sometimes before

and after the consonants of the root or the derived word to generate, derive, or inflect a morpheme or a word. (Some morphologists erroneously analyze these patterns as infixes.) The pattern constitutes the phonological or morphological rule which operates on the root.

Here are two examples illustrating the relationship between the root and the pattern. We will ignore the markers at the end of words since these are not part of the patterns:

Input pattern CaCaC

Root k-t-b

Output katab "wrote"

Input Pattern CaCiC

Root š-r-b

Output šarib "drank"

There are three classes of patterns: patterns for morpheme-formation, patterns for derivation, patterns for inflection. We will explore each in an independent section.

3.1 Morpheme-formation patterns

These are phonological patterns, which generate morphemic verbs and nouns not derived from verbs such as *qalb* "heart". We will not deal with pronouns, determiners,

aplastic verbs "ʔal-ʔfʕaalu l-jaamida " such as *biʕsa* " how wretched!", and other lexical categories which have no productive patterns for derivation or inflection.

The patterns that generate the morphemic past tense verbs are four : three for the trilateral verbs and one for the quadrilateral verb. We will not deal with the rare morphemic pentaliteral verbs (containing five consonants) and morphemic hexaliteral verbs (containing six consonants). The three patterns of the trilateral verbs are:

CaCaC as in *katab* " wrote"

CaCiC as in *šarib* " drank"

CaCuC as in *kabur* " became greater"

The last pattern always generates intransitive verbs. In these three patterns, the penultimate vowel is always [a], and the ultimate vowel is one of [a, i, u]. These patterns can be conflated in the following schema:

$$\text{CaC} \left\{ \begin{array}{c} \text{a} \\ \text{i} \\ \text{u} \end{array} \right\} \text{C}$$

The pattern of the quadrilateral verb is:

CaCCaC as in *zamjar* " roared"

There are three significant phonotactic constraints on the structure of the Arabic verb (and on any other word). The first constraint states that no verb or word begins with a vowel. That is, there is always an onset, a consonant at the beginning of the verb or the word. The second constraint states that no Arabic verb or word (not a loanword) begins with a consonant cluster. This constraint applies to Standard Arabic, but it is sometimes violated in vernacular Arabic where a two-consonant cluster is permitted, cf. *kitaab* "book" (standard): *ktaab* (vernacular). The third constraint states that no underlying verb contains less than three consonants, cf. *qawal* "said" (underlying) : *qaal* (surface). The deleted consonant [w] shows up in the corresponding verbal noun *qawl* "saying". Some verbs, such as *madd* "extended" end in a geminated consonant whose underlying representation is *madad*. The geminated consonant breaks down into two identical consonants in the adjective *madiid* "extensive". Germination means pronouncing the consonant in more than double its duration when it is ungeminated, (see Al-Ani, 1970). The verb *madd* is monosyllabic, but it becomes disyllabic when the enclitic *-a* "he/it" is attached to it yielding *mad.d-a* "he extended". The same applies to nouns ending in a two-consonant cluster such as *fahd* "cheetah" which becomes disyllabic once a case marker is suffixed to it as in *fah.du* (nominative). Standard Arabic exhibits three forms of syllable:

CV : *fii* "in", *laa* "no, not"

CVC: *min* "from", *lan* "will not"

CVCC: *darb* "road", *nafs* "soul, self"

3.2 Derivational patterns

Derivation (ʔal-ʔištiqaaq) is a lexical process whereby a new lexical category is derived from another lexical category such as deriving a noun or an adjective from a verb or deriving an adjective from a verb, or deriving a new meaning from the same lexical category such as deriving a verb from a verb or an adjective from an adjective. Derivation, unlike inflection, has no bearing on the syntactic structure of the other constituents of the sentence.

Derivational patterns operate on verbs to derive other verbs, verbal nouns, nouns, or adjectives. In reality these patterns are replacive in that they replace the patterns that generate the verbs. Here is an example:

katab " wrote"

CaCaC

kitaab " book"

CiCaaC

In the above example, the vowels of the noun pattern have replaced the vowels of the verb pattern. Some replacive patterns contain a consonant or consonants that do not show up in the corresponding verb. Consider the following example:

xadam " served"

CaCaC

λ staxdam "employed"

λ istaCCaC

Derivatives obtained by patterns are of two types:

Direct derivative: This is obtained directly from the morphemic verb. The noun *xaadim* "servant" is directly derived from the morphemic verb *xadam* "served".

Indirect derivative: This is obtained from another derivative. The verbal noun *λ stixdaam* "employing" is derived from the derived verb *λ staxdam* "employed", which is, in turn, derived from the morphemic verb *xadam* "served".

Verb patterns of the triliteral verb

The past tense triliteral verb, which is the base, has fourteen patterns by which derived or inflected verbs are obtained. These are listed below together with the patterns that generate the base verb. We will use square brackets as a notation for a geminated consonant:

Patterns of the past tense verb : CaCaC, CaCiC, CaCuC

Patterns of the derived or inflected verbs:

1. λ istaCCaC : *λ sta \mathcal{S} mal* "used"

2. ?iCtaCaC: ?xtaraq " penetrated"
3. ?aCCaC: ?a?bat "proved"
4. ?inCaCaC: ?infaj?ar " exploded"
5. Ca [CC]aC: harrab "smuggled"
6. taCa[CC]aC: tanakkar "disguised"
7. CaaCaC: qaatal " fought"
8. taCaaCaC: taqaatal " fought with each other"
9. ?iCCa[CC]: ?swadd "became black"
10. ?iCCaa[CC]: ?swaadd " became black gradually"
11. ?iCCawCaC: ?xšawšan " became crude"
12. ?iCCanCaC: ?hlankak " became pitch dark"
13. ?iCCanCaa: ?hbantaa " its belly swelled"
14. ?iCCa[ww]aC: ?lawwad " became hard and severe"

Verbs obtained by the last four patterns are rare. The prothetic glottal stop at the beginning of patterns (1-4, 9-14) is inserted to inhibit an onset with a vowel. It is a phonotactic constraint. (For the functions and syntactic distribution of these patterns, see Wright 1975:vol.I, 29-49, and Al-Najjar, forthcoming.)

A verb is said to be derived if it preserves the syntactic distribution of its base, and inflected if it acquires a new syntactic distribution. For example, the intensive transitive verb *kassar* "smashed" is derived from its corresponding transitive verb *kasar* "broke", while the reflexive intransitive verb (ʔal-fiʔlu l-muʔaawiʔ) *ʔankasar* "broke, intransitive" is inflected from the same transitive base *kasar*.

There are also patterns for deriving verbal nouns, nouns, nouns of place, nouns of time, adjectives, agent adjectives (corresponding to English present participial adjectives), patient adjectives (corresponding to English past participial adjectives), intensive adjectives (expressing exaggeration), diminutive nouns and adjectives (expressing love, scorn, short time, or small size). Lack of space does not allow going into the details of these patterns. (A detailed account of these patterns and their functions will be found in my book *Al-Ishtiqaaqu wa-l-Tasriifu l-Arabi* (Arabic Derivation and Inflection), but I will give a list of the numbers of these patterns right after exploring inflection.)

Verb patterns of the quadrilateral verb

The past tense quadrilateral verb, which is the base, has three patterns that inflect the verb to a reflexive intransitive verb. These are listed below together with the pattern of the base verb:

Pattern of the past tense verb: CaCCaC

Patterns of the inflected verbs:

1. taCaCCaC : *taġamhar* " rallied"
2. ʔiCCaCa[CC]: *ʔtmaʔann* " felt assured"
3. ʔiCCanCaC: *ʔħranġam* " crowded"

3.3 inflectional patterns

Like derivation, inflection (ʔal-taṣriif) is a lexical process, but inflection has a bearing on the syntactic structure of the sentence. For example, when an Arabic noun is inflected to the dual masculine, its adjective(s) must be inflected to the dual masculine, and if this noun occupies the subject slot, its following verb must be inflected to the dual masculine. In other words, inflection partly determines the syntactic structure of the sentence.

Like derivational patterns, inflectional patterns are replacive. They operate on verbs, and a class of nouns and adjectives which are inflected to the so-called **broken plural**

(*jamʕu l-taksiir*) by breaking down the phonological structure of the singular and reconstructing it.

Arabic past tense verbs, which are the base, are inflected to the present tense. The imperative verb is inflected from the present tense, not from the past tense verb. The patterns of the present tense trilateral verb are three. We will list the patterns of the 3rd person singular masculine verb:

y-aCCaC as in *y-ašrab* " he drinks"

y-aCCiC as in *y-arsim* " he draws"

y-aCCuC as in *y-aktub* " he writes"

The penultimate vowel is always [a], and the ultimate vowel is one of [a,i,u]. These can be conflated in the following schema :

$$y-aCC \left\{ \begin{array}{c} a \\ i \\ u \end{array} \right\} C$$

The surface present tense verb always carries a proclitic indicating person, person and gender, or person and number.

The pattern of the present tense quadrilateral verb is: y-uCaCCiC as in *y-uzamjir* " it roars".

The imperative trilateral singular masculine verb, which is unmarked for gender and number, has three patterns:

ʔiCCaC : inflected from present tense verbs whose ultimate vowel is [a] as in *y-ašrab*

" he drinks" : *āšrab* " Drink!".

ʔiCCiC : inflected from present tense verbs whose ultimate vowel is [i] as in *y-arsim*

" he draws" : *ārsim* " Draw!".

ʔuCCuC : inflected from present tense verbs whose ultimate vowel is [u] as in *y-aktub*

" he writes" : *āktub* " Write!".

The ultimate vowel of each imperative pattern is identical to the ultimate vowel of the corresponding present tense pattern. The glottal stop at the beginning of the above patterns is prothetic to inhibit a vowel onset.

The pattern of the imperative quadrilateral verb is:

CaCCiC as in *y-udaħriĵ* " he rolls": *daħriĵ* " Roll!"

The following example illustrates a pattern that inflects a noun to plural. Any singular noun which is of the pattern CaCC has its plural pattern CuCuuC, e.g. *darb* " road" : *duruub* "roads", *nafs* " soul, self": *nufuus* " souls, selves", *qalb* " heart": *quluub* " hearts".

If a singular noun has the pattern CaCC, but its plural does not conform to the **analogical**

pattern (?al-waznu l-qiyaasiy) CuCuuC, its plural is said to be **unalogical** (samaaSiyy).

The noun *kalb* "dog" which has the same pattern of *qalb* " heart" is inflected to the unalogical plural *kilaab* "dogs" instead of the analogical plural *kuluub*.

I have collected the following numbers of patterns used in forming morphemes, derivation and inflection:

1. patterns for verb formation, verb-verb derivation and verb inflection :71
2. patterns for deriving verbal nouns : 64
3. patterns for deriving nouns of place and time :31
4. patterns for deriving nouns of instrument : 44
5. patterns for deriving names of craftsmen and professionals : 11
6. patterns for deriving names of institutions and administrative formations: 20
7. patterns for deriving adjectives : 13
8. patterns for deriving agent adjectives : 10
9. patterns for deriving patient adjectives : 10
10. patterns for deriving intensive adjectives : 10
11. patterns for deriving diminutive nouns and adjectives: 9
12. patterns for inflecting nouns and adjectives to the broken plural : 47

Of these patterns, 71 are multifunctional. That is, any one of these patterns is used to achieve more than one function. For example, the pattern CaCiiC is used to derive a singular noun, e.g. *ṭabiib* " physician", to inflect a noun to plural, e.g. *ṭabd* "slave":

ṭabiid "slaves", to derive an adjective, e.g. *ḵamiil* "beautiful", to derive a patient

adjective, e.g. *qatiil* " (the) murdered (person)", and to derive an intensive adjective, e.g. *ʕaliim* "all knowing", (for more details on the functions of Arabic patterns, see Hassan 1976, Al-Dajani 1983, Al-Dhaamin 1991, Al-Najjar, forthcoming).

4 Bound morphemes

Arabic bound morphemes used in derivation and inflection comprise prefixes, suffixes, proclitics, enclitics, discontinuous morphemes, zero morph, case markers, and mood markers. We will briefly review each of these bound morphemes.

Prefixes

Arabic does not exhibit derivational prefixes. There is one derivational morph *laa* "no, not" which is originally a free morpheme, but it has been used recently as a prefix in such nouns as *laa-ʕunf* "nonviolence", *laa-filiz* "nonmetal", and adjectives such as *laa-ʕaxlaaqiyy*, "immoral", *laa-ʕinsaaniyy* "inhuman".

Inflectional prefixes are the proclitics attached to present tense verbs. These will be reviewed shortly.

Suffixes

There is one derivational suffix *-iyy* which is used to derive adjectives from nouns, e.g. *ʕadab* "literature": *ʕadab-iyy* "literary", *ʕilm* "science" : *ʕilm-iyy* "scientific".

Inflectional suffixes are used with nouns and adjectives to signal gender, number, and case. They are:

-at : a suffix inflecting a masculine noun or adjective to feminine, e.g. *ʕabiib* "male physician" , *ʕabiib-at* "female physician", *baarid* (masc.) " cold": *baarid-at* (fem.)

"cold". This suffix also inflects a plural noun to the singular feminine. The logic of number states that the singular is inflected to the plural, but here we have an odd case. There is a class of Arabic nonhuman nouns called **unit plural nouns**. These nouns are semantically plural but syntactically singular masculine, e.g. *haaḏa l-ḥamaam-u yaṭiir-u ba ḥiidan* "lit.* this pigeons flies far". Such nouns are inflected to the singular feminine by attaching the singular suffix *-at* to them, cf. *haaḏihi l-ḥamaam-at-u taṭiir-u ba ḥiidan* " lit. this pigeon flies far". In English, there is also a class of nouns borrowed into English whose plural form is inflected to the singular by attaching a suffix to the plural form. The plural nouns *data* (from Latin), *phenomena* (from Greek) both phonetically end in a schwa [ə]. Barring spelling, the former noun is inflected to the singular by attaching the suffix *-m* to it to obtain *datum*, and the latter noun by attaching the suffix *-n* to it to obtain *phenomenon*.

-aa: a nominative suffix inflecting a singular noun or adjective to the dual, e.g. *mudarris* "teacher": *mudarris-aa* "two teachers".

-ay: an accusative and genitive suffix inflecting a singular noun or adjective to the dual, e.g. *mudarris-ay* "two teachers".

-uu : a nominative suffix inflecting a singular noun or adjective to the plural masculine, e.g. *mudarris* " teacher" : *mudarris-uu* "teachers".

-ii : an accusative and genitive suffix inflecting a singular noun or adjective to the plural masculine, e.g. *mudarris-ii*.

-*aat* : a suffix inflecting a noun or adjective to the plural feminine, e.g. *bint* "girl, daughter" : *ban-aat* " girls, daughters".

-*ni*: a suffix appearing at the end of a dual noun or adjective if it is not an annexed noun or adjective in the genitive construct, cf. *muhandis-aa-ni* "two engineers": *muhandis-aa l-binaayat-i* " the building's two engineers". This suffix is deleted here for ease of articulation.

-*na*: a suffix appearing at the end of a plural masculine noun or adjective if it is not an annexed noun or adjective in the genitive construct, cf. *muhandis-uu-na* "engineers": *muhandis-uu l-binaayat-i* " the building's engineers".

The above suffixes have other morphological functions. Lack of space does not allow going into the details of these functions.

Clitics

Arabic clitics are subject bound pronouns affixed obligatorily to surface past tense, present tense, and imperative verbs. These clitics may be classified in three categories : enclitics, proclitics, and discontinuous morphemes.

Enclitics

Enclitics are suffixed to the past tense and imperative verbs. These are given in the following table:

Past1st personSing: *katab-tu* " I wrote"Pl: *katab-naa* "we wrote"2nd personSing, masc: *katab-ta* " you wrote"Sing, fem: *katab-ti* " you wrote"Dual: *katab-tum-aa* "you wrote"Pl, masc: *katab-tum* "you wrote"Pl, fem: *katab-tunna* " you wrote "

ʔuktub-φ

ʔuktub-ii

ʔuktub-aa

ʔuktub-uu

ʔuktub-na

"Write!"

3rd personSing, masc: *katab-a* " he wrote"Sing, fem: *katab-at* " she wrote"Dual, masc: *katab-aa* " they wrote"Dual, fem: *katab-at-aa* "they wrote"Pl, masc: *katab-uu* "they wrote"Pl, fem: *katab-na* "they wrote"**Proclitics**

Proclitics are prefixed to the following forms of the present tense verbs:

1st person

Sing: *ʔ-aktub* “ I write”

Pl : *n-aktub* “ we write”

2nd person

Sing, masc : *t-aktub* “ you write”

3rd person

Sing, masc: *y-aktub* “he writes”

Sing, fem : *t-aktub* “ she writes”

The proclitic *t-* has two functions.

Discontinuous morphemes

The Arabic discontinuous morpheme consists of a proclitic and an enclitic. The enclitic can not show up unless the proclitic shows up. Discontinuous morphemes appear with the following functions of the present tense verb.

2nd person

Sing, fem: *t-aktub-ii-na*

Dual: *t-aktub-aa-ni*

Pl, masc: *t-aktub-uu-na*

Pl, fem: *t-aktub-na*

3rd person

Dual, masc : *y-aktub-aa-ni*

Dual, fem : *t-aktub-aa-ni*

Pl, masc: *y-aktub-uu-na*

Pl, fem : *y-aktub-na*

The above proclitics indicate person and gender, except in the 2nd person singular feminine and 2nd and 3rd person plural feminine where the proclitic indicates person. The above enclitics indicate number, except in the 2nd person singular feminine and 2nd and 3rd person plural feminine where the enclitic indicates gender and number. The discontinuous morpheme *t-aa* has two functions: it indicates 2nd person dual and 3rd person dual feminine. The suffixes *-na,-ni* at the end of the verbs, except the enclitic at the end of the plural feminine, are indicative mood markers. They are deleted when the verb is in the subjunctive or jussive mood, cf. *yaktubuu-na* “they write”, *lan yaktubuu* “they will not write”, *lam yaktubuu* “they did not write”.

Zero morph

A few derived or inflected words are obtained by preserving the phonetic and orthographic forms of the base. For example, the noun *ʔafʕaa* "snake" has the converted past tense verb *ʔafʕaa* "became evil". The verb *ranaa* “gazed” becomes the noun *ranaa* “a beautiful person or thing at whom or at which one gazes”. The plural masculine adjective *ʕarḥaa* “wounded males” is inflected to the plural feminine *ʕarḥaa* “wounded females”. In the above examples, derivation and inflection are effected by a zero morph. Many nouns are converted into adjectives by zero morphs.

Case markers and mood markers

Arabic exhibits three cases for nouns, adjectives, some pronouns and determiners. The three cases are nominative, accusative, and genitive. Case markers are suffixes attached mainly to declinable nouns, adjectives, the dual relative pronouns *ʔallaḏaani* (masc),

ʔallataani (fem), and the dual demonstrative determiners *haaḏaani* (masc), *haataani* (fem).

The Arabic past tense and imperative verbs are indeclinable to mood (mabniyya). Only the present tense verb is declinable to the three moods: indicative, subjunctive, and jussive. Mood markers are suffixes attached to present tense verbs.

The Arabic vowel inventory comprises the three short vowels [i,a,u], their long counterparts [ii, aa, uu], and the diphthongs [aw,ay]. The short vowels are used as suffixes indicating case. The long vowels and the diphthong [ay] are used to express both case and number. The diphthong [aw] is not used as a case marker.

The indicative mood is indicated by the short vowel [u] attached to the end of the present tense verb or by the presence of the suffixes *-na* ,*-ni* at the end of the present tense verb. The subjunctive mood is indicated by the short vowel [a] attached to the end of the present tense verb or by deleting the suffixes *-na,-ni* from the end of the present tense verb. The jussive mood is indicated by a zero suffix or by deleting the suffixes *-na,-ni* from the end of the present tense verb. The long vowels and the two diphthongs are used as suffixes attached to verbs to indicate number, or number and gender.

5 Mixed formations

Many derived forms are obtained by simultaneously applying derivation and inflection and by using patterns and affixes. The feminine noun *mudarrisat* “female teacher” is obtained by the following processes. The monotransitive verb *daras* “studied” is inflected to the ditransitive verb *darras* “taught” from which the masculine agent noun *mudarris* “male teacher” is derived by the pattern muCa[CC]iC. This noun is inflected to the

feminine *mudarris-at* “female teacher” by attaching the feminine suffix *-at* to the masculine noun. The masculine noun *mudarris* is inflected to the nominative nongentive plural *mudarris-uu-na* by attaching it to the nominative plural suffix *-uu* and the nongentive suffix *-na*. The feminine noun *mudarrisat* is inflected to the plural *mudarrisaat* by lengthening the ultimate vowel.

The verbal noun *ʔištiraakiyyat* “socialism” is obtained by the following processes. The transitive verb *šarak* “associated” is inflected to the intransitive verb *ʔištarak* “participated in” from which the verbal noun *ʔištiraak* “participation” is derived by the pattern *ʔiCCiCaaC*. The adjectival suffix *-iyy* is attached to the verbal noun to obtain the adjective *ʔištiraak-iyy* “socialist”. The inflectional feminine suffix *-at* is attached to the adjective to obtain the verbal noun *ʔištiraak-iyy-at* “socialism”. This feminine verbal noun can be converted to a feminine adjective, cf. *ʔal-ʔištiraakiyyat-u l-duwaliyyat-u* “the international socialism”: *ʔal-duwal-u l-ʔištiraakiyyat-u* “the socialist states”.

6 Concluding remarks

The following remarks have been concluded from the present study. Arabic derivation is almost always accomplished by patterns. In English, for example, derivation is accomplished by affixation. This explains why the affixes of many English derivatives are matched by Arabic independent words. For example, the prefix and suffix of the adjective *un-us-able* are rendered in Arabic as independent words, cf. *ʔayru ʔaalihin li-l-ʔsti ʔmaali* (lit. not fit for use) which consists of annexed negator-annexing adjective-preposition-definite article-noun in addition to the case markers at the end of the words.

Many patterns are multifunctional, i.e. a single pattern is used to achieve more than one function, which sometimes could create confusion in fixing the function and meaning of the derived or inflected word.

Standard Arabic inflection is highly complex. In an independent study, I have found that the Arabic trilateral verb has 19 inflections compared with 4 inflections for the English verb. This complex inflection explains partly why learning Standard Arabic is a difficult undertaking. If one wants to learn Standard Arabic, he has to learn, among other things, the case and mood markers and how to use them properly to generate syntactically well-formed sentences. Arabic vernacular dialects have simplified the syntax of the Standard Arabic sentence by doing away with most, if not all case markers and mood markers.

الملخص

تستخدم اللغة العربية الفصحى مجموعة محددة من الأدوات الصوتية والصرفية في صناعة الألفاظ المجردة وفي الإشتقاق والتصريف، وتضم هذه الأدوات الأوزان الصرفية واللواصق الأولية واللواصق النهائية وضماير الفاعل المتصلة والألفاظ المجردة المقطعة واللفظ المجرد الصفر. تعد الأوزان الأدوات الرئيسية في صناعة اللفظ المجرد وفي الإشتقاق والتصريف، وتقسم إلى ثلاثة أقسام : أوزان صوتية تولد الألفاظ المجردة (وهي بالدرجة الأولى الأفعال الماضية المجردة) وأوزان تشتق فصائل معجمية جديدة أو تشتق معاني جديدة لنفس الفصائل المعجمية، وأوزان تصرف كلمات إلى كلمات أخرى لها نفس الفصيحة المعجمية، لكنها لها توزيع نحوي مختلف في بناء الجملة. تعد الأوزان الإشتقاقية والأوزان التصريفية أوزاناً إستبدالية من حيث أنها تحل محل أوزان صناعة الألفاظ المجردة في عمليات الإشتقاق والتصريف.

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