

Subtractive morphology and morpheme identity in Arabic pausal forms*

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1. INTRODUCTION

In classical Arabic, most words have two forms: at the ends of major syntactic constituents ('in pause') a word is shorter than the same word when it appears in non-final position. The pausal form is shorter than the full form by up to one whole syllable and by the whole or part of as many as three morphemes, as the following examples illustrate:¹

(1)	<i>gloss</i>	<i>full form</i>	<i>pause form</i>
a.	write-INDC	yaktub- <i>u</i>	yaktub
	write-PL-INDC	yaktub-uu- <i>na</i>	yaktubuun
	wrote-1SG	katab- <i>tu</i>	katabt
b.	book-GEN-INDEF	kitaab- <i>i-n</i>	kitaab
c.	writer-AT-GEN-INDEF	kaatib-at- <i>i-n</i>	kaatiba[h]

The difference is not simply phonological; several morphological conditions determine how much is missing in a pausal form. The following points will be argued in this paper:

- (1) The derivation of pausal forms from full forms is (at least in part) indeed subtraction. The alternative analysis, that certain morphological realization rules that add suffixes are constrained not to apply in pause, entails unnecessary complexities and lack of generality. For instance, the three case-marking suffixes, nominative *u*, genitive *i*, and accusative *a*, are absent in pause, and the indicative suffixes *na* and *ni* appear as *n* – all these are better described as loss of a final short vowel.
- (2) The rules of subtraction must be sensitive to morphological information. At a minimum they must recognize a morpheme boundary, but it will be argued that they must also identify a specific morpheme. They cannot be stated in terms of phonological properties alone, nor with a combination of phonological and morphosyntactic information. The subtraction of final vowels is restricted to vowels which are part of a suffix, and does not apply to stem vowels. A more complex case involves the suffix *at*, which will be glossed as 'AT' (it often, but not always, marks feminine gender), and has the pausal form *ah* (1c). In this it must be differentiable not only from words with stems ending in the sequence *at* but also from the homonymous suffix *at* marking third person feminine singular subjects in verbs in the perfect tense, which

final *-Vn*) serves as a morpheme indicating that the indefinite noun to which it is affixed regardless of case is followed by an attribute" (1965: 193).

- (3) a. Classical Arabic
 full form: naas-*u-n* kaθiir-*u-n*
 pausal form: naas-*u-n* kaθiir
 people-NOM-INDEF many-NOM-INDEF 'many people'
- b. Central Arabian
 naas-en ceθiir (Blau 1965: 194)

To summarize, in modern vernacular Arabic the *t* of the formative AT has disappeared, reflecting the classical pausal form, except in the first member of a construct phrase, where it survives as a reflex of the classical full form; similarly the Classical Arabic indefinite marker *n* has disappeared except (in certain dialects) in a similar construction-internal position. Though these relics are limited to particular syntactic constructions, they show medial *t* and *n* alternating synchronically with final zero. This reflects an earlier stage in which the *t* and *n* of full forms were absent in final position regardless of the syntactic construction type, and it thus corroborates the other kinds of evidence mentioned above for the reality of the Classical Arabic pause/full alternation. The relics show that the phenomenon was not merely diachronic, nor a matter of register differences in a diglossic speech community, but was a synchronic alternation within a single register, just as described by the medieval Arabic grammarians and attested in the documentary evidence mentioned above.

3. THE PAUSAL-FULL ALTERNATION

Having demonstrated the reality of the pausal/full alternation in the previous section, we are now in a position to inquire into its formal nature. We will begin with the loss of final short vowels in pausal forms, illustrated by the forms in (4).⁷

- (4)
- | | gloss | full form | pausal form |
|----|------------------|----------------------|-------------|
| a. | writer-NOM | kaatib- <i>u</i> | kaatib |
| | writer-GEN | kaatib- <i>i</i> | kaatib |
| | writer-ACC | kaatib- <i>a</i> | kaatib |
| b. | writes-INDC | yaktub- <i>u</i> | yaktub |
| | writes-SBNCT | yaktub- <i>a</i> | yaktub |
| | writes-JUSS | yaktub | yaktub |
| c. | saw-1SG-2MASC.SG | raʔay-tu- <i>ka</i> | raʔaytuk |
| | saw-1SG-2FEM.SG | raʔay-tu- <i>ki</i> | raʔaytuk |
| d. | saw-1PL-3MASC.SG | raʔay-naa- <i>ha</i> | raʔaynaah |
| | write-PL-INDC | yaktub-uu- <i>na</i> | yaktubuun |
| | write-DU-INDC | yaktub-aa- <i>ni</i> | yaktubaan |

In many cases the loss of final short vowels results in the obliteration of morphological distinctions. As the examples in (4a) show, the nominative, genitive, and accusative cases of a noun like *kaatib*- (typical of the largest and most productive declension class, which distinguishes three cases) are marked solely by the short final vowel. In pausal form, where these are all absent, a single form *kaatib* stands for all cases, and the entire category of case is neutralized. The same is true of the indicative and subjunctive of verbs in certain person/number/gender categories (4b), so that in pause *yaktub* is both the indicative and the subjunctive for 'he writes', as well as the jussive, which is suffixless *yaktub* in both full and pausal form.⁸ Similarly, gender is neutralized in pause in the examples in (4c). In other cases (4d), final vowels are lost without affecting grammatical categories.

Words ending in long vowels (5a) are identical in pausal and full form, as are words ending in a consonant (5b):

- (5)
- | | gloss | full form | pausal form |
|----|------------------|--------------|-------------|
| a. | write-PL-SBNCT | yaktub-uu | yaktubuu |
| | saw-1SG-3FEM.SG | raʔay-tu-haa | raʔaytuhaa |
| b. | saw-1SG-2MASC.PL | raʔay-tu-kum | raʔaytukum |

A final short vowel which is part of a stem, rather than a suffix, remains in pausal forms,⁹ but is followed by phonetic [h], as in (6). Consequently, in pausal position there are no final short vowels, and the opposition of vowel quantity is neutralized.

- (6)
- | | gloss | full form | pausal form |
|--|-----------------|---------------------|-------------|
| | throw (jussive) | yarmi ¹⁰ | [yarmiʰ] |
| | how | kayfa ¹¹ | [kayfaʰ] |

It would be possible to state the pausal/full alternation insofar as it affects final short vowels, illustrated in (4) above, by building it into the morphological realization rules for each suffixing process. For instance, it would be possible to say that nominative case is realized by suffixation of *u* in non-pausal position only, or that indicative mood is realized in certain verb forms by suffixation of *na* in non-pausal position but of *n* in pause. This handles the facts but it radically lacks generality and misrepresents the phenomenon, which applies in identical manner to at least a dozen suffixes.¹² The alternation is subtraction:¹³

- (7) *Pausal Subtraction*
 A final short affixal vowel is dropped in pause.

The indefinite marker *n* is likewise absent in pause (1b). This is straightforward in the nominative and genitive cases: nom. *kitaab-u-n* and gen. *kitaab-i-n* are both *kitaab* in pause. In the accusative case, too, the *n* is absent in pause, but here the case vowel *a* is retained and lengthened: acc. *kitaab-a-n* is *kitaabaa* in pause. Only rarely is it absent entirely: *kitaab*.¹⁴ One way to derive an indefinite accusative form like *kitaabaa* would be to specify it in the realization rules for the indefinite marker.¹⁵

- (8) INDEF is realized by suffixing *n* if non-pausal.
 INDEF is realized by suffixing *a* (or *a* mora) after *a* in pause

Thus the pausal alternation of indefinite *n* with zero is derived separately and differently from that of final short vowels. Additional support for treating the absence of *n* in pause separately comes from poetic rhyme. In rhyme, an alternative to dropping a final short vowel is to lengthen it (recall that there are no final short vowels in pause). Thus *kitaab-u* 'book (nominative)' could appear at the end of a line of poetry as *kitaab* or as *kitaabuu* (but not as *kitaabu* or *kitaabuh*). Either way, the indefinite marker *n* is absent, and in *kitaabuu* the *n* is lacking although the vowel has not dropped.

The most obvious way to attempt to state the alternation of *at* with *a*/*h* would be in the same manner as the indefinite *n*, by specifying it in the morphological rule that spells out the realization of AT:

- (9) AT is realized by suffixation of *a* in pause, otherwise of *at*.¹⁶

This approach turns out to be more complex than it seems at first glance, and ultimately unworkable in certain cases. It succeeds in nouns in nominative-case forms like *kaatib-at-ut(-n)*. In deriving the pausal form of this word, starting with the stem *kaatib*, the pausal form of AT is affixed: *kaatiba*. Next comes case marking, and it makes no difference whether we assume the vowel *u* to be added, yielding **kaatibau*, which would be shortened to *kaatiba* by Pausal Subtraction (7), or alternatively we restrict the realization of the case-marking vowel to non-pausal position, yielding the same outcome. The indefinite marker *n* is not applied in pausal position after vowels other than *a*. This approach has the same success with the genitive in *i* and with accusative forms that lack the indefinite marker (full form *kaatibata*, pausal *kaatiba*/*h*). However, it fails in the combination of accusative case and indefinite marker (full form *-a-n*); recall that in pause this is not zero but *aa*, as in *kitaabaa* (full form *kitaab-a-n*) discussed above. This lengthened accusative marker *-aa* is not found after AT (except in poetic rhyming): the normal pausal form of *kaatib-at-a-n* is *kaatiba*/*h*. The markers of the indefinite accusative are absent if and only if they are preceded by the element AT, in its pausal form *a*. It is this fact which makes the formulation in (9) unsuccessful.

Let us examine how (9) would apply in such a situation. Given the realization rule for AT tentatively suggested in (9), together with the realization rule for INDEF in (8), the pausal form corresponding to *kaatib-at-a-n* would be **kaatibaa*. Even if the sequence *aaa* is automatically reduced to *aa*, as Arabic has no triple-length vowels, the resulting form *kaatibaa* is incorrect. We could try to modify the realization rules for INDEF, AT, or accusative case in order to save the situation, but there is no way to derive the correct result *kaatibah* while also deriving the correct pausal accusative *-aa* for other nouns, avoiding such incorrect outcomes for the feminine as **kaatibataa*, **kaatibahaa*, or **kaatibaa*, without specifying the particular element AT in one or more of the realization rules for accusative case or indefiniteness. The situation is

more complex still, because the problematic case ending *a* is not exclusively accusative. In nouns and adjectives of the "diptote" declensional class, both accusative and genitive take *a*. Thus *makka-at-a* 'Mecca' is both accusative and genitive, and has the pausal form *makka*/*h* in both cases. Consequently any specification that mentions accusative case must also mention genitive diptotes, as well as an additional proviso excepting the morphosyntactic conditions in which diptotes revert to the default triptote declension and take *i* in the genitive.

The simplest way to derive the correct form is by a special rule of pausal subtraction for AT. The morphological element AT is realized as *at* everywhere, and in pause the *t* and following segments are deleted by a rule of pausal AT-subtraction:

- (10) AT-Subtraction

AT

tV(V) → Ø in pause

Note that this will correctly fail to apply in the presence of heavier suffixes, as in *kaatib-at-a-ka* 'your (masc.) writer (fem. acc.)'. In poetic rhyme, when the final vowel is not deleted but rather lengthened, AT Subtraction does not apply, so that *kaatibatan* 'writer (fem. acc. indef.)' may rhyme as *kaatiba*/*h* or as *kaatibataa*.

There is an alternative formulation of AT-Subtraction which should be considered at this point:

- (11) AT-Subtraction (alternative form)

X+at+V(+V) → Xa in pause

In the first version (10), the element AT is mentioned by name. In the alternative version (11), the same work is accomplished by a very specific series of morpheme boundaries. This is possible because of an accidental fact about the homonymous suffix *at* which marks third person feminine singular or dual subjects in verbs. This *at* may be followed by a variety of suffixes, but as it happens only one of them is vowel-initial: the dual marker *aa*, as in *katab-at-aa* 'they (du.) wrote'. Such a form is unchanged in pause, and the rule of AT-Subtraction as stated in 11 is prevented from applying to it by the stipulation of the morpheme boundary before the optional final vowel. The crucial fact is that the dual suffix is a long vowel, while the suffixes which may follow AT and delete in pause are short vowels. While this approach is workable (and has the advantage that the non-application of AT-Subtraction before a case vowel lengthened in poetic rhyme is then automatic), it relies on an accidental quirk of the distribution of suffixes: it happens that there are no suffixes which may follow subject markers in verbs (including *at*) and consist solely of a short vowel, and furthermore the subject marker of a verb (including *at*) can be final in the word, while AT is always followed by a case marker. That a suffix *at* which is followed by

(12)	gloss	morphological structure	full form	pausal form
a.	youth (fem. sg.)	/fatay-at-u-n/	fataatun	fataah ²⁰
	nobles (masc. pl.)	/saray-at-u-n/	saraatun	saraah
	judges (masc. pl.)	/quday-at-u-n/	qudaatun	qudaah
b.	writers (fem. pl.)	/kaatib-aat-u-n/	kaatibaatun	kaatibaat
	descriptions (fem. pl.)	/šif-aat-u-n/	šifaatun	šifaat
	pashas (masc. pl.)	/baašaw-aat-u-n/	baašawaatun	baašawaat
	baths (pl.) ²¹	/hammaam-aat-u-n/	hammaamaatun	hammaamaat

Thus AT cannot be identified phonologically. Neither can it be identified morpho-syntactically. The element AT marks a variety of morphosyntactic processes, most often feminine gender (13a) or singularive (b). It is in fact the most productive marker of feminine gender. It is also part of a large variety of broken plural patterns (c) and irregular plurals (d), and in a few cases the sole marker of plurality (e). It is also simply a part of the base forms of many nouns, both feminine (f) or (less often) masculine (g).

(13) Words containing AT

Comparison forms without AT

- a. kaatibatun 'female writer'
- kabiirun 'large' (fem.)
- tuffaahatun 'an apple (fem.)'
- talaamiḍatun 'pupils (masc.)'
- ṭalbisatun 'clothes'
- ṭalabatun 'students'
- niṣwatun 'women'
- hammaaratun 'donkey drivers (masc. pl.)'
- madrasatun 'school'
- xaliifatun 'caliph' (masc.)

The sets of words in 12 and 13 taken together show that AT cannot be specified even by a combination of phonological and morphosyntactic properties. It must be specified "by name" in the rule of AT-Subtraction (10) or by morphological boundaries (11).

Interestingly, Arabic orthography takes note of the special character of AT: it is written with a unique letter of the alphabet, found only in this morpheme: a hybrid of the shapes of the letters <ṭ> and <ḥ>.

a suffix should shorten in pause, while a suffix *at* which is word-final should be unchanged, is the opposite of what we would expect if the difference is simply a matter of phonological weight.

Another alternative hypothesis would be that *at* shortens in pause in nouns but not in verbs. This runs into difficulty when participles are brought into consideration. Active and passive participles in Arabic are productively formed from verbs of all types, but they have nominal morphology, including AT (marking feminine gender) which undergoes pausal shortening. Despite their nominal morphology, participles have largely verbal syntax (Wright 1896-98: vol. 2, 63-68). Therefore if the criterion for AT-Subtraction is that it occurs in nouns, not verbs, the relevant sense of these terms cannot be syntactic. It is in fact purely morphological: the element AT undergoes AT-Subtraction precisely in those words which are inflected as nouns, and we are back to a morphological specification for the conditioning of the rule.

4. THE IDENTITY OF AT

The formulation of AT-Subtraction in the preceding paragraphs relies on reference to specific morphological structure, identifying AT either by name (10) or by a series of morpheme boundaries (11). In this section it will be demonstrated that neither phonological nor morphosyntactic specifications can replace the reference to morphological structure in the rule of AT-Subtraction.

First, the element AT must be kept distinct from other words which end in the phonological sequence *at*. Thus there are words in which the *t* is the last consonant of the root, such as *nabaat-u-n* 'vegetation (sg.)' or *mustanbat-u-n* 'cultivated; nursery' (cited in the nominative indefinite full form); in the pausal forms these retain the final *t*: *nabaat*, *mustanbat* (identical for the nominative, genitive, and accusative).

Second, there is a suffix *at* which marks a verb in the third-person feminine singular of the perfect tense: *katab-at* 'she wrote'; in pause such a word, like all consonant-final words, undergoes no change.¹⁷ In the alternative version of AT-Subtraction (11), as discussed above, it is the specification of the following vocalic element (+V) after AT that can keep these two suffixes apart, because all the suffixes which can follow the perfect tense begin with a consonant (for instance *katab-at-haa* 'she wrote it', *samiʿ-at-nii* 'she heard me') or consist of a long vowel (*aa*, discussed above).

Finally, AT is distinct from the plural suffix *aat*, which occurs with both masculine and feminine nouns, and which (in the standard language) does not lose its *t* in pause.¹⁸ Vowel length is not sufficient to identify it, because the phonologically identical sequence *aat* can arise when AT follows a glide-final stem.¹⁹ The (nominative indefinite) forms in (12a) contain AT, while those in (b) contain the plural marker *aat*.

5. CONCLUSIONS

The element AT does not fit the traditional picture of a morpheme: it has neither an invariant form (it is *at* in context, *a[h]* in pause) nor an invariant meaning or set of morphosyntactic properties. It is not simply ambiguous nor is it an empty morph, because in any particular word it has a single, specific function.

In this AT is similar to the English suffix *s ~ z ~ æz*, which marks plurals and possessives of nouns and third-person singulars of present-tense verbs, in that it exists as a unit, a single entity, only in the purely morphological level which mediates between morphosyntactic and phonological representations. It is what Aronoff (1994, especially 22-29) has called a "morpheme": a purely morphological function in which disparate morphosyntactic elements are neutralized. An entity on the morphomic level may relate in many-to-many fashion to morphosyntactic properties. Thus English *s ~ z ~ æz* on one hand marks three different morphosyntactic properties, but on the other hand it is not the unique marker of plurality, since there are morphosyntactic plurals which do not have this suffix: *feet, alumni, phenomena, series, sheep*. Another clearly morphomic entity is the English stem *-ceive*, occurring in words like *receive, deceive, conceive*. Despite the etymological link among these words, they have no semantics or syntax in common synchronically. Yet *-ceive* is an entity of some sort, as its uniform alternation with *-cept-* demonstrates: *reception, deception, conception*. It is a purely morphological entity, a morphome. As Aronoff has demonstrated extensively, a large variety of morphological phenomena can be correctly understood only in this way, as purely morphological, rather than as reducible to syntax or phonology. The behavior of the Arabic suffix AT in pause is one.

The alternation of pausal and full forms is not much like what is normally thought of as morphology. It is neither derivational nor inflectional in the commonly understood meanings of those terms. It does not form new lexical items nor does it express such morphosyntactic categories as person, tense, number, or case. If this round peg must be forced into one of those square holes, it must be inflectional rather than derivational (because it does not form new lexical items and its behavior is regular and predictable), but it is a strange sort of inflectional category that applies uniformly to words of all the lexical classes, is not involved in agreement, has no semantic correlates, and is not tied to any specific syntactic constructions. All these properties are more usually associated with phonology than with morphology. Why, then, do we call the Arabic pausal alternation morphology? Not only because it is in part phonologically unnatural, but more importantly because its adequate formulation must refer to morphological information and because in part it must be stated by means of the morphological realization rules which spell-out certain morphemic entities.²²

To the extent that this is indeed morphology, and insofar as it requires the specification of morpheme boundaries and even specific morphemes for its correct operation, it violates the "a-morphous hypothesis" of Anderson 1992. This claims that morphemes (or morphs or formatives) in the classical sense do not exist, and

specifically that the presence in a word of affixes does not imply the presence of morpheme boundaries that can be detected by rules applying subsequently. Rather, Anderson proposes 'to replace reference to morphological structure within a form by conditions on the structure of the derivation of a word' (Anderson 1992: 290). While Anderson's theory admits some kinds of word-internal boundaries, not only in compounds but also in certain other types of derived words (Anderson 1992: 299-319), all the examples that Anderson mentions are derivational and most involve lexically idiosyncratic rules and forms. The same is true of the additional examples adduced by Carstairs-McCarthy (1993). The Arabic pausal alternation, on the other hand, involves extremely productive inflectional affixes. AT is the commonest and the default marker for feminine gender (besides its other functions), and *n* as a marker of indefiniteness is characteristic of the largest, most productive declensional class of nouns and adjectives, which is also the default class. All the suffixes that are affected by Pausal Subtraction are totally productive inflectional markers. The Arabic pausal alternation is therefore the strongest counterexample yet found to the a-morphous hypothesis.

NOTES

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¹ Birkeland 1940 is the most comprehensive and insightful study of this phenomenon, from both the synchronic and diachronic points of view. Arabic pausal forms are described in any comprehensive grammar of the language, such as Wright (1896-98: vol. 2, 368-373).

Abbreviations: NOM=nominative case, GEN=genitive, ACC=accusative; INDEF=indefinite; INDIC=indicative, SUBJ=subjunctive, JUSS=jussive; 1, 2, 3=first, second, or third person; SG=singular, DU=dual, PL=plural; FEM=feminine, MASC=male (likewise sg., du., etc.); AT is the suffix *at ~ a[h]*, which has diverse functions, discussed below, but most often marks feminine gender. Phonetic symbols: *t d s* are pharyngealized. Within full forms the segments that are susceptible to pausal deletion are sometimes italicized. The notation [h] represents a phonetic [h] which occurs after a final short vowel in pause.

² Note that this often creates extra-heavy final syllables, as in *yaktubuun* (from *yaktubuuna*) and *katabu* (from *katabuun*). Extra-heavy syllables otherwise occur in classical Arabic only with the vowel *aa* in medial position, and that almost exclusively in the active participles of biconsonantal verbs (Wright 1896-98 vol. 1: 15).

³ The various pausal alternations that do exist in modern vernacular Arabic dialects, such as those described in Blanc 1973-74, Blanc 1970: 122-123, Borg 1977, and Fischer and Jastrzew 1980: 110-111, 179-180, are not historically derived from the Classical Arabic pausal alternation, and at least some may be purely phonological or phonetic.

⁴ Arabic is written in two forms, a basic one which does not represent short vowels and various other phonological particulars, and an augmented form which adds diacritical symbols specifying all the phonological details absent in the basic form. The basic orthography in general represents a word in its pausal forms, no matter where in a sentence it appears. The augmented orthography shows full forms even at the ends of constituents and sentences. (This pattern is modified in poetic rhyme, which is discussed below.)

⁵ This does not refer to poetic borrowings from classical Arabic into the vernacular as *marhaba* 'hello', *ʔahlan wa-sahlan* 'welcome', or *ʔabadan* '(n)ever'.

⁶ In Modern Standard Arabic there is considerable flexibility and variation from speaker to speaker and some randomness in the selection of pausal full forms (Meiseles 1977, Schulz 1981). For example, a noun-adjective phrase like *mudarris- at-u-n šaātir-at-u-n* 'a smart teacher (fem.)' can be pronounced with two full forms, with the first word in full form and the second in pausal form, or even with two pausal forms: *mudarrisā šaātirā*. However, as Dr. Elabbas Ben-Mamoun has pointed out to me (and as described in Beeston 1970: 53-54), AT in the first member of a construct phrase must retain the *t*: *mudarrisat(u) madrasat(in)* 'a teacher of a school', but **mudarrisā madrasat(in)*. This difference between construct phrases and adjective phrases reflects influence from the modern vernaculars on Modern Standard Arabic, but it parallels the pattern which we can deduce (on the evidence of the modern vernaculars) prevailed in Classical Arabic times. It also parallels the much earlier but essentially identical development in Hebrew.

⁷ It is interesting that essentially the same change in the structure of the construct phrase took place in Hebrew and Aramaic well over a thousand years before the Classical Arabic period.

⁸ In modern vernacular Arabic the morphological category of case is lost and that of verbal mood is expressed by prefixes. The question of how Classical Arabic was able to function with these markers being obliterated at least once in every sentence has received an interesting answer. Corriente (1971-72, 1973) has demonstrated that in Classical Arabic the functional load of the case and mood suffixes was quite low. There are few situations in actual texts in which the change of a word-final vowel suffix can yield a grammatical sentence with a different meaning. This is so because in most instances the case or mood is necessitated by a grammatical particle or by a syntactic construction which is detectable from overt elements other than the final vowel suffixes. Therefore most Classical Arabic texts are unambiguous even if every word is pronounced in its pausal form. (For Modern Standard Arabic see Beeston 1970: 53-54.) In this respect it is quite different from other "case languages" like Latin or Russian.

⁹ The alternative of deleting these vowels just as suffixal vowels are deleted was judged non-standard (Carter 1990).

¹⁰ The underlying form of *yarmi* is *ya+rmīy*, of which the trilateral root is *rmy*. The final */iy/* (or *ī*) is shortened in the jussive mood.

¹¹ One might analyze the final *a* of *kayfa* as a suffix (the accusative case marker), but this is not the opinion of the medieval Arabic grammarians.

¹² These are *u* nominative, *a* accusative, *i* genitive, *u* indicative, *a* subjunctive, *na* absolute state plural, *ni* absolute state dual, *na* indicative plural, *ni* indicative dual, *tu* first person singular, *ta* second person masculine singular, *ti* second person feminine singular, *na* feminine plural (in verbs).

¹³ I leave to others the question of the proper formalization of a rule that deletes short vowels without shortening long ones. While it may be that underlyingly long final vowels are, in pause, of indeterminate quantity (since there is no opposition of quantity in final position), they must still be kept distinct from short non-affixal vowels, which in pause do not delete but end in phonetic [h]. The distinction between final pausal *ah* (whether underlyingly or from non-affixal *a* or from the morpheme AT) and *aa*, and similarly between *ih* and *it* and *uh* and *uu*, is certainly maintained in poetic rhyme and in the normative pronunciation described by the medieval grammarians, though there is evidence from spelling errors in documents from the classical period that it was neutralized in common speech just as it is in many modern vernacular dialects (Hopkins 1984:10, 43, 46).

¹⁴ In Modern Standard Arabic *-an* is often so pronounced in pause just as in full form, but this is non-classical.

¹⁵ There is one bit of evidence which may indicate that the absence of indefinite *n* in pausal forms, or at least after the accusative marker *a*, is derived by subtraction rather than by failure to add. The "energetic" mood is a relatively infrequent verbal category which takes a suffix *an*. This too becomes *aa* in pause. (The energetic mood has no reflex in modern vernacular

dialects.) It is plausible that this arose diachronically by generalization of the pausal variant of the accusative indefinite. Although features of nouns may not often be generalized to verbs, it seems less implausible in this case when one remembers that the pausal alternation is a purely formal one without semantic or morphosyntactic correlates. The fact is simply that any suffixal *an* is *aa* in pause. If this historical assumption is correct, it may imply that there was a synchronic rule forming the indefinite accusative pausal *aa* from the fully realized form *an*, or at least that speakers (or the medieval grammarians who codified the standard language!) were able to function in terms of a proportional analogy on the level of surface forms: contextual accusative *an* : pausal *aa* :: contextual energetic *an* : pausal *X*. Alternatively, of course, it may be a phonological rule, *an* → *aa* / ___]_{pause}, although the phonetic sequence *an* does appear in pause in stems (the pausal form of *badan-u-n* is *badan*). In any case, nothing crucial in the analysis of Pausal Subtraction or AT-Subtraction hinges on the analysis of the indefinite accusative.

¹⁶ Final *-a* in pause is realized phonetically as [-ah].

¹⁷ Note also the feminine dual verb *katabat-at-aa* 'they wrote', which contrasts strikingly with a noun in the accusative indefinite, such as *kaatibatun* 'writer (fem.)' with the pausal form *kaatib-alh* for which **kaatib-at-aa* is (in prose) not an alternative.

¹⁸ The plural suffix *-aat* is also distinct from AT in case marking. Accusative case is marked by the vowel *i* after plural *-aat*, but by *a* after AT as after most nominal forms: accusative indefinite *quda-at-a* 'judges' (with AT), *šif-aat-i* 'descriptions' (with *-aat*).

¹⁹ It is not possible to base the identification of AT on prosodic factors such as stress. In the reading of Classical Arabic by modern Arabs *qudaata* (with /*4*-at-*4*) and *šifaati* (with /*4*-aat-*4*) are stressed identically, on the long vowel. Several linguists have attempted to deduce the stress pattern of Classical Arabic period on the assumption that it must have at least included something like the least common denominator of the stress patterns of certain modern dialects (Blau 1972; Fischer and Jastrow 1980: 57-58, 297; and most interestingly Jastrow 1991). All these reconstructed patterns would stress *qudaata* and *šifaati* identically. Moreover, other scholars emphasize that we know nothing reliable about stress in classical Arabic (Fleisch 1961: 170-171, Blau 1972, Hopkins 1984: 18). In fact, we do not even know whether classical Arabic had stress at all. It may well have been (and in my judgment most likely was) like modern Moroccan vernacular Arabic, in which all syllables are fairly evenly stressed, and where whatever extra prominence exists moves rather freely from one syllable to another. As Henri Fleisch, the author of a comprehensive treatise on classical Arabic phonology and morphology, wrote, our knowledge of Classical Arabic stress is "très précaire" and therefore concerning morphological phenomena we can argue from stress only with "une très grande prudence" (Fleisch 1961: 171).

²⁰ The final *h* in forms like *fataah* is not accounted for by the analysis presented above, where the *h* in pausal forms of words with AT, such as *kaatib-alh* 'writer (fem.)', is treated as a phonetic detail, appearing automatically after final short vowels; according to this there should be no *h* after a final long vowel, as in *fataah*. However, I am not sure whether to rely on the orthography, in which *fataah* and *kaatibah* end in the same letter, as evidence that both were really pronounced with *h*, and the evidence from the modern vernacular dialects is mixed. If *fataah* was actually so pronounced, then there are two sources for final *h* (other than underlying *h* in stems): it arises phonetically after short vowels in pause, as in the examples in (6), and it arises morphologically in the pausal form of AT.

²¹ This is the plural of the masculine noun *hammaam-u-n* 'bath'. The plural of an inanimate noun takes feminine singular agreement, regardless of whether the noun in the singular is masculine or feminine.

²² Goerwitz (1993) distinguishes two varieties of pausal phenomena in Biblical Hebrew, one "morphological" and the other "low-level" or "phonetic". The two often, but not always, occur together. The morphological pausal forms arose, according to his analysis, through the morphologization of originally phonetic phenomena. As he points out, the Classical Arabic pausal phenomenon bears only a loose analogical similarity to that of Hebrew.

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