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Numerals

Numerals represent a very particular semantic field of the lexicon. They concern a very small number of roots because, at least originally, all numbers, apart from zero (named *ṣifr* in Classical Arabic), are formed by a combination of a limited series of twelve numbers (1–10, 100, and 1,000). These roots mainly belong to a common semantic background. In addition to the cardinals, the ordinals, and the fractions, they have produced a certain number of verbal and nominal lexemes in ancient Arabic.

1. CARDINALS

Cardinals have several usages that correspond to different syntactic functions, in which they belong to different linguistic categories, such as noun, pronoun, and adjective. In Arabic, the situation is particularly complex because these categories can change, not only with the syntactic function, but also according to the definiteness of the noun and the appropriate numeral, with significant differences from one variety of Arabic to another. A detailed presentation of the first ten cardinals in modern dialects is found in Mörth (1997).

1.1 Numbers used in isolation

Numerals are used alone in order to name the numbers or to count in the abstract, or in reference to names. As pronouns, they often have complements.

1.1.1 ‘One’

In Classical Arabic, the number ‘one’ is expressed by *ʾaḥad*, fem. *ʾiḥdā* or by *wāḥid*, fem. *wāḥida*. In modern dialects, the most frequently used forms to count are *wāḥid/wāḥad*, fem. *wāḥ(i)dalwāḥ(a)dalwiḥda*. Like those of *wāḥid*, the dialectal equivalents of Classical Arabic *ʾaḥad* (*aḥḥad/ḥadān/ḥad(d)* etc.) are often used as indefinite article (→ article, indefinite). It is the same for their negative counterpart *ma-ḥadd(iš)*.

1.1.2 ‘Two’

In Classical Arabic, ‘two’ is *itnān/itnayn* in counting. When it is used as a noun or pronoun, its feminine equivalent is *itnatān/itnatayn* (more rarely *tintāni*). In the main Maghrebi dialects, its dialectal equivalent is *zawj* ‘pair’ (under various forms, such as *žūž/zūz/žus*), which is used for ‘two’. In the Bedouin Maghrebi dialects and the Eastern Arabic dialects, reflexes of *itnān* are used, e.g. *i(i)nayn/it(i)nēn/ḥintēn/sənīn*, etc. In the feminine *tantayn*, *t* and *ay* are realized with a similar degree of variation, and sometimes (in Chad and especially in Yemen) assimilation of *nt > tt* takes place, as in *tittē(n)*. In certain Eastern dialects, the isolated form ends in *-a(t)*, probably under the influence of the numerals from three to ten, e.g. (Mekka) *itnēna*.

In Classical Arabic, a specific form *kilā-*, fem. *kiltā-* is employed with pronominal suffixes. In dialects, pronominal suffixes are annexed to the common form (or to a lengthened form in *-āt*): (Syria) *tnēnāt-tnēnāt-*.

1.1.3 From ‘three’ to ‘ten’

In Classical Arabic, forms in *-a(t)* are used in counting: *ṭalāṭa* ‘three’, *ʾarbaʿa* ‘four’, *xamsa* ‘five’, *sitta* ‘six’, *sabʿa* ‘seven’, *ṭamāniya* ‘eight’, *tisʿa* ‘nine’, *ʾašara* ‘ten’. As pronouns, these forms in *-a(t)* are used to refer to masculine nouns. For feminine nouns, forms devoid of the final *-a* are used: *ṭalāt*, *ʾarbaʿ*, *xams*, *sitt*, *sabʿ*, *ṭamānin*, *tisʿ*, *ʾašr*. e.g. *ar-rijālu ṭalāṭatun* ‘the men are three’, *an-nisāʾu ṭalāṭun* ‘the women are three’. This behavior, peculiar to numbers from three to ten, which seems to reverse the usual gender agreement (*-a(t)* for the masculine instead of the feminine), can be found in other Semitic languages and remains hard to understand. For certain Arabic grammarians, it is the isolated form (in *-a*) which is prior, and this would explain its use for the masculine.

Most of the dialects only have forms in *-a(t)* and use them both for counting and in reference to nominals, both feminine and masculine. Bloch’s hypothesis (1971) about the prevalence of the polysyllabic forms in isolation is discussed

by Cowan (1972). The following points may be noted:

- i. Frequent final *'imāla* (-a > -i)
- ii. Elision of the *l* of 'three' in certain *qəltu* dialects of Mesopotamia: Mardin *tāte*
- iii. *r* > *g* and *Vg* > *V*: in 'four': Mossul *ōb'a*, 'Aqra (Jewish) *āb'a*
- iv. Diminutive form for 'six': Takroûna *stētā*
- v. Elision of *l'* in 'seven' and 'eight': Chad *saba* and *tise*

Euphemistic forms are attested for certain numbers, sometimes becoming the only forms in use, e.g. *'odd yəddək* (lit. 'count [the fingers of] your hand') for 'five' among the Jewish women of Tunis. This is particularly frequent with 'nine', where it is done in order to avoid saying *tis'a*, which can also mean 'you will beg', e.g. *təs'ūd* (lit. 'you'll be happy') in Morocco or *təs'ad* in Lebanon.

Cardinals from three to ten regularly admit, as pronouns, a pronominal complement through suffixation. The masculine form ends in *-(a)t*: Classical Arabic *aṭ-talāṭa* 'the three [masc.]' > *talāṭat-kum* 'your three', (Damascus) *tlātātna* 'the three of us'.

1.1.4 From 'eleven' to 'nineteen'

In Classical Arabic, the cardinals from eleven to nineteen are compound nouns, ending in *-a*, and indeclinable (with the exception of 'twelve'). In counting and in referring to masculine nouns, 'ten' is always in the masculine form; in referring to feminine nouns, the ten has the feminine form. The units follow the same rule as for the first ten cardinals: agreeing in gender for eleven and twelve, polarity of gender for thirteen through nineteen. The element 'ten' has a particular vocalization in these cardinals (masc. *'ašara*, fem. *'ašrata*). The resulting numerals are as follows: masc. *'aḥada 'ašara*, fem. *'iḥdā 'ašrata* 'eleven'; masc. *'itnā 'ašara*, fem. *'itnatā 'ašrata* 'twelve'; masc. *talāṭata 'ašara*, fem. *talāṭa 'ašrata* 'thirteen'; masc. *'arba'ata 'ašara*, fem. *'arba'a 'ašrata* 'fourteen'; masc. *xamsata 'ašara*, fem. *xamsa 'ašrata* 'fifteen'; masc. *sittata 'ašara*, fem. *sitta 'ašrata* 'sixteen'; masc. *sab'ata 'ašara*, fem. *sab'a 'ašrata* 'seventeen'; masc. *ṭamāniyata 'ašara*, fem. *ṭamāniya 'ašrata* 'eighteen'; masc. *tis'ata 'ašara*, fem. *tis'a 'ašrata* 'nineteen'.

In Arabic dialects, the gender distinction has disappeared almost everywhere. The form corresponding to the Classical Arabic one used for counting and for referring to masculine nouns is at the basis of the dialectal numerals, so for thirteen through nineteen, the units are in the feminine form (ending in *-t*), and the element 'ten' is in the masculine form. The cardinals eleven through nineteen have undergone frequent abbreviations and contractions, of which the following may be noted:

- i. The phoneme *l'* in the units has often elided, e.g. in 'seven', (Damascus) *sabaṭa'š*, and the same applies to the *l'* of the ten, which is often compensated by the lengthening of the vowel, (Jewish Tunis) *ṭnāš* 'twelve', (Cairo) *saba'ṭāšar* 'seventeen'.
- ii. In most dialects (except in the Arabian Peninsula, in Uzbekistan, and in the non-Bedouin dialects of the Chadian-Sudanese zone), the *-t-* of the feminine ending in the cardinals thirteen through nineteen has become emphatic. This emphasis is often extended to the precedent consonants, and by analogy to 'twelve' or even to 'eleven': (Iraq) *šitta'aš* 'sixteen', *ṭna'aš* 'twelve'.
- iii. The last consonant, *-(a)r*, of the element 'ten' has been elided in many dialects (Arabian Gulf) *sittāš* 'sixteen'; it was maintained only in Egypt, in Chad-Sudan, and in part of the Arabian Peninsula: Oman, Dubai, and Qatar.

Certain peripheral dialects of Africa do not use compound nouns: (Nigeria) *'ašara (haw) xamsa* 'fifteen' (lit. 'ten + five').

1.1.5 Cardinal tens

There is no gender distinction for the tens from twenty through ninety. In Classical Arabic, they are derived from the units through the ending of the masculine plural form (*-ūna* in the nominative, *-īna* in the genitive/accusative), including 'twenty', for which a dual would have been expected (and a first vowel *-a-*): *'iṣrūna* 'twenty', *talātūna* 'thirty', *'arba'ūna* 'forty', *xamsūna* 'fifty', *sittūna* 'sixty', *sab'ūna* 'seventy', *ṭamānūna* 'eighty', *tis'ūna* 'ninety'.

In dialects, the nouns of the tens correspond to the oblique case of the Classical Arabic forms and are in *-īm/-in*.

1.1.6 Beyond ‘ninety-nine’

There is no distinction of gender for the hundreds, thousands, and millions. The dual is regularly used for ‘two hundred’ and ‘two thousand’, even where the dual has become rare: (Morocco) *myatayn/mitin* ‘two hundred’.

‘Hundred’ is *mi’a* (pl. *mi’ūnlmi’āt*) in Classical Arabic, *miyyalmīyalmyā* in dialects. For three hundred to nine hundred, *mi’a* is normally preceded by the unit noun in the feminine (without *-at*), but exceptionally it remains singular in Classical Arabic and in most dialects (but not in Hadramawt). In Classical Arabic (with *mi’a* in genitive): *ṭalāṭu mi’atin* ‘three hundred’, *’arba’u mi’atin* ‘four hundred’, *xamsu mi’atin* ‘five hundred’, *sittu mi’atin* ‘six hundred’, *sab’u mi’atin* ‘seven hundred’, *ṭamānī mi’atin* ‘eight hundred’, *tiṣ’u mi’atin* ‘nine hundred’.

In some dialects, the form of the unit noun is slightly different (less contracted and closer to the one in Classical Arabic) in front of the hundred than in front of the other nouns, thus (Damascus) *tlāt (*tlatt) miyye* ‘three hundred’, *tmān (*tmən) miyye* ‘eight hundred’.

‘Thousand’ is *’alf* (pl. *’ālāf*) in Classical Arabic; dialects generally have closely related forms. For three thousand to nine thousand, *’alf* is normally preceded by a unit noun in the long form (with *-at*) and itself becomes plural. In Classical Arabic (with *’ālāf* in genitive): *ṭalāṭatu ’ālāfin* ‘three thousand’, *’arba’atu ’ālāfin* ‘four thousand’, etc.

The feminine ending *-(a)t* was exceptionally kept in front of *ālāfalāf* in a number of dialects, especially Eastern ones, but also in Kormakiti and in Ḥassāniyya. These dialects do not follow gender polarity anymore, hence, after reinterpretation, a new plural beginning with *t*-appeared, e.g. (Iraq) **xamist ālāf > xamis tālāf* ‘five thousand’. In the Maghrebi dialects, on the contrary, it is usually the form without *-t* that is used, e.g. (Morocco) *xems alāf* ‘five thousand’.

‘Million’ is *malyūn* (pl. *malyūnāt/mālāyīn*) and ‘billion’ is *milyār* or *balyūn*.

1.1.7 Complex numbers

In numbers from 21 to 99 the units precede the tens, and both of them, connected by *wa-*, are declined. Numerals indicating numbers including thousand, hundred, tens, or units, can be constructed in two ways. They are arranged either in a growing order or in a descending order, except for the units that precede the tens.

The elements are normally connected by *wa-*. In composition, for ‘two’ *ṭnayn* is used, even in those dialects that have the dialectal equivalent of ‘pair’ for the first decade.

1.2 Numbers used in counting nouns

When they are accompanied by the noun of the counted thing, numerals can still be in the independent form, but more frequently, especially if the numeral precedes the nominal and above all in the absence of a definite article, they are in a state of annexion.

1.2.1 ‘One’

To the question ‘how much?’, the answer in Classical Arabic is a singular noun (*kitāb* ‘a book’), the adjectival use of *wāḥid* ‘only, unique’ being emphatic (*yawm wāḥid* ‘a unique day’, *al-kitāb al-wāḥid* ‘the only book’).

In some modern dialects, *wāḥid* (maybe also *’aḥad*) has produced an indefinite article (→ article, indefinite). This evolution is probably the result of the pronominal construction of *wāḥid* directly constructed (without *min* ‘of’). *’aḥad* is often used in dialects only for ‘Sunday, first day of the week’ (Classical Arabic (*yawm*) *al-’aḥad*).

1.2.2 ‘Two’

To the question ‘how much?’, the answer in Classical Arabic is a dual (*kitāb-ā-ni* ‘two books’). The use of the cardinal, agreeing in gender, is possible and has an emphatic meaning (*kitāb-ā-ni ṭnāni* ‘two books’, with the definite article, *al-kitāb-ā-ni l-iṭnāni* ‘the two books’).

The more conservative dialects (especially the Bedouin dialects) use the dual with all nominals, whether definite or not: (Aleppo) *ššahrēn* ‘the two months’. Some use the dual only with indeterminate nouns and the cardinal adjective in all other cases: (Ḥassāniyya) *R-āžlāyn* ‘two men’ but *ar-razžālā at-tāntāyn* ‘the two men’. Other, especially Moroccan, urban dialects use the dual only for a more limited series of nouns (in particular for measure units of time, space, quantity; → number).

If it is the cardinal *zawj* (or one of its variants) that is used, it is normally in a construct state. This construction (with the meaning of ‘the pair of’) is found in dialects that have preserved *ṭnayn*.

1.2.3 From 'three' to 'ten'

With indefinite nouns, the numerals three through ten govern the *pluralis paucitatis* and, in Classical Arabic, the genitive. The Classical construction is that of the construct state, with the cardinal as a noun in the position of determined word. The fact that in Classical Arabic the form in *-at* is used with masculine nouns and the form without *-at* with feminine nouns, was interpreted by some Europeans as a rule of gender crossing, intended to emphasize the substantival rather than adjectival nature of the cardinals (cf. Wright 1898: Sec. 319, Rem. a). But many other hypotheses have been proposed to explain this 'gender polarity', which originally may have been more connected with the notion of plurality than with gender (cf. in particular Rundgren 1968 and Brugnatelli 1982).

Gender differentiation has been maintained in some dialects of the Arabian Peninsula (Ṣan'ā' *xamsah biyūt* 'five houses', *xams nisē* 'five women'), but it seems that in some dialects, it is disappearing. In other dialects, the short form was generalized to the detriment of the masculine form in *-(a)t*. However, the latter has left traces in several masculine nouns, in particular in those whose plural begins with a vowel, following the example of *(t-)ālāf* 'thousands': *xamstiyām* 'five days', *xamstešhur* 'five months' (already written *xams tiyām* and *xams tišhur* in Middle Arabic).

The form of the cardinals used in the construct state has generally been subjected to a certain contraction (particularly the *ā* of 'three' and 'eight'), so that in those dialects in which the state of annexion remains the usual construction (essentially Eastern and/or Bedouin dialects), this series of numerals is clearly different from the first series used to count (series in isolation or 'free').

This system, which seems to confirm the hypothesis of a koine (Ferguson 1959:624–625), represents, however, only one of the solutions chosen in the dialects (Cohen 1970; Kaye 1976:173–174; Taine-Cheikh 1994).

On the one hand, there is a tendency to use the free form in *-a* with the counted nouns, either directly in a direct construction as first or second noun, e.g. (Chad-Sudan) *tamāne bagar/ bagar tamāne* 'eight cows' or (with a preposition) in an analytic construction ~~with a preposition~~ (Morocco) *tlāta d-lə-ktūb* 'three books'.

The abandonment of the state of annexion for an analytical construction (with the exception of a small number of nouns frequently used with cardinals) is very frequent in the Maghreb, especially in the western part. Sometimes the use of the free form can also be linked to certain morphological or semantic characteristics of the counted noun (loanword without plural, adjective with an internal plural designating persons, nouns of measurement, orderings, etc.; cf. Woidich 1989), e.g. (Cairo) *'ašara g(e)rām* 'ten grams', *xamsa 'umy* 'five blind people', *talāta dabab* 'three golden ones', *talāta 'ahwa* 'three coffees!'.

On the other hand, there is a tendency to use both variants (with or without *-a/t*) according to the initial of the second word. Thus, the ending *-(a)t* is used before a vowel, e.g. in Kfar 'Abida, instead of the short form (*'arba't-enfos* 'four persons') and in Sudan, instead of the free form ending in *-a*. Conversely, the ending *-a* appears before a double consonant (Gabès) or before a simple consonant (Jewish Tunis) *šab'ā* (but without the *-a* before the vowel in *šab' ulēd* 'seven children').

With definite nouns, the regular construction in Classical Arabic is the apposition of the noun to the cardinal (defined by the article *al-*), with the same gender polarity as in the construction with the indefinite noun, e.g. *aš-šarikātu l-xamsu* 'the five companies'. Constructions with an annexion are, however, frequent. Generally, the article precedes the counted noun, e.g. *talātatu l-kutubi* 'three books'. Two other constructions are more or less tolerated (particularly in written Modern Standard Arabic): *at-talātatu kutubin* and *at-talātatu l-kutubi*.

A certain diversity of constructions can also be found in modern dialects. In the case of the apposition (the most frequent construction in Classical Arabic, often in decline in the dialects), the free form in *-a* is used when the gender polarity has disappeared, e.g. (Ḥassāniyya) *l-ə'lāyyāt əs-sittā* 'the six women'. In the constructions with a construct state, frequent in the Middle East, the article generally precedes the numeral, e.g. (Iraq) *l-xams isnīn* 'the five years', sometimes with a repetition (Ṣan'ā') *as-sitt al-banāt* 'the six girls', a less frequent variant of *al-banāt as-sitt*. On the other hand, the 'normal' form of the construct state (with an article before the counted noun) does not seem to be used.

1.2.4 From 'eleven' to 'nineteen'

In Arabic, all cardinals above ten govern the singular (unit noun for the collectives). In Classical Arabic, the counted noun is in the accusative as a 'specifying complement' (→ *tamyīz*), always indefinite (in *-n*), *xamsūna dirhaman* 'fifty dirhams'.

With indefinite counted nouns, gender agreement in Literary Arabic is marked for the units and the tens, but always with the same gender polarity as for three through nine. Dialects with gender variation are rare. Some modern dialects use the same forms in isolation and with counted nouns. The *-ar* forms are attested in particular in Egypt, Sudan, Chad, and Dubai, e.g. (Cairo) *tamanṭāšar daraga* 'eighteen steps', and the forms without *-ar* are attested in Mesopotamia and in part of the Arabian Peninsula, e.g. (Ṣan'ā') *iṭn'āš bint* 'twelve girls'.

Other dialects (in the Middle East, e.g. Mecca, Damascus, Bahrain; in the Maghreb, e.g. Djidjelli, Zaër, Ḥassāniyya) have kept the final consonant *r/ṛ* in the series used in annexion, while in isolation truncated forms (without *-ar*) occur, (Gulf Arabic) *sitta'šar ḥmīsa* 'sixteen turtles'. A variant of this system is found in some sedentary Maghrebi dialects in which the enlarged form is not in *-r* (except when assimilated to the following consonant), but in *-ən*, (Cherchell) *xamṣṭāšən yōm* 'fifteen days', or in *-əl*, (Tlemcen) *xmṣṭāšəl mra* 'fifteen women', or it may even be assimilated to the first radical, just like the *l* of the definite article.

1.2.5 From 'twenty' to 'ninety-nine'

In Classical Arabic agreement in gender is only marked in the unit, but always with the gender polarity mentioned for three through nine. In the dialects, there is no difference between the form used in isolation and in compounding. The constructions appear to be always synthetic, even in the Maghrebi dialects, e.g. (Morocco) *xemsa u 'ešrin xeṭma* 'twenty-five steps', *tes'ud u tes'in merṛa* 'ninety-nine times'.

In the cardinals 11–99, definiteness of the counted noun as *tamyīz* is expressed in Classical Arabic by the article in the numeral, e.g. *aṭ-talāṭata 'ašara rajulan* 'the thirteen men'. It is this type of construction that is generally used in the dialects, e.g. (Gulf Arabic) *li-ḥda'šar bi'r* 'the eleven camels', *li-'išrin gub-guba* 'the twenty crabs'. Sometimes, however, the article is repeated before the counted noun,

e.g. (Ṣan'ā') *al-'arba'in yawm*/(less frequent) *al-'arba'in al-yawm* 'the forty days'.

Sometimes, the dialects only use the 'adjectival' construction, normally reserved for the numerals three through ten, while the form used for eleven through nineteen is the independent one, e.g. (Ḥassāniyya) *l-lyāli l-axmāšāš* 'the fifteen nights', *l-lyāli l-xamsīn* 'the fifty nights'.

1.2.6 After 'one hundred' and 'one thousand'

In Classical Arabic, the counted noun is in the genitive singular. In Arabic dialects, the numeral 'one hundred' is different from the others because it has the form associated with feminine nouns in the construct state, e.g. (Morocco) *myat ne'la* 'a hundred curses'.

In Classical Arabic, definiteness with 'one hundred' and 'one thousand' is the same as with 'three' through 'ten', the only syntactic difference lying in the use of the singular for the counted noun.

In dialects, the construction is generally the one used for 11–99, mostly with the numeral following the article, e.g. (Ṣan'ā') *al-miyat fāris* 'the hundred horsemen'.

2. ORDINALS

In Classical Arabic, 'first', as in many other languages, is isolated because of its radical and its form. It is an elative, whose root is *'w-l*: masc. *'awwal*, pl. *'awwalūn*, fem. *'ūlā*, pl. *'uwal*.

The ordinal numerals from 'two' to 'ten' have the form *fā'il* and behave like adjectives (with a feminine form in *-a(t)*): *tāni*, *tālīt*, *rābi'*, *xāmis*, *sādis*, *sābi'*, *tāmin*, *tāsi'*, *āšir*.

Numerals from 'eleven' to 'nineteen' are invariable and always have the accusative ending; the tens stay in *-a*. Only the units take the *fā'il* form (for 'eleven', the unit is *ḥādiya*, fem. *ḥādiyata*), but the two parts agree in gender. If the noun is definite, the article is only present once; the ordinals 11–19 function as compound nouns.

From 'twenty' onward the cardinals are used as ordinals, without gender modification, except concerning the units. With a definite noun, the article is repeated in front of each element.

3. FRACTIONS

In Classical Arabic, 'half' is *niṣf*, and the fractions from three to ten are expressed through

nouns of the pattern *fu'l* or (more rarely) *fu'ul*:
tul(u)ṭ ‘one third’, *rub(u)ṭ* ‘one quarter’.

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