Count Plural vs. Cardinal Plural in Arabic

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Our starting point is the DP structure in Borer (2005 et seq.), where plural inflection marks count structure (henceforth CтP for Count Phrase, ClP in Borer, op. cit.):

1. a. Mass structure: [$_{DP}$D [$_{\#P}$ # [$_{NP}$ ...]]]
    b. Count structure: [$_{DP}$D [$_{\#P}$# [$_{CтP}$ Classifier/'plural' [$_{Nmax}$ ...]]]]

This model predicts complementarity between plural inflection and classifier morphology in any given nominal, a correlation otherwise noted (e.g. T'sou, 1976; Doetjes, 1996; Haspelmath, 2001). Some prima facie counterexamples do exist, but at least for some cases, they have been shown in actuality not to be so (cf. Park 2006; De Belder 2007). Another such apparent counterexample is found in Lebanese and Standard Arabic. We examine it and show that what appears to be plural marking in Arabic has two distinct identities: one, indeed, syntactically and semantically count; the other, a semantically bleached agreement marker. The contrast between the two plurals helps bolster the existence of CтP and further supports a distinct syntax for cardinals and quantifiers.

The Puzzle:

A well-defined subclass of Arabic nouns exhibits a three-way morphological distinction between KIND (or BATCH), a UNIT of that kind, derived from the KIND form with the affix *–ah* (henceforth -AH), and a plural of that unit (henceforth UNIT PLURAL). As illustrated in (2), -AH is clearly a COUNT marker. But if so, the plural marking added to it clearly *cannot* be a COUNT marker as well:[1]

2.

a. KIND	**b. UNIT**	**c. UNIT PLURAL**
ba'ar	*ba'r-ah*	*ba'r-aat*
cow —'cattle'	cow-AH —'cow'	cow-*AH*-pl — 'cows'
teffeeH	*teffeeH-ah*	*teffeeH-aat*
apple — 'apple'	apple-AH — 'an apple'	apple-*AH*-pl — 'apples'
wara'	*wara'-ah*	*war'aat*
paper — 'paper'	paper-AH —'sheet of paper'	paper-*AH*-pl — 'sheets of paper'

Gender marking shows that plural *-aat* in (2c) is affixed to the UNIT form and not directly to the KIND form: As adjective agreement indicates, KIND forms are masculine and UNIT forms are feminine:

3.

a. KIND (masculine)	**b. UNIT (feminine)**	**a. KIND (masculine)**	**b. UNIT (feminine)**
ba'ar kbiir	*ba'r-ah kbiir-eh*	*teffeeH axdar*	*teffeeH-ah xadr-ah*
cow big$_{Masc}$	cow-AH big$_{Fem}$	apple green$_{Masc}$	apple-AH green$_{Fem}$
'big cattle'	'big cow'	'green apple'	'a green apple'

UNIT PLURALS, in turn, are feminine. As adjectives modifying non-human plurals in Arabic do not always agree in gender and number, we use the gender of the cardinal 'one' in partitives to show this (cf. 4a). Crucially, the *-aat* ending in itself does not suffice to render nouns feminine, as shown by (4b); partitives of derived nominals which end in *-aat* but nonetheless require a *masculine* 'one':

4. a. waHdeh/*weHed   men t-teffeeH-aat/l-ba'r-aat   / l-war'-aat
       one-fem/*one-masc of   the-apple-'pl'/ the-cow-'pl'/ the-paper-'pl'
       'one of the apples/cows/papers'
    b. weHed/*waHdeh   men l-?ileej-eet   / l-Siraa?-aat
       one-masc/*one-fem of   the-treatment-'pl'/the-struggle-'pl'
       'one of the treatments/struggles'

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[1]For reasons of space, all examples are from Lebanese. All relevant diagnostics apply to Standard Arabic, as well.

Distinguishing COUNT PLURALS from UNIT PLURALS:

We now show that UNIT PLURALS differ sufficiently from 'regular' COUNT PLURALS to warrant a different syntax for the two. Once this distinction is established, the apparent challenge to the analysis of 'standard' plural marking as COUNT is eliminated.

A. Bare Plurals:

While Arabic allows Bare Plurals in weak contexts (5a), it does not for UNIT PLURALS (5b).

5. a. COUNT PLURALS:
    sheft   suuriy-iin/mhands-eet/ketob   honik
    saw.1s Syrian-'pl'/engineer-'pl'/book-'pl' there
    'I saw Syrians/engineers/men over there'

    b. UNIT PLURALS:
    *sheft   teffeeH-aat/samk-eet   honik
    saw.1s   apple-*AH*-'pl'/fish-*AH*-'pl'   there
    'I saw apples/fishes over there'

B. Cardinals and Quantifiers:

COUNT PLURALS, with or without -aat, occur with both cardinals and quantifiers (cf.6a). UNIT PLURALS, always with -aat, can only occur with cardinals, never quantifiers (cf.6b).

6. a. COUNT PLURALS: fi   tlat /ktiir   suuriy-iin/mhands-eet/rjeel   hon;
                       exist three/many   Syrian-'pl'/engineer-'pl'/man-'pl' here
                       'There are three/many Syrians/engineers/men here'
    b. UNIT PLURALS: fi   tlat/*ktiir   teffeH-aat/samk-eet hon
                       exist three/*many   apple-pl/fish-'pl'   here
                       'There are three/*many apples/fishes here'

C. Interpretation of Genitive Quantifiers:

Plural-taking quantifiers that take a syntactically-definite restriction, e.g. *kell* 'all' occur pre-nominally in genitive constructions where they are interpreted either as partitive, taking reference from a known set (7a-i), or as typical quantifiers (7a-ii). While such ambiguity holds for all morphological plural forms, UNIT PLURALS allow only the partitive reading (7b-i), in which the referent is mutually recognizable (contextually salient), and bar the quantifier reading (7b-ii).

7. a. COUNT PLURALS: b. UNIT PLURALS:
        kell T-Taawl-eet;   kell l-teffeeH-aat
        all   the-table-'pl'   all   the-apple-*AH*-'pl'
        interpretation: i. All of the tables (specific)   interpretation: i. All of the apples (specific)
                         ii. All tables   ii. **All apples

D. Pluralizing KINDs:

Finally, most KIND forms such as those in (2a) also pluralize directly. The meaning resulting is a plurality of *batches* (or kinds), and not the plurality of units always associated with plural makred Batch+AH nouns (hence the name UNIT PLURAL), as those in (2c). These can occur as bare plurals or with quantifiers.

8. jibn   → ajbeen;   raml → rimeel;   šajar → ašjaar
    cheese   cheese-pl   sand   sand-pl   tree   tree-pl
    cheese   cheeses (types)   sand   heaps of sand   tree   trees (batches/kinds)

In sum, unlike COUNT PLURALS, UNIT PLURALS must occur with cardinals or cardinal-like items. Crucially, their distribution also suggests a structural difference between quantifiers and cardinals.

Positioning Quantifiers and Cardinals:

There are, in addition , good independent reasons to assume that quantifiers merge higher than cardinals. For example, while quantifiers always scope over adjectives (cf. 9), cardinals may scope both above and below adjectives (cf. 10).

9. a. *Hmelt   šwayt   ?elab   t'aal* | i. 'I carried many heavy boxes'
   carried few   box-pl   heavy-pl | ii.* 'I carried a heavy bunch of many boxes'
   b. *t?arraft   ?alaa ktiir   maSriy-iin   waduudiin* | i. 'I met many friendly Egyptians'
   acquainted with many Egyptian-plfriendly | ii.* 'I met a friendly group of many Egytians'

10. a. *Hmelt   xams   teffeeH-aat   t'aal* | i. 'I carried five heavy apples (each heavy)'
    carried five   apple-*AH*-pl$_{SF}$ heavy-pl | ii. 'I carried a heavy five apples (collectively)'
    b. *t?arraft   ?alaa tlat   maSriy-iin   waduudiin* | i. 'I met many friendly Egyptians'
    acquainted with three Egyptian-pl friendly | ii. 'I met a friendly group of three Egytians'

Solution:

To accommodate the contrasts between COUNT PLURALS and UNIT PLURALS, as well as the availability of two distinct plural forms with different properties for the same stem, suppose we assume that while COUNT PLURALS head CtP, UNIT PLURALS do not. Rather, UNIT PLURALS are non-singular agreement on nominals in the context of cardinals. That such agreement only occurs with cardinals serves, in turn, to motivate a distinct merger site for cardinals (henceforth #), which is lower than that of quantifiers (henceforth Q). We propose that cardinals merge in Spec,#P where they scope below adjectives. In turn, they may move to Spec,QP where they acquire quantificational properties and wide scope. 'True' quantifiers, in contrast, merge directly in Spec,QP (cf. 11). (Evidence for a #P/QP distinction is also available from Bulgarian, Hebrew, English, and Chinese):

11. [$_{DP}$ D [$_{QP}$ (quantifier/cardinal) Q   [$_{\#P}$ (cardinal)#   [$_{CtP}$ Cт   [$_{NP}$ N]]]]]
                                                    UNIT PL   COUNT PLURAL; AH

The relevant portions of the derivation of UNIT PLURALS are in (12a). The derivation of COUNT PLURALS remains as in Borer (op. cit.), in (12b).

12. a. [$_{\#P}$ cardinal N-AH-agr$_{\#[-sg]}$ [$_{CtP}$ N̶ ̶A̶H̶   [$_{NP}$ N̶]]]
    b. [$_{\#P}$ cardinal N-pl   [$_{CtP}$ N̶ ̶p̶l̶   [$_{NP}$ N̶]]]

For the sake of completeness, note that singular forms, AH and others, do not show further agreement marking. As for COUNT PLURAL, we assume they are already marked as non-singular compatible, hence require no further marking after moving to #. The relevant derivations are in (13):

13. a. [$_{\#P}$ N-AH   [$_{CtP}$ N̶-̶A̶H̶   [$_{NP}$ N̶]]] (singular UNIT)[2]
    b. [$_{\#P}$ N   [$_{CtP}$ N̶   [$_{NP}$ N̶]]] (non-UNIT singular)
    c. [$_{\#P}$ (cardinal) N+[-sg]   [$_{CtP}$ N̶+̶[̶-̶s̶g̶]̶   [$_{NP}$ N̶]]] (COUNT PLURALS)

Selected References:

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[2] Borer's (2005) account of singulars, requiring identifying the count head and the quantifier head, will now require identifying the count head and the cardinal head.