Plan
- Theoretical Assumptions
- The Puzzle
- On the Non-triviality of the Puzzle
- Plural-marked -复习 Nominals vs. Other Plurals: Syntactic and Semantic Differences
- Structural and Semantic Differences between Cardinals and Quantifiers
- Toward a Solution
- Dividing vs. Agreeing
- Cardinals and Agreement: Bulgarian Plurals

1. Setting the Stage: Theoretical assumptions

Borer (2005) the Exoskeletal Model: The mass-count distinction is purely grammatical and not lexical (universally)

1. Count Structure:
\[
\begin{array}{c}
(D_{\text{max}}) \\
D) \\
#_{\text{max}} \\
# \\
\text{Div}_{\text{max}} \\
\text{Div} \\
\text{N}_{\text{max}}
\end{array}
\]

2. Mass Structure:
\[
\begin{array}{c}
(D_{\text{max}}) \\
D) \\
#_{\text{max}} \\
# \\
\text{N}_{\text{max}}
\end{array}
\]

3. Mandarin Chinese: Classifiers instantiate \textit{div}
   a. \textit{henduo} li mi li=classifier associated with elongated units
      a-lot CL rice
      many grains of rice
   b. san li mi
      three CL rice
      three grains of rice

4. Mandarin Chinese
   \[
   \begin{array}{c}
   (D_{\text{max}}) \\
   D) \\
   #_{\text{max}} \\
   \{ \text{henduo} \}
   \{ \text{san} \}
   \text{Div}_{\text{max}} \\
   \text{DIV} \\
   \text{N}_{\text{max}} \\
   \text{li} \\
   \triangle \\
   \text{three} \\
   \text{CL} \\
   \text{mi} \\
   \text{rice}
   \end{array}
   \]

Mandarin Chinese: Classifiers instantiate \textit{div}

a. \textit{henduo} li mi li=classifier associated with elongated units
   a-lot CL rice
   many grains of rice
b. san li mi
   three CL rice
   three grains of rice

Mandarin Chinese
5. a. *henduo mi  
   a-lot  rice  
   'much rice'  
   b. *san mi  
   three  rice  
   three rices/three grains of rice

6. (Dmax
   D)  \( \#_{\text{max}} \)
   \#  \( N_{\text{max}} \)
   \{ henduo \}  \( \triangle \)
   \{ *san \}  mi  
   much  rice
   *three

7. **English:** Plural marking instantiates *DIV (+count)*
   a. I had wine.  
   b. There is rabbit in my soup.  
   I had three wines.  
   There are rabbits in the garden.

The plural interpretation of the plural inflectional marking is an implicature:

8. a. 0.3 apples; 1.0 apples  
   b. *0.3 apple; *1.0 apple

9. i. A: Why did you put bananas in the fruit salad? You know I can't stand bananas!  
   B: #You shouldn't have a problem. I only put one.

ii. A: If you have children you are required to send them to school.  
   B: #Well, I guess I don't have to, as I only have the one.

10. A. Count Interpretation:  
    \[ [\text{DP} \ D \ [#P \ many \ [DIVP \ apple-s \ [N_{max} \ apple]]]]] \]
    B. Mass Interpretation:  
    \[ [\text{DP} \ D \ [#P \ much \ [NP \ apple]]] \]

11. **Atomic Interpretation** (singular) emreges from the strict identity of DIV and #  
    (entails the absence of a distinct valuer for #)

12. **English:**

\[ D_{\text{max}} \]
\[ D \]
\[ \#_{\text{max}} \]
\[ \# \]
\[ \text{Div}_{\text{max}} \]
\[ a \]
\[ \text{Div} \]
\[ \text{N}_{\text{min/max}} \]
\[ a \]
\[ \text{beer} \]
13. **Prediction:** Complementary distribution of morphological classifiers and plural marking in any given nominal structure. Previously observed (T'sou, 1976; Haspelmath, 2001; Doetjes, 1996).

| OUR PUZZLE: An Apparent Counterexample to (13) in Arabic – a Classifier that Co-Occurs with Plural Marking. |

## 2. The Puzzling Facts

### 2.1. The **DIV** morpheme-**AH**

The (otherwise unmarked) nouns/roots in (14) denote collectives or an indeterminate quantity (henceforth *Batches*). They are always mass. When -**AH**, a feminine morpheme, is added to them, as in (15), a 'unit of' reading emerges. -**AH** then, is a classifier (c.f. Zabbal, 2002; Fassi Fehri 2003), that is, an instance of **DIV**:

<table>
<thead>
<tr>
<th>14. <strong>Batch Reading</strong></th>
<th>15. <strong>'Unit-of Reading</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a.</strong> ?aSar-t laymuun</td>
<td><strong>a.</strong> ?aSar-t laymuun-eh</td>
</tr>
<tr>
<td>squeezed-1ps orange</td>
<td>squeezed-1ps orange-<strong>AH</strong></td>
</tr>
<tr>
<td>'I squeezed orange'</td>
<td>'I squeezed an orange'</td>
</tr>
<tr>
<td><strong>b.</strong> sta?mal-t wara'</td>
<td><strong>b.</strong> sta?mal-t wara'-ah</td>
</tr>
<tr>
<td>used-1ps paper</td>
<td>used-1ps paper-<strong>AH</strong></td>
</tr>
<tr>
<td>'I used paper'</td>
<td>'I used a piece of paper'</td>
</tr>
<tr>
<td><strong>c.</strong> šhreb-t biirah</td>
<td><strong>c.</strong> šhreb-t biiray-eh</td>
</tr>
<tr>
<td>drank-1ps beer</td>
<td>drank-1ps beer-<strong>AH</strong></td>
</tr>
<tr>
<td>'I drank beer'</td>
<td>'I drank a beer'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>16. <strong>Batch nouns are grammatically mass:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ktiir laymoun; ktiir wara'; ktiir biirah</td>
</tr>
<tr>
<td>much orange       much paper       much beer</td>
</tr>
<tr>
<td><strong>b.</strong> *ktiir laymoun-eh; *ktiir war'-ah; *ktiir biiray-eh</td>
</tr>
<tr>
<td>much orange-<strong>AH</strong> much paper-<strong>AH</strong> much beer-<strong>AH</strong></td>
</tr>
<tr>
<td><strong>c.</strong> ktiir may/Hubb; d. *ktiir annineh/m’aSS; e. ktiir aneeni/m’aSSaat</td>
</tr>
<tr>
<td>much water/love   much bottle/pair-of-scissors many bottles/pairs-of-scissors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>17. <strong>Batch Reading:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. tefeeH weeHed apple</td>
</tr>
<tr>
<td>one</td>
</tr>
<tr>
<td>one type of apple</td>
</tr>
<tr>
<td>*one apple</td>
</tr>
<tr>
<td><strong>b.</strong> baTaTa waHdeh</td>
</tr>
<tr>
<td>potato one</td>
</tr>
<tr>
<td>one type of potato</td>
</tr>
<tr>
<td>*one potato</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>18. <strong>'Unit-of Reading</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. tefeeH-ah waHdeh</td>
</tr>
<tr>
<td>apple-<strong>AH</strong> one</td>
</tr>
<tr>
<td>one apple</td>
</tr>
<tr>
<td>b. baTaTay-eh waHdeh</td>
</tr>
<tr>
<td>potato-<strong>AH</strong> one</td>
</tr>
<tr>
<td>one potato</td>
</tr>
</tbody>
</table>

1Unless otherwise noted, all effects exemplified in Lebanese hold in an identical fashion for Standard Arabic.
19. **Batch Reading:**

   a. ?and-i bass teffeeH
       at-me only apple
       I have only apples
       (no other food, only apples)

   b. akalt bass xyaar
       ate.1s only cucumber
       I ate only cucumber
       (cucumber-only diet)

20. **'Unit-of' Reading**

   a. ?andi bass teffeeH-ah
       at-me only apple-\textit{AH}
       I have only one apple
       (may have other food, but only one apple)

   b. akalt bass xyaar-ah
       ate.1s only cucumber-\textit{AH}
       I ate only one cucumber
       (may have eaten other food, but only one cucumber)

21. **On Batch nouns/roots, -\textit{AH} is always and productively a divider**

   a. krwason → krwason-eh (from the French croissant)
       croissant-\textit{AH}
       croissant (food type)

   b. hambergray → hambergray-eh (from the English hamburger)
       hamburger-\textit{AH}
       hamburger (food type)

   c. scotch tape → scotch tape-\textit{AH}
       a piece of Scotch Tape
       Scotch Tape

   \( \Rightarrow -\textit{AH} \) is an instance of DIV

22. **Prediction: Complementary distribution of -\textit{AH} and plural marking**

   But \(-\textit{AH} \) co-occurs with plural markings!

   a. štre-t lat laymoun-eet
       bought-1ps three orange-\textit{AH}-pl
       I bought three oranges.

   b. ken fi sett rezz-eet bi S-SaHn
       was exist six rice-\textit{AH}-pl in the-plate
       There were six grains of rice on the plate.

   c. štar-o sab’ djej-eet
       bought-3pp’ seven chicken-\textit{AH}-pl
       They bought seven chickens.
2.2. Feminine marking: –AH is not –ah

23. -AH is homophonous with the feminine ending –ah² and is feminine in all its occurrences:
   a. laymoun-eh Hamr-ah;  b. wara’-ah zghiir-eh;  c. raml-eh mdawwr-ah
   orange-AH red-fem  paper-AH small-fem  sand-AH spherical
   ’a red orange’  ’a small piece of paper’  ’a spherical grain of sand’

BUT -AH IS NOT THE FEMININE ENDING AS SUCH

24. a. Biologically masculine, masculine
   i. Sabi;  ii. bsein;
   youth  cat
   boy;  cat_{masc}
   b. Biologically feminine, feminine
   i. Sabiy-eh;  ii. bsein-eh;
   youth-fem  cat-fem
   young woman  cat_{fem}

25. a. Biologically masculine, masculine
   i. rejjeel;  ii. tays;
   man  goat
   b. Biologically feminine, feminine, stem suppletion
   i. mar-ah;  ii. ?anz-eh;
   woman  goat
   (*mar)  (*?anz)

26. Ontologically genderless:
   a. Grammatically masculine, no feminine counterpart
   i. kersi;  ii. beeb;  iii. ma’lab
   chair;  door;  prank
   (*kersi-ah) (*beeb-ah) (*ma’lab-ah)

   b. Feminine, -ah ending, no independent stem
   i. Taawl-ah;  ii. maHabb-eh
   table  affection
   (*Taawl)  (*maHabb)

   c. Feminine, -ah ending, non-compositional
   i. lawH-ah;  ii. saHH-ah
   painting  health
   (lawH = board)  (saHH=correct)

27. In all of these cases -ah is not a divider:
   A. The stem is not mass (24).
   B. The stem does not exist independently (25b)-(26b) or exists with a possibly related but clearly non-compositional meaning (26c).
   C. The -ah form is altogether mass and not count (26b-ii) and (26c-ii).
   D. With the exception of biologically gendered nouns, the -ah suffixation is not productive.

28. Arabic count structure, -AH:

\[
\begin{array}{c}
(D_{\text{max}}) \\
\ #_{\text{max}} \\
\ & \ #_{\text{DIV}} \ \\
\ & \ & \ & \ N_{\text{max}} \\
\ #_{\text{DIV}} \\
\ -AH \\
\end{array}
\]

²Or as -eh in some instances in Lebanese Arabic. The morpheme, in both Standard and Lebanese Arabic, is consistently pronounced as -t final (-at or -et) in some phonological environments.
Puzzle Recap:

A. \(-AH\) is an instance of DIV
B. Plural marking is an instance of DIV
→ Complementary distribution of \(-AH\) and plural marking.

But alas, \(-AH\) and plural marking do co-occur...

29. a. štre-t tlat laymoun-eet
   bought-1ps three orange-\(-AH\)pl
   I bought three oranges.

   b. ken fi sett rezz-eet bi S-SaHn
   was exist six rice-\(-AH\)pl in the-plate
   There were six grains of rice on the plate.

   c. štar-o sab? djeej-eet
   bought-3pp' seven chicken-\(-AH\)pl
   They bought seven chickens.

Possible Solutions:
- \(-AH\) is not DIV
- plural marking (in general) is not DIV
→ the plural marking that co-occurs with \(-AH\) is not an instance of DIV

3. Plural Marking and \(-AH\)-Divided Nouns: Why the Problem is not Trivial

Query: Can we distinguish between the parse in (30a) and the parse in (30b)? Phonologically, both are equally plausible. But if the parse in (30b) is the correct one, and the plural marking eet is attached directly to the stem, our puzzle vanishes (unfortunately, no such luck...):

30. a. (tlat) Tabšuur-\(-AH\)-at
   'batch' -PL
   (sab?) Hajr-\(-AH\)-atf
   'batch'-\(-AH\)-PL
   'three pieces of chalk'

   b. (tlat) Tabšuur-aat
   'batch' -PL
   (sab?) Hajr-aat
   'batch'-PL
   'seven stones'

31. A. \(-eet/-aat\) is the regular feminine plural associated with most occurrences of the feminine \(-ah\) morpheme (but it is at times associated with masculine stems...)
B. However, Batches are masculine, and the plural forms in (30) are feminine.\(^3\)
C. And most crucially, Batches (also) occur with an autosegmental plural marking ("Broken Plural"). The resulting plural form is masculine and is interpreted systematically differently:\(^4\)

---

\(^3\) Establisihing the gender of these plural forms is not in actuality a trivial matter. Ask us about it, if interested. We note, for completeness sake, that evidence is available that plural marking as such does not change gender for the noun as a whole.

\(^4\) See Fassi Fehri (2003) for a similar observation on Moroccan Arabic plurals of Batch Nouns (fn 19).
32. A. Batches

<table>
<thead>
<tr>
<th></th>
<th>B. Batch-AH</th>
<th>C. With Broken plural</th>
<th>D. Batch+aat/-eet</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>[Tabšuur]_{M} chalk</td>
<td>[Tabšuur-ah]_{F} chalk-AH piece of chalk</td>
<td>[Tabšuur-aat]_{F} chalk-pl-aat pieces of chalk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>[Hajr]_{M} stone</td>
<td>[Hajr-ah]_{F} stone-AH a stone</td>
<td>[Hajr-aat]_{F} stone-pl-aat stones</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

33. **AND -eet/-aat in itself does not encode a plural of units reading:**

| a. | ktii r mēt?ah; ktii r musii’a; ktii r ma?rifeh; much pleasure much music much knowledge |
| b. | ktii r mēt?-aat; ktii r musii’-aat; ktii r ma?rif-eet |
|    | many pleasures many musics many knowledges |
|    | ‘many types of pleasure’ ‘many types of music’ ‘many types of knowledge’ |
|    | *‘many instances of pleasure’ *‘many pieces of music’ *‘many known items’ |

**Plan**

- Theoretical Assumptions
- The Puzzle
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- Plural-marked -AH Nominals vs. Other Plurals: Syntactic and Semantic Differences
  - Bare Plurals
  - Quantifiers
  - Partitive vs. Quantitative Reading
- Structural and Semantic Differences between Cardinals and Quantifiers
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4. Plurals of -AH-Divided Nominals vs. Other Plurals

4.1. Bare Plurals

43. Arabic allows bare plurals (only) in weak contexts:

| a. | šēf t mhands-ii-n bi 1-lab |
|    | saw.1s engineer-pl in the-lab |
|    | I saw male engineers in the phonetics lab. |
| b. | šēf t mhands-eet bi 1-lab |
|    | saw.1s engineer-pl in the-lab |
|    | I saw female engineers in the phonetics lab. |
| c. | šēf t Sabaaya bi 1-salon |
|    | saw.1s youth-pl in the-lounge |
|    | I saw young ladies in the lounge. |
35. **Directly pluralized batches of the same stems are licit as bare plurals:**
   a. šeft  Sxuur  ?a  l-šaTT  base: Saxr
      saw.1s  rock-pl$_{BR}$  on  the-beach
      I saw rocks by the beach.
   b. šeft  asmek  bi  l-baHer  base: samak
      saw.1s  fish-pl$_{BR}$  in  the-sea
      I saw fishes (many kinds) in the sea.
   c. šeft  Hjaar  honik  base: Hajar
      saw.1s  stone-pl$_{BR}$  there
      I saw stones there.

36. **-aat marked (sound feminine) nominals occur bare (cf. 34b)**

<table>
<thead>
<tr>
<th>BUT PLURAL MARKED BATCH-AH NEVER OCCUR BARE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>37. a. *šeft  Saxraat  ?a  l-šaTT  base: Saxr-AH</td>
</tr>
<tr>
<td>saw.1s  rock-AH-pl on the-beach</td>
</tr>
<tr>
<td>I saw rocks by the beach.</td>
</tr>
<tr>
<td>b. *šeft  samk-eet  bi  l-baHr  base: samak -AH</td>
</tr>
<tr>
<td>saw.1s  fish-AH-pl in the-sea</td>
</tr>
<tr>
<td>I saw fish in the sea.</td>
</tr>
<tr>
<td>c. *šeft  Hajr-aat  ?a  l-Tarii'  base: Hajr-AH</td>
</tr>
<tr>
<td>saw.1s  stone-AH-pl$_{SF}$ on the-road</td>
</tr>
<tr>
<td>I saw stones on the road.</td>
</tr>
</tbody>
</table>

4.2. **Quantifiers**

<table>
<thead>
<tr>
<th>PLURAL MARKED BATCH-AH NEVER OCCUR WITH QUANTIFIERS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>38. <strong>Pre-nominal quantifiers, Batch-AHs:</strong></td>
</tr>
<tr>
<td>a. *fi  šwayt/ktiir  samk-eet  bi  l-baHr  base: samak -AH</td>
</tr>
<tr>
<td>exist  few/many  fish-AH-pl in the-sea</td>
</tr>
<tr>
<td>There are few/many fish in the sea.</td>
</tr>
<tr>
<td>exist  few/many  stone-AH-pl on the-road</td>
</tr>
<tr>
<td>There are few/many stones on the road.</td>
</tr>
<tr>
<td>c. *fi  šwayt/ktiir  Tabšuur-aatbi  d-derej  base: Tabšuur-AH</td>
</tr>
<tr>
<td>exist  few/many  chalk-AH-pl in the-drawer</td>
</tr>
<tr>
<td>There are few/many pieces of chalk in the drawer.</td>
</tr>
</tbody>
</table>

39. **Pre-nominal quantifiers, other plurals**
   a. fi  šwayt/ktiir  rjeel  bi  ha-S-Saff  base: ha-S-Saff |
      exist  few/many  man-pl in this-the-class |
      There are few/many men in this classroom.
   b. fi  šwayt/ktiir  m?allm-eet  bi  ha-S-Saff  base: ha-S-Saff |
      exist  few/many  teacher-pl in this-the-class |
      There are few/many female teachers in this classroom.

---

5 Standard Arabic only allows pre-nominal quantifiers in partitive-like contexts, see (47) below.
40. Pre-nominal quantifiers, directly pluralized Batches of same stem
   a. fi šwayt/ktiir asemek bi l-baHer
      exist few/many fish-pl in the-sea base: samak
      There are many fishes (many kinds) in the sea.
   b. fi šwayt/ktiir Hjaar honik
      exist few/many stone-pl there base: Hajar
      There are few stones there.

41. Post-nominal quantifiers, Batch-\text{\textasciicircum}:
Lebanese
   a. *fi samk-eet ktiir bi l-baHr base: samak-\text{\textasciicircum}
      exist fish-\text{\textasciicircum}-pl many in the-sea
      There are many fish in the sea.
   b. *fi Hajr-aat ktiir ?a l-Tarii’ base: Hajr-\text{\textasciicircum}
      exist stone-\text{\textasciicircum}-pl many on the-road
      There are many stones on the road.
   c. *fi Tabšuur-aat ktiir bi d-derej base: Tabšuur-\text{\textasciicircum}
      exist chalk-\text{\textasciicircum}-pl many in the-drawer
      There are many pieces of chalk in the drawer.

42. Post-nominal quantifiers, other plurals
   a. fi rjeel ktiir bi ha-S-Saff
      exist man-pl many in this-the-class
      There are many men in this classroom.
   b. fi m?allm-eet ktiir bi ha-S-Saff
      exist teacher-pl many in this-the-class
      There are many female teachers in this classroom.

43. Post-nominal quantifiers, directly pluralized Batches of same stem
   a. fi asemek ktiirbi l-baHer
      exist fish-pl many in the-sea base: samak
      There are many fishes (many kinds) in the sea.
   b. fi Hjaar ktiirhonik
      exist stone-pl many there base: Hajar
      There are many stones there.

4.3. A Note on Agreeing Post-nominal 'Quantifiers' (see section 5.3 for more)

44. Agreeing post-nominal 'quantifiers', Batch-\text{\textasciicircum}
   a. *šeft samk-eet 'leel/ktaar bi-j-jaaT base: samk-\text{\textasciicircum}
      saw.1s fish-\text{\textasciicircum}-pl few/many in-the-bowl
      There are a few/many fishes in the bowl.
   b. *šeft Hajr-aat 'leel/ktaar ?a l-Tarii’ base: Hajr-\text{\textasciicircum}
      saw.1s stone-\text{\textasciicircum}-pl few/many on-the-road
      I saw few/many stones on the road.

45. Agreeing post-nominal 'quantifiers', other plurals
   a. šeft rjeel 'leel/ktaar bi labl-fonetik
      saw.1s man-pl few/many in labthe-phonetics
      I saw a few/many men in the phonetics lab
   b. šeft m?allm-eet 'leel/ktaar bi l-madraseh
      saw.1s teacher-pl few/many in the-school
      I saw few/many teachers in the school.
46. Agreeing post-nominal quantifiers, directly pluralized Batches of the same stem
   a. fi asmek 'leel/ktaar bi l-balHer
      exist fish-pl few/many in the-sea base: samak
      There are many fishes (many kinds) in the sea.
   b. fi Hjaar 'leel/ktaar honik
      exist stone-pl few/many there base: Hajar
      There are few stones there.

4.4. Partitive vs. Standard Quantificational Reading:

47. [Quantifier + Definite Article + NP] expressions are ambiguous:
   a. kell/ba?D/aghlab T-Taawleet
      all/some/most the-table-pl
      i. all/some/most of the tables - SPECIFIC PARTITIVE READING
      ii. all/some/most tables - STANDARD QUANTIFICATION WITH A NON-DEFINITE RESTRICTION
   b. kell/ba?D/aghlab l-mhandsiin
      all/some/most the-engineer-pl
      i. all/some/most of the engineers - SPECIFIC PARTITIVE READING
      ii. all/some/most engineers - STANDARD QUANTIFICATION WITH A NON-DEFINITE RESTRICTION
   c. kell/ba?D/aghlab l-mudun
      all/some/most the-citie-pl
      i. all/some/most of the cities - SPECIFIC PARTITIVE READING
      ii. all/some/most cities - STANDARD QUANTIFICATION WITH A NON-DEFINITE RESTRICTION

        ONLY THE PARTITIVE READING IS AVAILABLE FOR BATCH-AN NOUNS:

48. kell/ba?D/aghlab l-teffeeHaat
    all/some/most the-apple-AN-pl
    i. all/some/most of the apples - SPECIFIC PARTITIVE READING
    ii. * all/some/most apples - NO STANDARD QUANTIFICATIONAL READING

4.5. So where ARE Plural-marked Batch-AN Nouns Licit?

49. Plural-marked Batch-AN nouns are licit in the context of cardinals:
   a. šeft tes? samk-eet bi l-jaaT
      saw.1s nine fish-AN-pl in the-bowl
      I saw nine fish in the bowl.
   b. šeft arba? Hajr-aat ?a l-Tarii’
      saw.1s four stone-AN-pl on the-road
      I saw four stones on the road.
   c. šeft xams Tabšuur-aat bi d-derej
      saw.1s five chalk-AN-pl in the-drawer
      I saw five pieces of chalk in the drawer.
50. **Plural-marked Batch-**AH nouns licit without a cardinal when definite:
   a. s-samk-eet mush hon
      the-fish-**AH-pl not here
      The fishes are not here.
   b. l-Hajr-aat nramo
      the-stone-**AH-pl thrown
      The stones were thrown.
   c. T-Tabšuur-aat xtafo
      thechalk-**AH-pl disappeared
      The chalks disappeared.

---

**PLURAL BATCH-AHS ARE INSTANCES OF AGREEMENT WITH A CARDINAL IN A CARDINAL PHRASE (#P)**

51. *In definite descriptions, the definite article is a discourse anaphor that inherits reference as well as cardinality from its antecedent:*
   a. Three cats came into the room.
   b. The cats were hungry (*but not one of them)

52. **Tentative structures:**
   \[
   \begin{align*}
   &\text{[DP the ... [#P the [DPVP [NP ]]]]} \\
   &\text{[DP ... [#P 3 [DPVP [NP ]]]]}
   \end{align*}
   \]

---

**Plan**
- Theoretical Assumptions
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- On the Non-triviality of the Puzzle
- Plural-marked –**AH Nominals vs. Other Plurals: Syntactic and Semantic Differences
- Structural and Semantic Differences between Cardinals and Quantifiers
  - Low-scoping Cardinals
    - Null Pronominal Restriction
- Toward a Solution
- Dividing vs. Agreeing
  - Cardinals and Agreement: Bulgarian Plurals

---

5. **Cardinals are not Quantifiers: Some Illustrations and some Consequences**

5.1. **Low-scoping Cardinals**

53. *Cardinals may scope both over and under adjectives*
   a. šeft tlat jnuud bixawfo
      saw three soldiers scary
      i. I saw three scary soldiers.
      ii. I saw a scary three soldiers.
   b. Hmelt tes? ?elab T’aal
      carried nine box-plBR heavy-pl
      i. I carried nine heavy boxes.
      ii. I carried (a) heavy nine boxes. (heavy as a set)
3. Tabbabuu-ni arba? doctor-aat šaaTriin
treated-me four doctor-plF skillful-pl
i. I was treated by four skillful doctors.
ii. I was treated by a team of four skillful doctors.

54. **Quantifiers must scope over adjectives:**
a. šeft šwayt/ktiir jnuud bixawfo
   saw few/many soldiers scary
   i. I saw few/many scary soldiers.
   ii. *I saw scary few/many soldiers.
b. Hmelt šwayt/ktiir ?elab t’aal
carried few/many box-plBR heavy
   i. I carried a few/many heavy boxes.
   ii. *I carried a heavy bunch of few/many boxes (specifically heavy as a set)
c. katabt šwayt/ktiir amsileh beeyx-een
   wrote.1ps few/many example-plBR uninteresting
   i. I wrote few/many uninteresting examples.
   ii. *I wrote uninteresting few/many examples

5.2. **Null Pronominals: Cardinals Only**

55. **Null pronominal restriction is always acceptable with cardinals:**
a. jebt t-tleeteh lli ‘eblou yejou
   brought.1s the-three that accepted.3p come.3p
   I brought the three that would come along
b. jebt tleeteh eblou yejou
   brought.1s three accepted.2p come.3p
   I brought three that would come along

56. **Null pronominal restriction is always acceptable with cardinals:**
a. tleeteh fallou
   three left.3p (pre-nominal)
   Three left.
b. t-tleeteh fallou
   the-three left.3p (post-nominal; def. agreement)
   The three left.

57. **Null pronominal restriction is ungrammatical to extremely marginal with pre-nominal quantifiers (always non-definite)**
a. ??shway fallou
   few left.3p
   'a few left'
b. *ktiir fallou
   many left.3p

58. **Null pronominal restriction is ungrammatical to extremely marginal with post-nominal quantifiers (always non-definite)**
a. ??shway fallou
   few left.3p
   'a few left'
b. *ktiir fallou
   many left.3p
5.3. **Consequences: Post-nominal Quantifiers are Adjectives, not Quantifiers:**
Comparing post-nominal quantifiers, post-nominal cardinals, and adjectives

<table>
<thead>
<tr>
<th>Lebanese Arabic</th>
<th>Standard Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Agreeing post-nominal ‘quantifiers’ agree in number, (gender,) and definiteness:</strong></td>
<td></td>
</tr>
<tr>
<td>i. l-wleed l-ktaar</td>
<td>iii. al-fatayaatu l-kathiiraat</td>
</tr>
<tr>
<td>the-kids the-many-pl</td>
<td>the-girls the-many-pl-fem</td>
</tr>
<tr>
<td>ii. wleed ktaar</td>
<td>iv. Fatayaatun kathiiraat</td>
</tr>
<tr>
<td>kids many-pl</td>
<td>girls many-pl-fem</td>
</tr>
<tr>
<td><strong>B. Adjectives agree in number, (gender,) and definiteness:</strong></td>
<td></td>
</tr>
<tr>
<td>i. l-wleed l-mahdoumiin</td>
<td>iii. al-fatayaatu j-jamiilaat</td>
</tr>
<tr>
<td>the-kids the-cute-pl</td>
<td>the-girls the-pretty-pl-fem</td>
</tr>
<tr>
<td>ii. wleed mahdoumiin</td>
<td>iv. fatayaatun jamiilaat</td>
</tr>
<tr>
<td>kids cute-pl</td>
<td>girls pretty-pl-fem</td>
</tr>
<tr>
<td><strong>C. Post-nominal cardinals only agree in DEF (and gender) only – but NOT in number</strong></td>
<td></td>
</tr>
<tr>
<td>i. l-wleed t-teeteh</td>
<td>ii. al-fatayaatu th-thalaath</td>
</tr>
<tr>
<td>the-kids the-three</td>
<td>the-girls the-three-fem</td>
</tr>
</tbody>
</table>

60. A. **Agreeing post-nominal ‘quantifiers’ occur in definite or indefinite DPs:**
| i. wleed ktaar | |
| kids many | |
| ii. l-wleed l-ktaar | |
| the-kids the-many | |
| **B. Adjectives (always post-nominal) occur in definite or indefinite DPs:** |
| i. wleed mahdoumin | |
| kids cute | |
| ii. l-wleed l-mahdoumin | |
| the-kids the-cute | |
| **C. Post-nominal cardinals can only occur in definite DPs** |
| i. *wleed teeteh | |
| kids three | |
| ii. l-wleed t-teeteh | |
| the-kids the-three | |

61. A. **Agreeing post-nominal ‘quantifiers’ allow null pronominals only when definite:**
| i. l-ktaar ghalabou l-teel | |
| the-many defeated the-few | |
| ii. *ktaar ghalabou leel | |
| many defeated few | |
| **B. Adjectives (always post-nominal) allow null pronominals only when definite:** |
| i. z-zghaar bye’daro yfouto | |
| the-young can enter.3p | |
| ii. *zghaar bye’daro yfouto | |
| young can enter.3p | |
| **C. Cardinals allow null pronominals regardless of definiteness or position (cf. (55))** |

---

6 Lebanese Arabic does not mark gender agreement on nominal modifiers; Standard Arabic does.
62. A. Adjectives may occur with Batch-\textit{AH} plurals, in definites, but cannot license them:
   i. *ma l’eit tefeeHaat xeDer  
   ii. ma l’eit t-tef\textit{eeHaat} l-xeDer 
   not found.1s apple-\textit{AH}-pl green not found.1s the-apple-\textit{AH}-pl the-green

B. Agreeing post-nominal 'quantifiers' may occur with Batch-\textit{AH} plurals, in definite DPs, but cannot license them:
   i. *samk-eet \textit{leel/ktaar} (cf. 44)  
   ii. s-samk-eet l-\textit{leel/l-ktaar} 
   \textit{fish-\textit{AH}-pl few/many} the-fish\textit{-\textit{AH}-pl} the-few/the-many

C. Cardinals can always license Batch -\textit{AH} plurals by themselves!!

\begin{center}
\textbf{CONSEQUENCES: ARE ARABIC POST-NOMINAL 'QUANTIFIERS' ARE ADJECTIVES, NOT REAL QUANTIFIERS.}\footnote{We assume post nominal 'quantifiers' are incompatible with cardinals semantically, not syntactically}
\end{center}

63. (44a-b) are ungrammatical on a par with the bare plurals in (37), and not on a par with the real quantifier cases in (38).

\begin{center}
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\end{center}

6. Toward a solution:

6.1. Structures:

64. Assumptions:
   A. Both cardinals and quantifiers are specifiers.
   B. A cardinal must move to Spec,QP. Low scope reading is obtained through reconstruction.
   C. Cardinals may license null N; quantifiers may not.
   D. Adjectives may never merge above QP.

\textit{Copies in shaded gray}
65. **Schematic DP structure containing a Cardinal**:

\[
\Delta_{\text{max}} \quad \Delta \quad Q_{\text{max}} \\
\angle \quad Q \quad \text{[Adj]} \quad \#_{\text{max}} \\
\quad \text{Cardinal} \quad \#_{\text{AGR}} \\
\quad (\text{Adj}) \quad \text{DIV}_{\text{max}} \\
\quad \quad \text{DIV} \quad N_{\text{max/min}} \\
\]

b. \([\text{DP} [\text{QP } \text{tlat maraaya} \quad [\text{T’aal } [\#_{\text{P}} \text{tlat maraaya} \quad [\text{DIVP } \text{mreeyeh-’pl’ } [\text{NP } \text{mreeyeh } ]])]])]

66. **Schematic DP structure containing a Quantifier**

\[
\Delta_{\text{max}} \quad \Delta \quad Q_{\text{max}} \\
\angle \quad Q \quad (\text{Adj}) \quad \text{DIV}_{\text{max}} \\
\quad \quad \text{DIV} \quad N_{\text{max/min}} \\
\]

b. \([\text{DP} [\text{QP } \text{ktir maraaya} \quad [\text{T’aal } [\text{DIVP } \text{mreeyeh-’pl’ } [\text{NP } \text{mreeyeh } ]])]])]

6.2. **Null pronominal restriction**

**Assumptions:**
- Only agreeing pro is interpretable
- pro, merging as N, moves to # where it agrees with the cardinal

\(\Rightarrow\) If #P projects, pro agrees, it is interpretable \(\Rightarrow\) Null pronominal possible
If #P does not project, pro cannot agree, it is uninterpretable \(\Rightarrow\) Null pronominal impossible

68. a. \([\text{DP} [\text{QP tleeteh three } \quad \text{pro}^{+} \#_{\text{AGR}}[\#_{\text{P}} \text{ tleeteh pro}^{+} \#_{\text{AGR}} \quad [\text{DIVP pro } [\text{NP pro } ]]]]]\) fallou left

‘Three left’ \(\Rightarrow\) **Interpretable pro**

b. \([\text{DP} \quad \text{pro}^{+} \#_{\text{AGR}}[\text{QP t-tleeteh the-three } \quad \text{pro}^{+} \#_{\text{AGR}} \quad [\#_{\text{P}} \text{ t-tleeteh pro}^{+} \#_{\text{AGR}} \quad [\text{DIVP pro } [\text{NP pro } ]]]]]\) fallou left

‘The three left’ \(\Rightarrow\) **Interpretable pro**
69. \*\[DP (pro) [QP ktiir pro [DP pro[NP pro ]] ]]\] fallou
   'Many left' → Uninterpretable pro

70. Dividing 'plural': - DIV is assumed to be -sg by implicature (cf. (8)-(9)).
    - Agreement already implied in the presence of DIV, and need not be marked
      again upon moving to #

      \[DP [QP tlat rejjeel-DIV-#AGR [#P tlat rejjeel-DIV-#AGR [DP rejjeel-DIV [NP rejjeel]]]]]\]
      /r3e:l/

      three men

71. Agreement 'plural': - AH is a divider that is not marked for [± singular]
    - Upon moving to #, N+AH must agree with the cardinal

    a. [DP [QP tlat teffeeH-AH-#AGR [#P tlat teffeeH-ah-#AGR [DP teffeeH-AH [NP teffeeH]]]]]\]
       /t3e:ha:t/

    three apples

    b. [DP t-teffeeHaat [QP t-teffeeHaat [#P t-# teffeeH-ah-#AGR [DP teffeeH-AH [NP teffeeH]]]]]\]
       /t3e:ha:t/

    the apples

72. Singular (Atomic) interpretation for -AH:
    Singular (atomic) interpretation emerges from the strict identity of DIV and #
    (entails the absence of a distinct valuer for #)

<table>
<thead>
<tr>
<th>Arabic</th>
<th>Mandarin Chinese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dmax</td>
<td>Dmax</td>
</tr>
<tr>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Qmax</td>
<td>Qmax</td>
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<td>Divmax</td>
<td>Divmax</td>
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<tr>
<td>AH</td>
<td>Nmin/max</td>
</tr>
<tr>
<td>tefeeH-AH</td>
<td>Nmin/max</td>
</tr>
<tr>
<td>tefeeH</td>
<td>ben</td>
</tr>
<tr>
<td>ben</td>
<td>CL</td>
</tr>
<tr>
<td>shu</td>
<td>shu</td>
</tr>
<tr>
<td>'a book'</td>
<td>'three books'</td>
</tr>
</tbody>
</table>

73. a. ben shu     'a book'
    b. san ben shu  'three books'
74. a. bun syu Cl book 'a book
b. saam bun syu
three Cl book 'three books'

75. Only Specific Partitive reading acceptable for definite Batch-AH plurals

A. - Specific Partitives contain true definite descriptions with true definite determiners.
   - A definite determiner has anaphoric cardinality.
     → It licenses #P as well as #AGR.
     The reading is admissible for plural-marked Batch-AH nominals.

B. - In the standard quantificational reading, kell/aghlab 'all'/’most’ are not followed by a definite description, and the article is an expletive required by the quantifier.
   - Expletive articles do not have anaphoric properties and hence the article has no antecedents and no inherited cardinality.
     → It cannot license #P, let alone #AGR.
     The reading is inadmissible for plural-marked Batch-AH nominals.

---

8. Cardinals and Agreement - Bulgarian plurals:

Two masculine plural markers in Bulgarian (when non-human):

76. Noun | Plural I | Plural II | Gloss
---|---|---|---
kon | kon-e | konj-a | horse
tsar | tsar-e | tsarj-a | king
pop | pop-ove | pop-a | priest
faks | faks-ove | faks-a | fax
samolet | samolet-i | samolet-a | airplane
telefon | telefon-i | telefon-a | phone
imeil | imeil-i | imeil-a | e-mail

77. Quantifiers and plural, I:

78. Quantifiers and plural, II

Borer & OuwaydaMen and their Apples

GLOW in Asia VIIIPage 17 of 19
79. **Bare plurals, I**

\[ \text{V stajate ima stol-ove kon-e telefon-i} \]

in room has chairs horses telephones

80. **Bare plurals, II**

\[ \text{V stajate ima *stol-a konj-a telefon-a} \]

in room has chairs horses telephones

'There are chairs/horses/telephones in the room'

81. **Cardinals and plural I:**

\[ *\text{pet/kolko/nja kolko faks-ove konj-a} \]

'five/how many/several faxes'

\[ *\text{tri/kolko/nja kolko kon-e} \]

'three/how many/several horses'

82. **Cardinals and plural II:**

\[ \text{pet/kolko/nja kolko konj-a} \]

'five/how many/several horses'

\[ \text{tri/kolko/nja kolko telefon-a} \]

'three/how many/several telephones'

83. a. (vsički) tezi tri stol-ove/konj-a

(all) these three chairs/horses

b. *(vsički) tezi tri stol-a/konj-a

(all) these three chairs/horses

84. → Bulgarian plural-marker I is (morphologically?) incompatible with *AGR

85. **Bulgarian plural-marker I – DIV marker, -sg by implicature**

\[
\text{[DP [QP (many) [DIV kon+P!-I [kon ]]]] /kone/}
\]

86. **Bulgarian plural marker II - #AGR marker**

87. a. hoong₂ saam [cl. hoong [np hoong₂ ]]

room/CL

'three rooms'

b. cun₂ ta [cl. cun [np cun₂ ]]

island/CL

'one island'

(Simpson, 2005)
88. a. *pet student-i
   five students
b. *pet student-a
   five students

89. i. The /a/ marker cannot occur with +human masculine nouns.\(^8\)
    ii. Plural marker I (masculine) is incompatible with cardinal agreement (cf. 83).

_________________________

So how do you say three students in Bulgarian???

→ Pl I stays in DIV; #AGR is satisfied by expletive agreement (note direct evidence for #AGR):

90. a. tri-ma student-i
    three-MA students
b. (vsički) tezi tri-ma student-i
    (all) these three-MA students

91. a. *ma-student-i
    MA-students
b. *mnogo/malo ma student-i
    many/few MA students

92. *tri-ma-student-a
    *tri-ma-stol-a 'three chairs'
    *tri-ma-stol-ove


\(^8\) The -a marker does occur with human masculine nouns for the numbers 7 and 8, for phonological reasons, and for numbers above 10.