Distributed number and the mass/count distinction

Myriam Dali and Eric Mathieu
University of Ottawa

1   Aim

The aim of this paper is to give a comprehensive analysis of plurals from a variety of angles: morphological, semantic, and syntactic. We argue that the plural is not one, but many, and that it is distributed along the nominal spine with different effects depending on the type of functional head it occupies. The idea that the plural is not one, but many, contradicts Borer's (2005) influential view according to which the plural is unique while sitting under a functional head called Division. What we propose is more in line with a growing trend expressed by Acquaviva (2008); Mathieu (2009, 2012, 2013, 2014); Mathieu and Zareikar (2015); Dali and Mathieu (2016); Harbour (2008, 2011); Butler (2012); Gillon (2015); Wiltschko (2008, 2012), for whom plurality is heterogeneous.

On our view, the grammaticized mass-count distinction is nevertheless universal (Mathieu, 2012; Deal, 2016). This contradicts the claim that it can be parametrized (Wiltschko, 2008, 2012; Lima, 2014). We argue, on the basis of a number of languages (Algonquian languages, Nez Perce, Deal 2015, Miraña, Seifart 2009) that effects of the mass-count distinction can be seen in every language and that therefore it is grammaticized universally. Variation in plurality and counting is directly encoded in the grammar via functional heads.

In this paper, we focus on Arabic, since this language is particularly interesting with regard to the way it expresses number. In particular, Standard Arabic and dialects of Arabic have many plurals (broken plurals, sound plurals, plurals of singulatives, plurals of collectives, plurals of plurals) together with a dual and a paucal.

2   Inclusive vs. exclusive plurals

The folk view about plurals matches that of the traditional linguistic approach, namely that singulars refer to 'one' while plurals refer to 'more than one' (Link, 1983). In standard contexts, bare plurals in English do indeed refer to 'more than one'. The example in (1) cannot refer to 'one'.
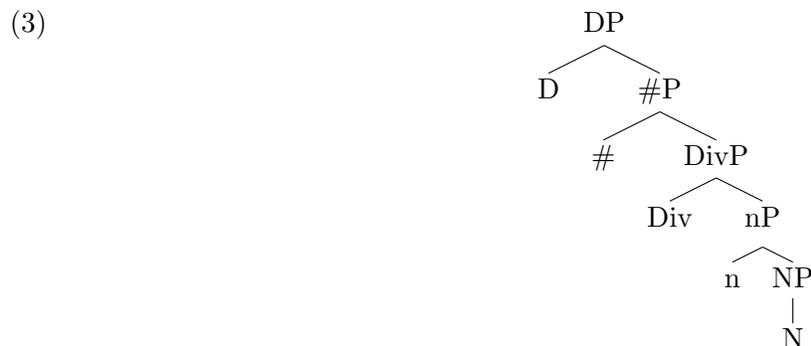
(1)   I have children.

If a speaker A utters (1), then we understand the speaker has more than one child. The sentence would be false if speaker A had in fact only one child (under Gricean inference, speaker A could have said 'I have a child' but did not, so speaker A by uttering (1) must have signified plurality).

However, it has been noticed that, in certain contexts (downward-entailing contexts or kind referring, for Grimm 2012, NPI contexts for others, Harbour 2016), bare plurals in English are interpreted inclusively, i.e. referring to 'more than one' OR simply 'one' (Hoeksema, 1983; Schwarzschild, 1996; Sauerland, 2003; Sauerland et al., 2005; Spector, 2007; Zweig, 2009; Bale et al., 2011). Consider the examples in (2). (2-a) is a question, (2-b) is a negative statement, and (2-c) is a conditional.

(2)   a.   How many children do you have?
      b.   I don't have children.
      c.   If you have children, raise your hand.

(2-a) can be answered by 'three' but also by 'one'. (2-b) is false if I have two children or more, but also if I have only child. (2-c) is true if parents with two children or more raise their hands but also if parents with one child raise their hands. It appears thus that in such contexts, the noun 'children' is individuated (we are referring to actual children), but when it comes to number it is indeterminate. Such inclusive plurals are typical in form headings (McCawley, 1968): *schools attended, children*: these are felicitous even if the person filling the form has attended only one school or has only one child.

    The simple view, mentioned above, and according to which the singular refers to 'one' and the plural to 'more than one', is also complicated by the fact that many languages have not one, but two, and sometimes more than two plurals. Plurals of plurals are even possible and it is not easy for the simple view to make sense of these facts, especially, since it turns out that some of these plurals are systematically interpreted as inclusive. In many cases, these exclusive plurals also systematically take wide scope rather than being ambiguous or narrow scope like inclusive plurals. We propose that inclusive plurals are in Div while exclusive plurals are in #. The structure in (3) shows the series of heads that the plural can, on our view, be associated with.

(3)

$$
\begin{array}{c}
\text{DP} \\
\diagdown \\
\text{D} \quad \text{\#P} \\
\diagdown \\
\text{\#} \quad \text{DivP} \\
\diagdown \\
\text{Div} \quad \text{nP} \\
\diagdown \\
\text{n} \quad \text{NP} \\
| \\
\text{N}
\end{array}
$$

Plurality is distributed: it can be associated with n, Div, #, and even D (as in the case of associative plurals, see below). The whole nominal spine is therefore potentially activated by the plural. This flexible view of plurality will be shown to go in hand in hand with the flexible view of classifiers (based on typological work, Aikhenvald 1991, since the latter can also appear in different positions: some classifiers are in Div (Borer 2005), but other are in # (as in the case of numeral classifiers).

3   Broken plurals

Next, we consider in detail the problem of broken plurals in Arabic. Broken plurals (4-a), as opposed to the suffixal sound plurals, are formed by stem change (4-b).

(4)   a.   kalb   kleb   [Tunisian Arabic]
          dog.SG dog.PL
          'dog, dogs'
      b.   muhadas   muhands-een
          engineer.SG engineer-MAS.PL
          'engineer, engineers'

According to Acquaviva (2008), these are in n (although much evidence is actually provided in favour of the view that broken plurals follow regular rules - McCarthy and Prince 1990). We argue instead that broken plurals are in Div. They are, like sound plurals, inclusive (and typically receive low or wide scope) as both can refer to individuals in downward-entailing environments (5).

(5) a. ma   fammech kleb   [Tunisian Arabic]
         neg. there   dog.PL
         'There are no dogs'
     b. ma   qabelt-ech muhands-een
         neg. met.I-NEG engineer-MASC.PL
         'I did not meet (any) engineers'

It is shown that broken plurals can be expressed via borrowings (*talfza* 'television' - *tlefez* 'television' in Tunisian Arabic) and be used productively, suggesting that they are regular plurals sitting under Div.

4   Collectives, singulatives, and plurals of singulatives

Next, we review the syntactic and semantic properties of plurals of singulatives. Since the singulative can express Division in the noun's structure, the question that arises is why, as shown in (6), is a plural possible on top of it? The singulative is derived from the collective and refers to 'a unit out of the collection' (6-a) or a portion out of the mass (6-b). In Arabic, the singulative is marked through gender shift from masculine to feminine by suffixation of the marker -*a*, as in (6).

(6) a. bordgen   bordgen-a   bordgen-a-at   [Tunisian Arabic]
         orange.MASC.COLL orange-FEM.SING orange-FEM.SING-PL
         'oranges, an orange, a few oranges'
     b. luh   luh-a   luh-a-at
         wood.MASC.COLL wood-FEM.SING wood-FEM.SING-PL
         'wood, a wood lig, a few wood logs'

We provide much evidence in favour of the view that plurals of singulatives are higher in the structure, i.e. in #. It is shown that they are interpreted exclusively and that they receive wide scope only. Moreover, they are associated with a paucal interpretation. They are counting plurals in that individuals have already been formed from collectives: the plural is added to indicate we are talking about a few individuals. To illustrate, uttering (7-a) in a grocery store is equivalent to asking whether they have, not one (or many), but a few oranges. However, the collective form (7-b) does not involve a number presupposition, but rather oranges as a kind. "Yes, we have one" is an adequate answer for (7-b), but not for (7-a).

(7) a. ʕandkom bordgen-a-at?   [Tunisian Arabic]
         have.you orange-FEM.SING-PL
         'Do you have a few oranges?'
     b. ʕandkom bordgen?
         have.you orange.MASC.COLL
         'Do you have oranges?'

Higher plurals are thus not in complementary distribution with lower plurals. This is why, as we show with ample evidence, it is possible to pluralize plurals in Arabic (8).

(8) l-bit l-kolli ktobb-et   ktobb-et.   [Tunisian Arabic]
    the-room the-all book.PL-FEM.PL book.PL-FEM.PL
    'There were piles of book all over the room.'

5 Competing plurals

Next, we show that the plural with an exclusive/paucal denotation discussed earlier in our paper is also available outside the collective/singulative system, in the count domain. Although the distinction between sound and broken plurals is traditionally said to be of a strictly phonological nature, it is possible in some Arabic dialects to use the two plural shapes in a contrastive way in order to express differences in meaning. The broken plural is said to be the default plural shape in Arabic and it applies to all canonically-shaped nouns (McCarthy and Prince, 1990). However, it is possible for some canonically-shaped nouns to have two plural forms, as illustrated in (9-a). Maltese (9-b) and Breton (9-c), both singulative languages, also show this alternation in the count system.

(9) a. meʕza → mʕiiz / meʕz-et   [Tunisian Arabic]
     goat.SG goat.PL goat-FEM.PL
     'one goat, goats, a few goats'
   b. carruta → craret / carrut-iet   [Maltese]
     rag   rag.PL rag-FEM.PL
     'rag, rags, a few rags'
   c. maneg → maneg-eier / maneg-ou   [Breton]
     glove   glove-PL   glove-FEM.PL
     'glove, pairs of gloves, a pair of gloves'

In this case, the broken plural is a semantically unmarked, inclusive plural, with no number restriction, while the suffixational plural is more restricted in that it denotes an exclusive and paucal plural (10).

(10) a. tfol i-rabbi f-el mʕiiz/*meʕz-et   [Tunisian Arabic]
     boy he-breed in-the goat.PL/*goat-FEM.PL
     'A boy who breeds goats.'
   b. rit   xamsa mʕiiz/meʕz-et   tʕadd-ew
     saw.I five goat.PL/*goat-FEM.PL passed-they
     'I saw five goats passing by.'

6 General number

Finally, we discuss general number. A large number of the world's languages have general number, or, as it is sometimes called, transnumeral number, (Greenberg, 1972, 1974; Corbett, 2000). These languages typically do not need a plural, since plurality can be expressed by the bare noun (via a null Div head, Borer 2005, Zareikar 2017). However, these languages often have a plural as well. For languages such as Turkish, Armenian, Persian, etc., we argue, following Zareikar (2017) and Mathieu and Zareikar (2017), that plurals attached to general number nouns are higher/counting plurals: they are interpreted exclusively (Bale et al., 2011; Mathieu and Zareikar, 2017) and typically receive wide scope only. Other languages, such as Chinese and Japanese, are shown to use different strategies, and in such languages, plurals are not necessarily inclusive (Kitaoka, 2018).

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