11   The Semantics of Distributed Number

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1.   Introduction

Several articles have recently proposed that morphemes corresponding to the plural can occupy not just one (Borer 2005) but several functional positions depending on their semantics (Alexiadou 2011; Acquaviva 2008; Wiltschko 2008, 2012; Butler 2012; Mathieu 2014; Gillon 2015; Mathieu and Zareikar 2015; Dali and Mathieu 2016; Kramer 2016). The aim of this paper is to provide further evidence for this view, focusing on Tunisian Arabic, Western Armenian (WA), and Turkish.

Like Borer (2005), we adopt the view that complementary distribution is the hallmark of identity, but we argue, following this logic, that the plural is not one but many, appearing in different positions in the nominal spine. We argue for a close mapping between the syntactic structure and the semantics in the DP, since each node corresponds to a different interpretation of the plural, and propose that number projections exist depending on the features they specify (see also Watanabe 2010; Vásquez-Rojas 2012).[1]

We begin the article with a discussion of Tunisian Arabic plurals, based on Dali and Mathieu (forthcoming), which will serve as background theory for our analysis of bare nouns and bare plurals in Western Armenian and Turkish. Then, we turn to the interesting case of indeterminate nouns in these languages: they can express singularity and plurality, depending on the context (often called general or transnumeral number; Corbett 2000). Consider the

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example in (1) from Western Armenian and (2) from Turkish (on general number in these languages, see Bliss 2004; Bale, Gagnon, and Khanjian 2010; 2011; Görgülü 2012).

(1) Kirk kənetsi.   [Western Armenian]
     book buy.1SG.PERF.PAST
     'I bought a book/books.'

(2) Ali kitap al-dı.   [Turkish]
     Ali book buy-PAST.3SG
     'Ali bought a book/books.'

It is customary in the literature to treat such nouns as being equivalent to mass terms (Chierchia 1998b) with a denotation of a kind or alternatively as bare NPs with no number projection (Borer 2005, and many others). For others, such nouns refer to semi-lattices, the denotation being number neutral, thus referring to sums and atoms (Rullmann and You 2006; Bale, Gagnon, and Khanjian 2010, 2011; Bale and Khanjian 2014).

The puzzle with which the present article is concerned is that, as shown in (3) and (4), the nouns in question can be pluralized (Donabédian 1993; Sigler 1996; Bale, Gagnon, and Khanjian 2010, 2011; Görgülü 2012; Bale and Khanjian 2014; Sağ 2016).[2]

(3) Kirker kəetsi.   [Western Armenian]
     book.PL buy.1SG.PERF.PAST
     'I bought books.'

(4) Ali kitap-lar al-dı.   [Turkish]
     Ali book-PL buy-PAST.3SG
     'Ali bought books.'

This plural is surprising, since the languages in question already have a way to express plurality via general number.[3] Since it is supposed to be referring to sums already, it is impossible for the plural to operate on a semi-lattice directly. It must therefore be the case that such bare nouns are in fact first individuated via the Number head, before they are pluralized (see also Mathieu and Zareikar 2017; Zareikar 2019, for Persian). We thus propose that pluralization of bare nouns in Western Armenian and Turkish is a two-step process.

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[2] According to Chierchia (1998b), languages with general number are not supposed, typologically, to have plural markers as part of their grammars. But there are, of course, many exceptions, suggesting plurals are not necessarily in complementary distribution with classifiers (it is possible for classifier languages to have optional plurals, as pointed out by Greenberg 1972, 1974; see also Aikhenvald 2000; Gebhardt 2009; Doetjes 2012).

[3] This plural is not a plural of abundance and therefore cannot be claimed to be associated with *n*P (Acquaviva 2008; Lowenstamm 2008; Tsoulas 2009; Alexiadou 2011; Ghaniabadi 2012).

First, the noun is atomized, giving a singular form (this is achieved via a null exponent of number under Num), and a new noun is created, providing a brand new semi-lattice. This is shown in (5). There are two NumP projections. The lower NumP operates on the semi-lattice and returns a set of atoms.

(5)   [$_{DP}$ [$_{NumP}$ Num [$_{nP}$ n [$_{NumP}$ Num Ø [$_{nP}$ book]]]]]

Second, the higher NumP operates morphosyntactically on the singular, and returns a set of atoms from the semi-lattice introduced by the higher *n*. This is shown in (6). This is a case of morphological compositionality where one number is built out of another. Each *n* defines a new nominal predicate and semantic interpretation starts afresh with each *n*.

(6)   [$_{DP}$ [$_{NumP}$ Num **PL** [$_{nP}$ n [$_{NumP}$ Num Ø [$_{nP}$ book]]]]]

Evidence for such a view comes from three main observations. First, it turns out to be possible in some cases for bare nouns in WA-type languages to refer exclusively to singulars. This has been shown by Sağ (2016) for Turkish and Zareikar (2019) for Persian.

(7)   Jerexa-n   ir   kirkə   gartats.   [WA]
       child-DEF.DET   EMPH.3SG.POSS   book.DEF.DET   read-PAST.3SG
       'The child read his book.'
       not 'The children/children read their book.'

(8)   Çocuk   kitab-ı-nı   oku-du.   [Turkish]
       child   book-POSS-ACC   read-PAST
       'The child read his book.'
       not 'The children/children read their book.' (Sağ 2016: 5)

The generalization seems to be that bare nouns in WA-type languages are ambiguous (Sağ 2016): they either refer to general number or are singular. The facts in (7) and (8) show that it is not possible to propose an analysis à la Borer (2005) where, in Div (or Num for us) as input, the plural in (3) and (4) might simply be the bare NP that general number nouns refer to. The morphological plural is acting on a singular, not a bare NP. We have independent evidence of this in Tunisian Arabic where plurals of singulatives operate on nouns that have already been individuated and where the plural is not on Num but generated in a number higher position, as will be made explicit in Section 2. In Tunisian Arabic, we see a renominalization effect, with the added *n* introducing a new semi-lattice.

Second, bare plurals in WA-type languages have a different semantics from bare nouns. English bare plurals, for example, are inclusive in downward entailing environments, i.e. referring to 'one' or 'more than one' (Hoeksema 1983; Krifka 1995; Schwarzschild 1996; Brustad 2000; Sauerland 2003; Sauerland, Anderssen,

and Yatsushiro 2005; Spector 2007; Zweig 2009; Farkas and de Swart 2010; Bale, Gagnon, and Khanjian 2011; Grimm, 2012a, 2012b; Martí 2020), but bare plurals in WA-type languages are interpreted exclusively, referring only to 'more than one', thus excluding the singular. Based on our observations from Tunisian Arabic, we propose that the higher plural is always exclusive. Once division – in Borer's (2005) sense – has applied, the plural is exclusive.

That Western Armenian and Turkish plurals are exclusive has been noted before (Bale, Gagnon, and Khanjian 2011, 2010), but these exclusive plurals turn out to be problematic for the generalization these authors put forward, namely that the plural is marked morphologically, but unmarked semantically, always referring to sums as well as atoms. They leave the Western Armenian/ Turkish puzzle unresolved, but clearly, in these languages, and incidentally also in Tunisian Arabic, as shall be seen in Section 2, it is possible for the plural to be marked semantically.

Third, our proposal is bolstered by a range of scope facts. We will show that bare nouns in Western Armenian and Turkish have low scope while, under the appropriate controlled environments, nouns with an added plural may receive wide scope.

The rest of the chapter is structured as follows. Section 2 provides the background theory necessary for us to proceed, together with examples of lower and higher plurals in Tunisian Arabic. Section 3 focuses on Western Armenian and Turkish and gives an account of the puzzle presented in this introduction. Section 4 concludes the article.

2.   Two Positions for the Plural

According to Borer (2005), the sole function of the plural is to divide. However, in some cases, division is realized by another element (e.g. singulative, a measure word) with possible pluralization of that element, casting doubt on the idea that the notion of plurality is unique and indicating that the plural can have a function other than dividing. To illustrate, let us consider the case of Arabic, which, like other singulative languages (Breton, Welsh, Maltese), allows the atomization of mass and collective nouns via a gender shift operation. Collective nouns are semantically plural but morphosyntactically singular, and number distinctions are marked by a contrast in gender. Our examples are from Tunisian Arabic. (9) shows that a collective noun (masculine) can be turned into a singular by adding a feminine suffix. From this example, we see that gender shift can instantiate division (Ojeda 1992; Zabbal 2002; Fassi Fehri 2004, 2012; Mathieu 2012a, 2012b; Ouwayda, 2014).[4]

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[4] On Kramer's (2016) view the plural of the singulative is a normal dividing plural, since according to her analysis singulatives are generated under *n*. However, if we adopt this view, we lose the idea that the dividing plural is in complimentary distribution with the singulative.

(9)   bordgen   – bordgen-a   [Tunisian Arabic]
       orange.MASC.COLL – orange-FEM.SING
       'oranges, orange'

Once collective and mass nouns have been portioned out by the singulative operation, the result can be pluralized by the suffixation of the feminine plural marker -at, as in (10).

(10)   bordgen-a   – bordgen-a-at   [Tunisian Arabic]
       orange.FEM.SING – orange-FEM.SING-PL
       'an orange, oranges'

The collective and the plural of the singulative have different interpretations, and these, we argue, must be translated into different features and levels of representation on the nominal spine. Let us first discuss the notion of the inclusive/exclusive distinction that is crucial in interpreting the different plurals of Arabic. The folk view is that singulars refer to 'one' while plurals refer to 'more than one' (Link 1983). In this view, the plural is *exclusive* in that it excludes reference to the singular. For example, (11) cannot refer to 'one child'.

(11)   I have children.

If a speaker A utters (11), 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 had the option of saying 'I have a child', but did not).

   However, it has been noted that in certain contexts, English bare plurals are interpreted inclusively, i.e. referring to 'one or more' (Hoeksema 1983; Krifka 1989; Schwarzschild 1996; Sauerland 2003; Sauerland, Anderssen, and Yatsushiro 2005; Spector 2007; Zweig 2009; Farkas and de Swart 2010; Bale, Gagnon, and Khanjian 2011; Grimm 2012a; Martí 2020). Consider the interpretation of the plurals in the contexts of a question (12a), a negation (12b), and a conditional (12c).

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

(12a) can be answered by 'three' but also by 'one'. (12b) is false if I have two children or more, but also if I have only one child. (12c) is true if parents with

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Kramer's *n* is responsible for both idiosyncratic plurals and more productive, atomizing elements such as the singulative. There are many problems with this view. Singulatives are very productive and have all the hallmarks of inflectional morphemes (see Mathieu 2012a, 2014).

two children or more raise their hands, but also if parents with one child raise their hands.

The crucial observation about these examples is that there potentially exist two interpretations for the plural: one that includes reference to the singular, and one that excludes such a reference. We argue that in Arabic the collective and the plural of the singulative each correspond to a different version of this contrast. First, consider the examples of collectives in (13) and plurals of the singulative in (14), in downward entailing contexts.

(13)   a. klit   borgden?   [Tunisian Arabic]
           ate.you   orange.MASC.COLL
           'Did you eat oranges?'

       b. ma   klit-ech.   borgden
           NEG   ate.I-NEG   orange.MASC.COLL
           'I did not eat oranges.'

       c. ken ʕandek   borgden   mush lezem   temchi l-el   marshi.
           If   have.you   orange.   not   necessary go.you to-the   market
                               MASC.COLL
           'If you have oranges, you do not need to go to the market.'

(14)   a. klit   borgden-a-at?
           ate.you   orange-FEM.SING-PL
           'Did you eat oranges?'

       b. ma klit-ech   borgden-a-at.
           NEG ate.I-NEG orange-FEM.SING-PL
           'I did not eat oranges.'

       c. ken ʕandek borgden-a-at   mush lezem   temchi l-el   marshi.
           if   have.you orange-FEM.SING-PL not   necessary go.you to-the   market
           'If you have oranges, you do not need to go to the market.'

(13a) can be answered by 'three' but also by 'one'. (13b) is false if I ate one orange or more. According to (13c), you do not need to go to the market if you have one or more oranges. This indicates that the collective forms have an inclusive interpretation in the contexts of (13), just as is the case for English bare plurals in downward entailing environments.

However, when we substitute the collective forms with the plural of the singulative, the interpretation is exclusive. (14a) can be answered by the affirmative only if the speaker ate two or more oranges. (14b) is false only if I eat two oranges or more. In fact, someone can say 'I did not eat oranges, I ate only one' if the plural of the singulative is used in the question. According to (14c), you do not need to go to the market if you have two or more oranges, but

you may have to go if you have only one. Whether or not one is convinced of the validity of the inclusive/exclusive distinction in the interpretation of English bare plurals, the data above shows that this distinction is borne out for Tunisian Arabic.

In addition to its exclusive reading, the plural of the singulative is also paucal. While the collective can refer to any amount of entities, the plural of the singulative can only refer to 'a few' entities. Consider the examples in (15).

(15)   a.   [When referring to the fish in a fish market]: ✓ḥut/#ḥut-a-at.
       b.   chrit   ḥut/ḥut-a-at
            bought.I   fish.MASC.COLL/fish-FEM.SING-PL
            'I bought fish/a few fish'

(15a) shows that, in a context where one is visiting a fish market and wants to refer to all the fish in the market, the appropriate form would be the collective one, and not the plural of the singulative, since a fish market is expected to have more than 'a few fish'. However, in a context where a person bought five fish, both the collective and plural of the singulative forms can be used (15b): the collective form is a general plural that can be used in all contexts, and the plural of the singulative is a paucal form that fits contexts where only a few entities are referred to.[5]

What these observations show is that different plural shapes have different functions in Tunisian Arabic, and this leads us to adopt a structure where the plural is not bound to one specific head, but rather distributed among functional heads along the spine. The task is now to determine which heads host the different plural manifestations.

To account for the number system in Tunisian Arabic and, more specifically, the fact that the plural seems to fill different functions, we adopt our analysis (Dali and Mathieu 2021) of the Arabic facts based on work by Harbour (2011, 2014), who shows that number is reducible to a set of binary features, i.e. [± atomic], [± minimal], and [± additive].

First, we assume, following many previous analyses (Kihm 2005; Acquaviva 2008; Lowenstamm 2008; Kramer 2009; Harbour 2011, 2014; among others) that classificatory features occupy their own projection, namely *n* and that *n* takes a root as a complement, as in (16), labelling it as a noun and making it visible to the computational system.

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[5] Paucity is a well-known concept in grammars of Arabic. Ojeda (1992) defines the plural of the singulative as a 'plural of paucity' that, he notes, citing Wright (1933: 307) 'is used only of persons and things not exceeding ten in number'.

(16)   nP

    n   √

Second, we assume that *n* defines a nominal predicate P and structures the root as a join semi-lattice (Zabbal 2002; Harbour 2011, 2014; Martí 2020) giving us the representation in (17) for the semi-lattice. As pointed out by Harbour (2011), *n* underdetermines whether the noun is count or mass. Like Borer (2005), we assume it is Num (Div for Borer) that actually introduces the distinction. When Num is projected, the noun is count, when Num is not projected, the noun is mass. The semi-lattice introduced by the root is the input to the singular and plural operations.

(17)

$$a + b + c$$

$$a + b \qquad a + c \qquad b + c$$

$$a \qquad b \qquad c$$
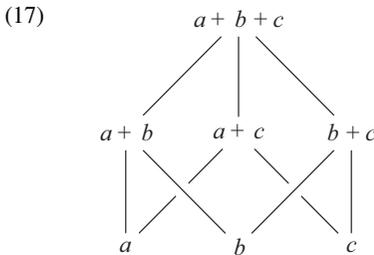
The extended projection of *n* looks like (18) (Borer 2005; Grimshaw 2005). NumP takes *n*P as complement, and DP takes NumP as complement (Borer 2005: Num = Div).

(18)   DP

    D   NumP

        Num   nP

            n   √
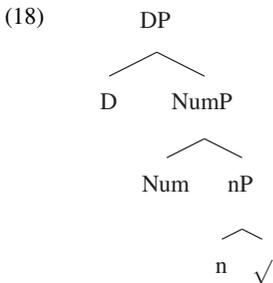
Following Harbour (2011, 2014), we assume that each functional projection in (18) comes with a set of features. Only the features on Num are interpretable. The features on *n* are lexical/syntactic, and the features on D are purely

syntactic (uninterpretable), and only encode number agreement. In sum, Num is determined by cardinality (singular, plural), and n by lexical properties of the noun. In order to account for a language like Tunisian Arabic, that has singulars, plurals, and paucals, we need the [+/−atomic] and [+/−additive] features.[6] As summarized by Martí (2020: 44), '[±Atomic] is sensitive to atoms/non-pluralities ([+atomic]) vs. non-atoms/pluralities ([−atomic]). [±Minimal] is sensitive to elements with parts ([−minimal]) vs. elements without parts ([+minimal]). [±Additive] is concerned with whether the output set contains, for any two of its members, their join ([+additive]) (a property also known as cumulativity; cf. Krifka 1989) or not ([−additive]).' In addition, we also make use of the [+collective] feature on n to distinguish collective nouns from count ones.[7] This feature is purely syntactic and indicates that the noun is part of a system where individual readings are morphologically marked.

First, for the singular, we propose the structure in (19). Num is associated with the features [+atomic; −additive], with matching syntactic features on D. First, the feature [+atomic] acts on the semi-lattice, then the feature [−additive], giving us the interpretation in (19).

(19)

```
                    DP
                  /    \
                 D      NumP
                       /    \
                    Num      nP
                     |      /  \
                 singular  n   √
                     |
                  ┌         ┐
                  │ + atomic │
                  │ − additive │
                  └         ┘
```

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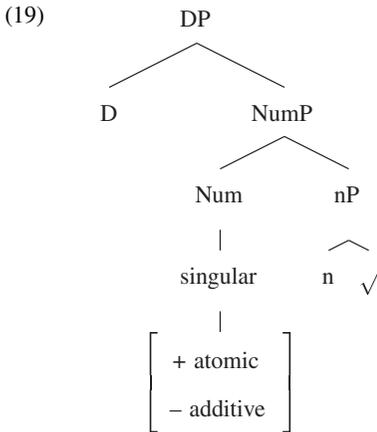
[6] The [+/− minimal] feature is necessary to account for the dual. However, Tunisian Arabic only has remnants of dual marking – see Dali and Mathieu (2021) – and paucal marking includes reference to two entities. Therefore, we do not make use of this feature here since it is not necessary for the set of data discussed in this paper.

[7] This class feature is our own innovation to Harbour's (2011, 2014) system to account for the collective class in Arabic.

Plurals with an exclusive interpretation (in regular, upward-entailing contexts) are in complementary distribution with the singular and have the structure in (20), with [−atomic; +additive] features on Num.

(20)

```
                    DP
                   /  \
                  D    NumP
                       /  \
                    Num    nP
                     |     / \
                   plural n   √
                     |
                 ⎡ − atomic  ⎤
                 ⎣ + additive ⎦
```
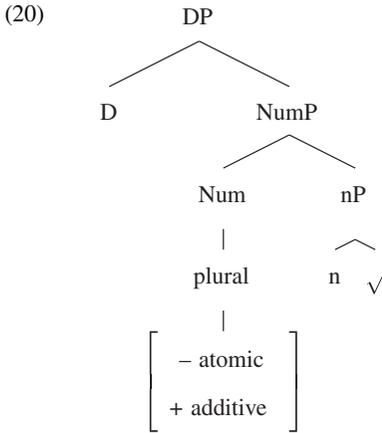
For collectives, we propose the structure in (21), where Num is not projected. This accounts for the fact that collectives syntactically behave like mass nouns in not combining directly with numerals or plural morphology (they need to be divided by the singulative first). Semantically, all we have is a root, i.e. a semi-lattice. This explains why in this case the collective can be interpreted inclusively. Since collective nouns are syntactically singular, they bear a [+atomic] feature on D (features on D are purely syntactic).

(21)

```
                    DP
                   /  \
                  D    nP
                  |    / \
            ⎡ + atomic ⎤ n  √
            ⎣          ⎦ |
                   ⎡ + collective ⎤
                   ⎣              ⎦
```
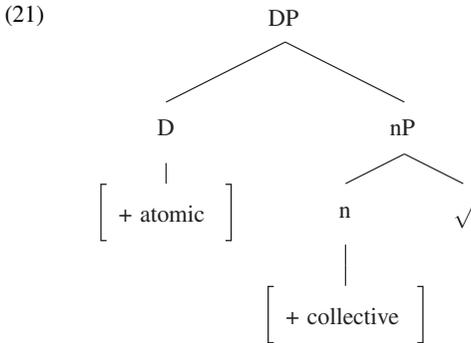
The singulative behaves like a singular in picking out an atom from the semi-lattice. We therefore propose that it is also associated with the feature

[+atomic] in Num, as in (22). The singulative differs from the singular in that it is morphologically marked and operates on a noun of the collective class, as indicated by the [+collective] feature on *n*.[8]

(22)

```
                        DP
                      /    \
                    D       NumP
                          /      \
                       Num         nP
                        |         /  \
                   singulative   n    √
                        |        |
                  ┌           ┐  ┌            ┐
                  │ + atomic  │  │ + collective │
                  │ − additive│  └            ┘
                  └           ┘
```
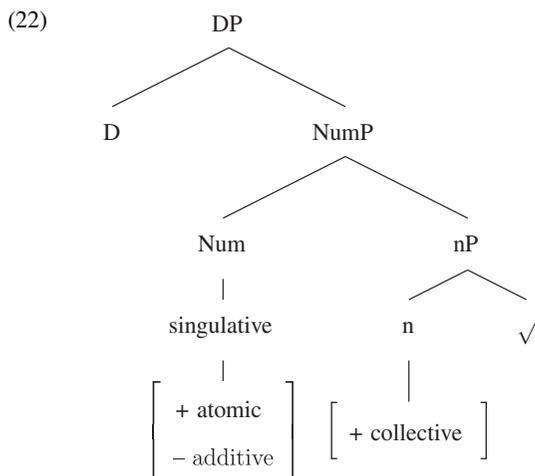
Given its exclusive and paucal interpretation, we propose that the plural of the singulative is a higher plural that belongs to a second NumP projection different from the one discussed so far.[9] Here, we have the plural operating on the singulative, exhibiting a case of morphological compositionality where one number serves as the base of another (see Harbour 2014). The higher Num is associated with the features [−atomic; −additive] to account for the paucal and exclusive interpretation of the plural in question.

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[8] This is essentially what is proposed by Mathieu (2012a, 2012b, 2014), Borer and Ouwayda (2010), and Ouwayda (2014), except that Num = Div. Other proposals involve different functional heads. Zabbal (2002) proposes that the singulative is associated with ClassP (between *n*P and NumP). Fassi Fehri (2004) proposes that the singulative is associated with UnitP (between *n*P and NumP). Note that our [+collective] is a Class feature, not a syntactic or semantic feature.

[9] Without the extra *n*P layer, the structure would be problematic semantically, since all NumP gives us is a set of atoms. If the higher Num instructs the semantics to look for the nonatomic, nonadditive part of that set of atoms, it will return nothing. We need a new lattice. Since the higher *n* defines a new nominal predicate, the higher Num is able to operate on a semi-lattice, as expected semantically.

(23)
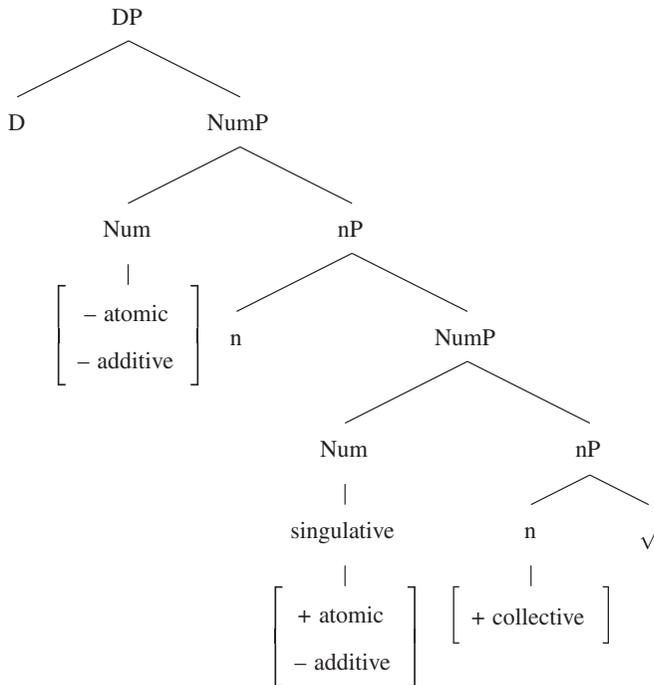
To summarize Section 2, it is possible for plurals to appear in different positions in the syntactic spine (see also Butler 2012, and many others). We see this with plurals of singulatives in Arabic (and plurals of measure words in Persian-type languages; see Mathieu and Zareikar 2015). The lower plural is typically associated with an inclusive reading: it is atomized, but does not refer to number, and this is why it can be referred to as singular or plural in the right environments (roughly, downward-entailing environments). The higher plural, i.e. the counting plural, is typically associated with an exclusive reading: it is atomized and refers to number and this is why it can only refer to 'one or more' and never to 'one'.

In the next section, we provide an analysis of Western Armenian bare plurals and argue that they are associated with the higher NumP.

3.   The Analysis

In Section 2, we saw that Tunisian Arabic plurals can be generated either in a lower NumP or in a higher NumP. Plurals of singulatives are generated in the higher NumP: they are interpreted as exclusive and paucal. In this section, we

propose that the plural of WA-type bare nouns is systematically associated with the higher NumP. It does not bear paucal features (it is not interpreted as a paucal), but has true plural features. On our account, NumP can apply recursively provided renominalization is involved. Since Western Armenian and Turkish do not have a dual, we will use only two sets of features, namely [+/−atomic] and [+/−additive].

Let us begin with bare nouns in Western Armenian and Turkish. We propose, like Rullmann and You (2006), Bale, Gagnon, and Khanjian (2010; 2011), and Bale and Khanjian (2014) that they refer to semi-lattices, hence their indeterminate number. Our structure in (24) is identical to the one proposed by Borer (2005) (see also Pereltsvaig 2014; Martí 2020).

(24)

```
        DP
       ⌒
     D   nP
          ⌒
        n   √
```
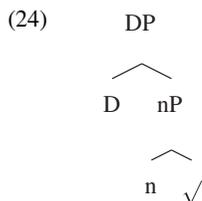
When a plural is added, we propose that this is done in two steps. First, NumP is projected with a null head for singular number, as in (25).

(25)

```
            DP
          ⌒
     D        NumP
              ⌒
          Num     nP
           |       ⌒
           ∅     n   √
           |
       ⎡ + atomic  ⎤
       ⎣ − additive ⎦
```
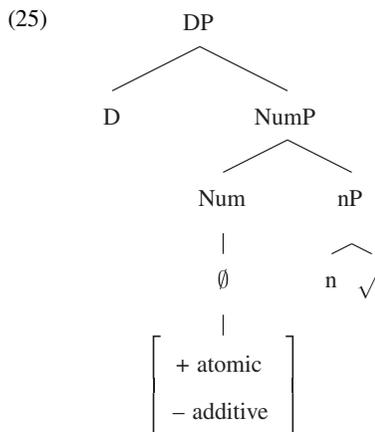
The next step is the introduction of the plural in a higher NumP domain, as in (26). The features associated with the lower Num are [+atomic; −additive], while those associated with the higher Num are [−atomic; +additive].

(26)

```
                              DP
                    ┌─────────┴─────────┐
                    D                  NumP
                              ┌─────────┴─────────┐
                             Num                  nP
                              │           ┌────────┴────────┐
                        ┌───────────┐     n              NumP
                        │ − atomic  │          ┌──────────┴──────────┐
                        │ + additive│         Num                   nP
                        └───────────┘          │                    ╱╲
                                               ∅                   n   √
                                        ┌───────────┐
                                        │ + atomic  │
                                        │ − additive│
                                        └───────────┘
```
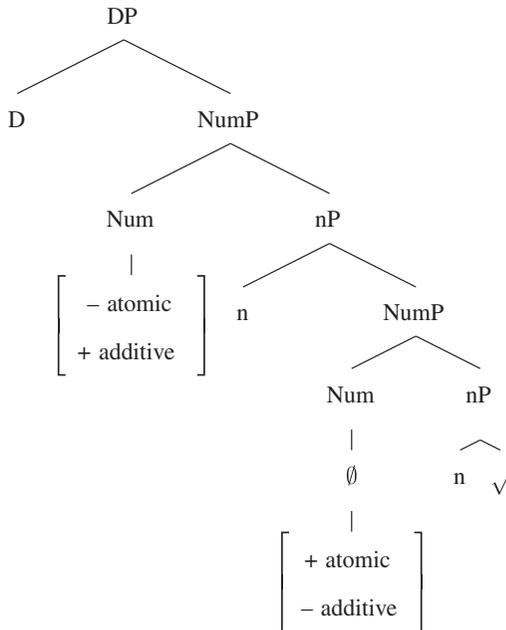
The question that immediately arises is why not follow a type of analysis à la Borer and propose that the added plural in Western Armenian and Turkish triggers a DivP projection (or Num for us) and that the plural is inserted under Div? There is evidence against this view. As already hinted in the Introduction, it is possible for some cases of bare nouns in Western Armenian and Turkish to denote, not a sum, but an atom. Consider the following examples.[10]

(27)   Jerexa-n   ir   kirkə   gartats.   [WA]
       child-DEF.DET EMPH.3SG.POSS book.DEF.DET read-PAST.3SG
       'The child read his book.'
       not 'Children/the children read their book.'

(28)   Çocuk kitab-ı-nı   oku-du.   [Turkish]
       child book-POSS-ACC read-PAST
       'The child read his book.'
       not 'Children/the children read their book.' (Sağ 2016: 5)

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[10] It is also not possible to claim that the plural is just an agreement marker, as done for the Arabic plural of singulatives by Borer and Ouwayda (2010) and Ouwayda (2014), since in Turkish at least, it is not actually possible for numerals to appear with a bare plural. Numerals must merge with a bare noun (Donabédian 1993; Görgülü 2012).

As argued by Sağ (2016) for Turkish, bare nouns appear to be ambiguous: they either refer to general number or are singular. The facts in (27) and (28) show that it must be the case that the morphological plural is acting on a singular, not a bare NP. We have independence of this in Tunisian Arabic where plurals of singulatives operate on a noun that has already been individuated and where the plural is not in the lower Num position, but generated in the higher Num position. In Tunisian Arabic, we see a renominalization effect, with the added *n* introducing a new semi-lattice. We propose that this is exactly what is happening in the case of WA-type bare plurals.

   We have independent evidence that the plural is generated not in the lower, but the higher Num. The evidence comes from the inclusive/exclusive contrast and scope. First, we note that bare nouns are felicitous in interrogative contexts (29) and (30). This is expected since such nouns refer to atoms as well as sums, i.e. they are inclusive. The following questions can be answered in the singular, e.g. 'Yes, one', or in the plural, e.g. 'Yes, three'. The same judgements are given by Turkish speakers (Sağ 2016).

(29)   Bəzdig unis?   [Western Armenian]
        child   have.2.SG
        'Do you have (one or more) children?'

(30)   Azar çocük bak-r?   [Turkish]
        Azar child care-IMP.3SG
        'Does Azar take care of (one or more) children?'

If we now use a bare plural in the same context, the interpretation is such that the noun is interpreted only as a plural, i.e. exclusively. As Bale, Gagnon, and Khanjian (2011) point out for Western Armenian,

Given a context where it is clearly relevant whether a person has one or more children versus no children and where it is not relevant whether a person has one child versus more than one, Armenian speakers find the question in [(31)] awkward. In fact they often suggest that one should use the singular form of the noun instead. However, when told that (31) is the intended question, speakers will answer no if they only have one child but yes if they have more than one.

(31)   Bəzdig-ner   unis?   [Western Armenian]
        child-INDEF.PL have.2.SG
        'Do you have (two or more) children?'

(32)   Azar çocuk-lar bak-ıyor?   [Turkish]
        Azar child-PL   care-IMP.3SG
        'Does Azar take care of (two or more) children?'

Turning now to negative contexts (33) and (34), we see that, as expected, bare nouns are interpreted inclusively – they refer to sums as well as atoms.

(33)   Kirk tʃikənetsi.   [Western Armenian]
        book NEG.buy.1SG.PERF.PAST
        'I didn't buy (one or more) books.'

(34)   Azar çocuk bak-mı-yor.   [Turkish]
        Azar child care-NEG-IMP.3SG
        'Azar does not take care of (one or more) children.'

When a bare plural is used as in (35) and (36), the situation is different. The bare plural is interpreted exclusively, referring to more than one systematically.

(35)   Kirker   tʃikənetsi.   [Western Armenian]
        book.PL NEG.buy.1SG.PERF.PAST
        'I didn't buy (two or more) books.'

(36)   Azar çocuk-lar-a   bak-mı-yor.   [Turkish]
        Azar child-PL-DAT care-NEG-IMP.3SG
        'Azar does not take care of (two or more) children.'

Let us now turn to conditionals as shown in (37) and (38). As expected, number-neutral nouns are interpreted inclusively.

(37)   Jete kirk məkənes (ne), hajis əse   indzi. [Western Armenian]
        if   book buy.2SG (if), please say.2SG.IMP to-me.
        'If you buy (one or more) books, please let me know.'

(38)   Azar çocuk bakır-sa,   bana   haber ver.   [Turkish]
        Azar child care-CON.3SG, me.DAT news pass.2SG
        'If Azar is taking care of (one or more) children, let me know.'

On the other hand, a bare plural in the same context yields an exclusive reading: the noun necessarily denotes plurality. The following examples are true if Azar takes care of two children or more but false if she takes care of only one child.

(39)   Jete kirk-er məkənes (ne), hajis əse   indzi. [Western Armenian]
        If   book-PL buy.2SG (if), please say.2SG.IMP to-me.
        'If you buy (two or more) books, please let me know.'

(40)   Azar çocuk-lar-a   bakır-sa,   bana   haber ver.   [Turkish]
        Azar child-PL-DAT care-CON.3SG, me.DAT news pass.2SG
        'If Azar is taking care of (two or more) children, let me know.'

As pointed out in the Introduction, these facts have been noticed before by Bale, Gagnon, and Khanjian (2010, 2011) and Bale and Khanjian (2014), but Western Armenian is problematic for them, because it goes against the generalization they put forward, namely that the plural is marked morphologically, but unmarked semantically, always referring to sums as well as atoms. Clearly, in Western Armenian, but also in Turkish, and in fact in Arabic as seen in

Section 2, it is possible for the plural to be marked semantically. This means that in a context where the children are a, b, and c, the English singular 'child', but also the WA-type singular bare noun, denotes as in (41a). The English plural 'children' denotes as in (41b), while the Persian/Azari/Turkish/Western Armenian bare plurals corresponding to 'children' denote as in (41c). Nouns denoting general number correspond to (41b) and have thus the same denotation as English plurals. These facts show that the basic interpretation of the plural is not one that includes sums as well as atoms, as in Sauerland, Anderssen, and Yatsushiro (2005).

(41)   a. child = {a, b, c}
         b. children = {a, b, c, ab, ac, bc, abc}
         c. children = {ab, ac, bc, abc}

We now turn to our final piece of evidence. We note that the scope of WA-type bare nouns is obligatorily low. The following sentences cannot be referring to specific books or hats, only to non-specific books or hats.

(42)   Kirk   gə   pəndrem gor.   [Western Armenian]
         book IND find.1SG CONT
         'I am looking for books.'

(43)   Şapka   arı-yor-muş-dum.   [Turkish]
         hat   search-IMP-PARTP-PAST.3SG
         'He used to look for hats.'

On the other hand, the version of these sentences with a plural marker, as in (44) and (45), allows a wide scope reading.

(44)   Kirk-er   gə   pndrem gor.   [Western Armenian]
         book-PL IND find.1SG CONT
         'I am looking for books.'

(45)   Şapka-lar   arı-yor-muş-dum.   [Turkish]
         hat-PL   search-IMP-PARTP-PAST.3SG
         'He used to look for hats.'

Thus, while bare nouns in WA-type languages behave like bare plurals in English (Carlson 1977b; Chierchia 1998b) in receiving narrow scope, their plural counterparts allow a reading where more structure needs projecting than the bare NP structure for bare nouns. We assume that the wide scope is available because the plural is generated high in the structure, allowing it to escape the DP to take scope over the whole sentence à la Borer (2005). The bare noun lower in the structure is not able to escape the DP to take wide scope.

If bare plurals in Western Armenian and Turkish are high plurals, then we begin to understand why they are associated with definiteness (Donabédian 1993). For example, *tun-ə* means 'the house', ə indicating definitiveness, but if

we use a definite plural, then not only do we need to add an ə, but we also need to include the plural marker to give *tun-er-ə* 'the houses'. We saw also that when a bare noun in Western Armenian and Turkish is interpreted as singular, rather that as denoting both sums and atoms, the interpretation of the subject noun was definite. That some plurals are linked to specifty or definiteness has been noticed before (Ghomeshi 2003; Hamedani 2011 for Persian and Butler 2012 for Yucatec Maya, among others). These are interesting facts, but must be left for a future paper. We must now conclude.

4.   Conclusion

In this chapter, we provided evidence from Tunisian Arabic that the morpho-syntactic plural can appear in two positions, a lower Num and a higher Num, and that this contrast is also relevant for languages such as Western Armenian and Turkish when trying to explain differences between bare nouns and bare plurals. Bare nouns refer to sums and atoms and receive low scope while bare plurals refer to sums only and have the possibility of being interpreted as having wide scope. Bare nouns can be interpreted as inclusive, but bare plurals cannot, and we know independently from Arabic that the higher Num position is associated with strict exclusivity. We proposed that the pluralization of bare nouns in Western Armenian and Turkish is a two-step process. First, there is atomization of the noun (via a null head in Num) together with renominaliza-tion (the singular form is a word). This is a reflection of the fact that the plural in Western Armenian and Turkish is not in complementary distribution with the singular. Second, the plural operates on the new semi-lattice and refers to sums only. It remains to be seen whether our findings can be generalized to other languages with general number that also have plurals as part of their grammars.