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In favor of SizeP in DP: Evidence from diminutives in Jordanian Arabic

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This paper reports on the syntactic distribution of the diminutive morpheme *-ay* in Jordanian Arabic and its implications for the structure of count DPs. Two theoretical issues are addressed in this paper. First, we investigate whether the diminutive morpheme in Jordanian Arabic is derivational or inflectional. Second, we examine if the morpheme is introduced in the DP structure as a head of its own projection, or if it is simply an adjoined modifier. We show, through different tests, that the Jordanian Arabic diminutive behaves as an inflectional morpheme that realizes its own head Size^0 in the functional domain of the DP (De Belder 2011). We also discuss the interplay between the diminutive morpheme on one hand, and the singulative and plural morphemes on the other hand. We show that the interaction between these morphemes yields different interpretive effects concerning the kind *vs* unit distinction inside count DPs. The picture that emerges from the discussion presented in this paper is a unified analysis of count DPs in Jordanian Arabic.

KEYWORDS: diminutives, singulatives, Jordanian Arabic, count DPs.

1. Introduction

Cross-linguistic investigations of grammatical categories like number and gender have shown that there are different syntactic realizations and a wide range of semantic interpretations expressed by such categories. For instance, inflectional plural morphemes are typically analyzed as realizations of a Number Phrase (NumP) (e.g. Ritter 1991; Borer 2005, among many others). Nonetheless, cross-linguistic investigations of the category Number have revealed that the category could be distributed over different layers in the extended nominal projection (Zabbal 2002; Acquaviva 2008; Mathieu 2013; Kramer 2016). Similarly, the category diminutive is viewed as a universal category (Jurafsky 1996). However, there is considerable cross-linguistic variation in the syntax and semantics of diminutives. Traditionally, the category diminutive is assumed to be a derivational category (Perlmutter 1988; Stump 1993; Bobaljik 2005). It is also assumed that both derivational and inflectional diminu-

tives are available cross-linguistically (De Belder *et al.* 2014). Another issue that arises when discussing the morphosyntax of diminutives is whether diminutives are heads of their own projection, or are simply adjoined modifiers (Wiltschko & Steriopolo 2007; Steriopolo 2013).

In Jordanian Arabic (JA), the morpheme *-ay* is used to signify the smallness of the noun it attaches to. In (1), for instance, the combination of N + *ay* simply refers to a smaller version of the noun's original denotation.[1]

(1) a. *mouz* → *mouz-ay-(ih)*
bananas bananas-DIM-(CLS).F.SG
'Bananas – a small banana.'
b. *baskot* → *baskot-ay-(ih)*
biscuits biscuits-DIM-(CLS).F.SG
'Biscuits – a small biscuit.'

The morpheme *-ay* usually, but not necessarily, appears with the singulative morpheme *-ah*, which acts as a classifier in Arabic (Zabbal 2002; Mathieu 2012; Ouwayda 2014; Fassi-Fehri 2016, 2018; Alhailawani 2018). In JA, DPs containing the morpheme *-ay* get a count unit reading, and a count kind reading is not available, as seen in (2).[2]

(2) *akalt* *samak-ay-(ih)* *ʕa-l-ʕaša*
ate.1.M.SG fish-DIM-(CLS).F.SG at-the-dinner
'I ate one small fish at dinner.'
*'I ate a certain kind of small fish at dinner.'

This paper offers a formal description of the diminutive morpheme in JA. The paper contributes to the ongoing debate on whether diminutives are inflectional or derivational. Furthermore, it addresses the issue of whether diminutives head their own projection, or if they are adjoined modifiers. We show that diminutive *-ay* behaves as an inflectional morpheme that heads its own projection in the functional domain of the DP. We implement this idea by adopting De Belder's (2011) decomposition of the DP, where countability is seen as a product of the interaction between two functional heads: Div^0 and Size^0. We show that De Belder's (2011) structure can capture the JA diminutivization and singulativization facts. In particular, we argue that diminutive *-ay* is a realization of Size^0 (De Belder 2011; De Belder *et al.* 2014), whereas the singulative morpheme is a realization of Div^0 (Mathieu 2012; Ouwayda 2014; Fassi-Fehri 2016, 2018; Alhailawani 2018). We show that the interaction between Div^0 and Size^0 gives rise to different syntactic and semantic effects in the JA DP. Ultimately, we will argue that SizeP pro-

jects inside all count DPs in JA, and that its absence gives rise to a count kind reading.

The remainder of this paper is structured as follows. In the following section, we present the main properties of the singulative morpheme, showing that it behaves as a classifier in Arabic. In section 3, we discuss the main properties of the JA diminutive. We draw on cross-linguistic comparison between the diminutive in JA and the diminutives found in other languages, showing that the JA diminutive is best analyzed as an inflectional head in the functional domain of the DP. Section 4 introduces De Belder's (2011) DP decomposition proposed for Germanic. In section 5, we present our analysis of the diminutive and singulative morphemes in JA. The analysis draws on the analysis presented in the previous section, but at the same time it offers a uniform account of both morphemes. Section 6 is a brief conclusion.

2. Preliminaries: the singulative in Arabic

The singulative morpheme *-ah* in Arabic acts as a classifier when added to some mass nouns (3b) (Zabbal 2002;[3] Mathieu 2012; Ouwayda 2014; Fassi-Fehri 2016, 2018; Alhailawani 2018).

(3) a. *akalt* *tuffaħ/basal*
ate.1.M.SG apples/onions
'I ate apples/onions.'
b. *akalt* *tuffaħ-ah/basal-ih*
ate.1.M.SG apples-CLS.F.SG/onions-CLS.F.SG
'I ate an apple/onion.'

The morpheme *-ah* is only compatible with a specific set of mass nouns (e.g. animals, food types, liquids, grains etc.). Ouwayda (2014) uses the term 'batch nouns' to refer to the bare form of these nouns.

Singulativized nouns are invariably feminine. Agreement on adnominal modifiers supports this view. For instance, nouns bearing singulative *-ah* trigger feminine singular agreement on adnominal adjectives, as seen in (4).

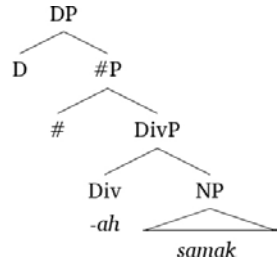
(4) *akalt* *mouz-ih* *zɣiir-ih*
ate.1.M.SG bananas-CLS.F.SG small-F.SG
'I ate a small banana.'

Moreover, nouns suffixed with singulative *-ah* only get a count unit reading, as seen in (5).

(5) *akalt* *samak-ih*
ate.1.M.SG fish-CLS.F.SG
'I ate one fish.'
*'I ate a certain kind of fish.'

Given its classifier-like behavior, a typical analysis of the singulative morpheme is to treat it as being the head of a Classifier/Division Phrase (ClP/DivP) (Mathieu 2012; Ouwayda 2014; Fassi-Fehri 2016, 2018; Alhailawani 2018). Ouwayda (2014), for instance, argues that the singulative morpheme in Lebanese Arabic (LA) is the head of DivP. Ouwayda follows Borer (2005) by assuming that all nouns are born as mass and that the mass/count distinction is syntactically derived. Under this view, the mass noun undergoes head movement to Div^0/$Class^0$, where it merges with the singulative morpheme, yielding a count denotation (6).

(6)



(Adapted from Ouwayda 2014: 51)

In a similar vein, Fassi-Fehri (2016, 2018) argues that the singulative morpheme acts as an individualizing classifier in Modern Standard Arabic (MSA). The morpheme, according to Fassi-Fehri, is a realization of Div^0/$Class^0$.

All in all, there seems to be a general consensus in the literature that the feminine morpheme *-ah* is a classifier which creates units out of masses. In the next section, we discuss the main properties of the diminutive morpheme in JA.

3. The diminutive morpheme in Jordanian Arabic

The morpheme *-ay* in JA is used to signify the small size of the noun it attaches to. Like the singulative, the diminutive morpheme is compatible with certain classes of nouns (mostly food types). Also,

the morpheme is used in combination with the singulative morpheme *-ah* (7).

(7) a. *akalt* *mouz-ay-ih*
ate.1.M.SG bananas-DIM-CLS.F.SG
'I ate a small banana.'
b. *akalt* *baskot-ay-ih*
ate.1.M.SG biscuits-DIM-CLS.F.SG
'I ate a small biscuit.'

The resulting combination simply refers to a smaller version of the noun. The trimorphemic status of the noun in (7) is evident from the fact that it is possible to use the noun with the diminutive *-ay* by itself without any change in countability (8). Also, the presence/absence of *-ah* has no effect on diminutivization. However, most of the JA speakers we consulted prefer to use the morpheme *-ah* along with the diminutive morpheme *-ay* when describing a diminutivized noun. Throughout the remainder of this paper, we will keep on presenting both morphemes when discussing examples with diminutives.

(8) a. *akalt* *mouz-ay*
ate.1.M.SG bananas-DIM.F.SG
'I ate a small banana.'
b. *akalt* *baskot-ay*
ate.1.M.SG biscuits-DIM.F.SG
'I ate a small biscuit.'

Like the singulative (4), the diminutive morpheme *-ay* triggers feminine singular agreement on adnominal adjectives irrespective of the presence/absence of singulative *-ah* (9).

(9) *akalt* *mouz-ay-ih* *zyiir-ih*
ate.1.M.SG bananas-DIM-CLS.F.SG small-F.SG
'I ate a small banana.'

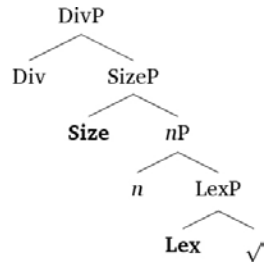
Cross-linguistically, two theoretical questions arise when discussing the morphosyntax of diminutives. The first question concerns the derivation *vs* inflection dichotomy (Anderson 1982).[4] The traditional view of diminutives is that they belong to the derivational category (Perlmutter 1988; Stump 1993; Bobaljik 2005). De Belder *et al.* (2014), however, note that both derivational and inflectional diminutives are available cross-linguistically, and that the existence of both types is possible even in the same language. The second theoretical question has to do with the issue of whether diminutives realize their own projecting head, or if they are adjoined modifiers (Wiltschko & Steriopolo 2007; Steriopolo

2013). In the following subsections, we will attempt to answer both questions with regard to the diminutive morpheme *-ay* in JA. Adopting the criteria proposed in De Belder *et al.* (2014), we will show that diminutive *-ay* in JA behaves as an inflectional morpheme. This suggests that *-ay* occupies a position in the functional domain of the DP. We then address the head *vs* modifier status of *-ay*. We apply the diagnostics put forward by Wiltschko & Steriopolo (2007), and show that diminutive *-ay* is best analyzed as a head rather than an adjoined modifier.

3.1 Diminutives: inflectional or derivational

De Belder *et al.* (2014) investigate the morphosyntax of diminutives in a number of languages, focusing on Italian and Modern Hebrew. The authors distinguish between two types of diminutives: (i) high (inflectional) diminutives; and (ii) low (derivational) diminutives. For De Belder *et al.*, the two diminutives are realized differently inside the extended nominal projection. The high diminutive is a functional head Size^0 located above the categorizing head (De Belder 2011),[5] whereas the low diminutive is the head of a LexP located below the categorizing head. The two positions are schematized in (10).

(10)



(De Belder *et al.* 2014: 151)

De Belder *et al.* (2014) point out that there are two main differences between the two diminutives. First, the meaning of the high diminutive is compositional; the N + DIM combination refers to a smaller version of the noun (11a). By contrast, the meaning of the low diminutive is not predictable. That is, the addition of the diminutive derives a new denotation (11b).

(11) Italian
a. *nas-ino*
nose-DIM
'Small nose.'

b. *telefon-ino*
telephone-DIM
'Cell phone.'

(De Belder *et al.* 2014: 149)

The second difference concerns productivity and compositionality. De Belder *et al.* (2014) note that since the high diminutive is a functional head, the diminutive is characterized by full productivity, viz. the diminutive combines with a wide range of nouns. On the other hand, the low diminutive lacks productivity, since it occupies a lexical position below the categorizing head. In Modern Hebrew (MH), for instance, there are two modes of diminutivization: (i) a high concatenative diminutive realized by the morpheme *-on* (12a); and (ii) a low templatic diminutive of the form QTaLTVL (12b).

(12) Diminutivization in Modern Hebrew

a. *xazir* → *xaziron* (Concatenative DIM)
'Pig.' 'Piglet.'
b. *xazir* → *xazarzir* (Templatic DIM)
'Pig.' 'Piglet.'

(Adapted from De Belder *et al.* 2014: 152)

De Belder *et al.* (2014) show that the high diminutive in MH is fully productive, since it is compatible with a wide range of nouns, whereas the low diminutive is not, and is only compatible with a closed group of nouns. Moreover, because of its low position below the categorizing head, a low diminutive is oblivious to the category head above it. Therefore, the low diminutive is cross-categorial: the diminutive is not limited to nouns and can combine with verbs in MH.

Templatic diminutives are found in MSA (e.g. *kitaab* 'book' → *kutayeb* 'booklet') (AlQahtani 2016), and also in Egyptian Arabic (EA) (De Belder *et al.* 2014), as seen in (13).

(13) Egyptian Arabic
bannuuta
girl.DIM
'Young girl.' (template: QaTTuuL)

(De Belder *et al.* 2014: 160)

The templatic form seen in (13) occurs with a limited set of nouns in JA (e.g. *walad* 'boy' → *wleid* 'young boy'; *bint* 'girl' → *bannutih* 'young girl'). The form is mostly used to express a pejorative attitude, or to show affection and endearment (Badarneh 2010). In this work, we limit our attention to the diminutive *-ay*. Following De Belder *et al.* (2014),

we assume that the low (templatic) diminutive in JA is a realization of Lex^0, as in EA.

Now turning to diminutive *-ay*, the use of the diminutive is strictly compositional. In particular, the N + DIM combination simply refers to a smaller version of the noun. As concerns productivity, it was noted above that the diminutive morpheme in JA is only compatible with a specific set of nouns (mostly food types). Such a restriction makes the JA diminutive comparable to the low diminutives discussed by De Belder *et al.* (2014). However, the restriction is not limited to the diminutive morpheme. The singulative morpheme *-ah* is also limited to a specific set of nouns, as explained in section 2 above. For the time being, we put aside this issue, but come back to discuss it in detail in section 5.

Another piece of evidence that the diminutive morpheme is not derivational comes from the range of categories the morpheme can combine with. As explained above, De Belder *et al.* (2014) argue that only low diminutives can combine with both nouns and verbs in MH, since they are oblivious to the categorizing head.[6] The diminutive morpheme in JA is only limited to nouns, and is incompatible with other categories like verbs (14) or adjectives (15).

(14) *rags* → **rags-ay-(ih)* (Verbs)
dancing dancing-DIM-(CLS).F.SG
'Dancing → dance (diminutive).'

(15) **mouz-ay-ih* *ihzɣiir-ay-(ih)* (Adjectives)
bananas-DIM-CLS.F.SG small-DIM-(CLS).F.SG
'A small banana.'

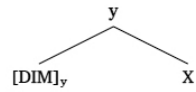
The restrictions observed in (14) and (15) suggest that *-ay* is an inflectional morpheme located in a high position within the functional domain of the DP.[7]

3.2 Diminutives: heads or adjoined modifiers

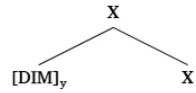
The second issue to address is whether the JA diminutive is a head or an adjoined modifier. Based on the behavior of diminutives in German, Russian, and Halkomelem Salish, Wiltschko & Steriopolo (2007) offer two possible configurations for diminutives. According to Wiltschko & Steriopolo, the two configurations in (16) explain the cross-linguistic discrepancies observed with diminutives.[8]

(16)

a. *DIM as syntactic head in German*



b. *DIM as adjoined modifier in Halkomelem*



(Wiltschko & Steriopolo 2007: 4)

Wiltschko and Steriopolo show that diminutives in German can change the formal properties of the noun they attach to. For instance, the diminutive morpheme *-chen* shifts the noun's gender to neuter irrespective of the noun's original gender value, as evidenced from gender agreement on the determiner in (17).

(17) German

der	*Baum*	→	*das*	*Bäum-chen*
DET.M	tree		DET.N	tree-DIM

'The tree – the (cute) little tree.'

(Wiltschko & Steriopolo 2007: 2)

The German diminutive can also change the mass/count specification of the noun. In particular, the diminutive changes the denotation of the noun from mass to count (18).

(18) German

viel	*Brot*	→	*viele*	*Bröt-chen*
Q	bread		Q.PL	bread-DIM

'Much bread – many rolls.'

(Wiltschko & Steriopolo 2007: 2)

The diminutive in Halkomelem is formed via reduplication. According to Wiltschko & Steriopolo (2007), the Halkomelem diminutive does not change the formal properties of the noun, since the diminutive can be found cross-categorically, appearing on nouns, verbs, and adjectives. The examples in (19) show that the diminutive in Halkomelem can appear on verbs and adjectives.

(19) Halkomelem

a. *lhí:m* → *lhi-lhi:m* (V→V)

picking DIM-picking

'Picking – picking a little bit.'

b. *p'eq'* → *p'ĭ-p'eq'* (A→A)
white DIM-white
'White – a little white, whitish.'

(Wiltschko & Steriopolo 2007: 3)

Additionally, Wiltschko & Steriopolo (2007) note that diminutivized nouns in Halkomelem do not give rise to an individuated reading (20).

(20) Halkomelem
s-páth → *s-pi-páth*
NOM-bear NOM-DIM-bear
'Bear – little bear.'

(Wiltschko & Steriopolo 2007: 3)

As for diminutive *-ay* in JA, the diminutive shifts the noun's gender from masculine to feminine. Adjectival agreement supports the view that the diminutivized noun in JA is feminine, as the example in (9) repeated here as (21) shows.[9]

(21) *akalt* *mouz-ay-(ih)* *zɣiir-ih*
ate.1.M.SG bananas-DIM-(CLS).F.SG small-F.SG
'I ate a small banana.'

Also, diminutivized noun in JA always receive a count unit interpretation (22).

(22) *akalt* *mouz-ay-(ih)*
ate.1.M.SG bananas-DIM-(CLS).F.SG
'I ate one small banana.'
*'I ate a certain kind of small bananas.'

Taking the above facts into account, it seems that the diminutive morpheme in JA behaves more like a syntactic head, rather than an adjoined modifier.[10] We will discuss the exact nature of the head realizing the diminutive in section 5.

Before concluding this section, we will discuss Fassi-Fehri's (2018) treatment of diminutives in Moroccan Arabic (MA). Fassi-Fehri shows that diminutives in MA have three functions, as seen in (23).

(23) Moroccan Arabic
a. *lben* → *lbiyen* → *lbiyn-a*
buttermilk buttermilk.DIM buttermilk-DIM.F
a. intensive: 'a very small quantity of buttermilk';
b. evaluative: 'buttermilk-DIM'; 'an appreciated small quantity of buttermilk';
c. individualizing: 'a discrete small portion of buttermilk'

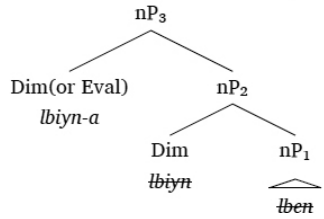
b. *sukkar* → *skiker* → *skikr-a*
sugar sugar.DIM sugar-DIM.F
with all three readings found for (23a).

(Adapted from Fassi-Fehri 2018: 25)

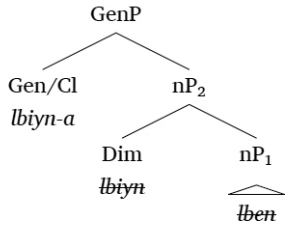
Fassi-Fehri (2018) offers three distinct syntactic structures that correspond to the functions described above (24).[11]

(24)

a. ***Intensive modifier or evaluative diminutive modifier***



b. ***Gen modifier***



(Adapted from Fassi-Fehri 2018: 26)

It seems plausible to extend the analysis of the high MA diminutive *-a* to the JA diminutive *-ay*. However, the diminutive meaning in JA is expressed via the morpheme *-ay*, and the presence/absence of the singulative morpheme *-ah* does not give rise to any semantic effects (see (7-8) above). Also, the diminutive *-ay* in JA is used independently of the low templatic form seen in (13) above. By contrast, all the MA structures in (24) have the low templatic form in them. Given this, it is not clear to us whether the *-a* morpheme in MA is in fact a diminutive.[12] So, whereas the structures in (24) seem to derive the MA patterns, the structures cannot be extended to the JA diminutive *-ay*.

Summing up, in this section we discussed the main properties of the diminutive morpheme in JA. We established that the morpheme is a head in the functional domain of the DP. In the next section, we will discuss the architecture of the DP proposed by De Belder (2011), which will lay out the theoretical foundation for our analysis of the diminutive and singulative morphemes in JA.

4. The framework: De Belder (2011)

De Belder (2011) puts forward a morphosyntactic analysis of countability in Germanic. The analysis is based on Borer's (2005) exoskeletal approach to morphology in which nouns are not lexically specified as count or mass. Under this approach, the mass *vs* count distinction is syntactically derived, and it is the presence/absence of a Division Phrase (DivP) that determines whether the DP is specified as count or mass. Across languages, DivP can be instantiated via classifiers or plural marking. De Belder concerns herself with the kind *vs* unit distinction observed with count nouns, and its implications for the architecture of the DP. In English, for instance, the presence of an indefinite article or plural marking yields a count noun which might have a kind or a unit reading (25).

(25) a. I tasted a chocolate.
Kind: 'I tasted a certain kind of chocolate.'
Unit: 'I tasted a piece of chocolate.'
b. I tasted the chocolates.
Kind: 'I tasted the different kinds of chocolate.'
Unit: 'I tasted the pieces of chocolate.'

(De Belder 2011: 177)

According to De Belder, while Borer's (2005) Div^0 can derive the mass *vs* count distinction, it cannot derive the kind *vs* unit readings of count nouns. De Belder (2011) argues that the two readings can also be derived in the syntax. De Belder's conclusion is based on the distribution of count nouns in Germanic. In what follows, we review her analysis of count nouns in Dutch and German.

De Belder (2011) shows that mass nouns in Dutch (e.g. *chocolade* 'chocolate') are turned into count via the use of the indefinite article or plural marking. The nouns in such a case get only a kind reading (26).

(26) Dutch
a. *Ik* *proefde* *een* *chocolade.*
I tasted a chocolate
Kind: 'I tasted a certain kind of chocolate.'
Unit: *'I tasted a piece of chocolate.'
b. *Ik* *proefde* *chocolade-s.*
I tasted chocolate-PL
Kind: 'I tasted different kinds of chocolate.'
Unit: *'I tasted pieces of chocolate.'

(De Beer 2011: 178)

To create units in Dutch, a diminutive morpheme is used in combination with the indefinite article or plural marking (27).

(27) Dutch
a. *Ik* *proefde* *een* *chocola-tje.*
I tasted a chocolate-DIM
Kind: *'I tasted a certain kind of chocolate.'
Unit: 'I tasted a piece of chocolate.'
b. *Ik* *proefde* *chocola-tje-s.*
I tasted chocolate-DIM-PL
Kind: *'I tasted different kinds of chocolate.'
Unit: 'I tasted pieces of chocolate.'

(De Belder 2011: 178)

Likewise, the diminutives *-chen* and *-lein* in German are used to derive a unit reading. In such a case, the diminutivized noun might be interpreted as plural or singular, as seen in (28).

(28) German
a. *ein* / *zwei* *Bier-chen*
one / two beer-DIM
Singular: 'One glass of beer.'
Plural: 'Two glasses of beer.'
b. *ein* / *zwei* *Bier-lein.*
one / two beer-DIM
Singular: 'One glass of beer.'
Plural: 'Two glasses of beer.'

(De Belder 2011: 185)

However, German differs from Dutch in that the diminutive, be it *-lein* or *-chen*, cannot co-occur with plural marking. Thus, plural marking and diminutives seem to be in complementary distribution in German (29).

(29) German
**Bier-chen-s* → **Bier-lein-e*
beer-DIM-PL beer-DIM-PL

(De Belder 2011: 185)

Based on the above observations, De Belder (2011) offers a uniform analysis of countability in Germanic. According to De Belder, countability is the result of the presence/absence of syntactic heads and their featural specification. In addition to Borer's (2005) Div^0, De Belder (2011) proposes a new head called $Size^0$ that carries a [Size] feature. For De Belder, the presence of [Size] in the DP contributes the property of being bounded in space (i.e. unit), whereas its absence contributes the property of being not bounded/continuous in space (i.e. kind).[13] De Belder notes that in some languages, such as Dutch, the [Size]

feature may be morphologically realized as a diminutive morpheme. Furthermore, Size^0 could also be instantiated by a zero morpheme in the absence of a diminutive. According to De Belder (2011), the interaction between Div^0 and Size^0 yields four different possibilities, as follows.[14]

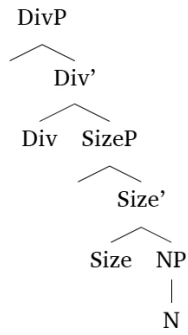
	DIV	SIZE
Mass reading	absent	absent
Count kind reading	present	absent
Count unit reading	present	present

Table 1. The interaction between [Div] and [Size] (De Belder 2011: 180).

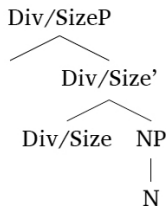
As concerns the difference between Dutch (and Afrikaans) on the one hand, and German on the other hand, De Belder argues that in Dutch and Afrikaans, [Div] and [Size] head their own projections (split structure), whereas German has an unsplit complex head Div^0/Size^0, as evidenced from the fact that number marking and size marking are in complementary distribution in German (29).[15] The structures proposed by De Belder (2011) are seen in (30).

(30)

a. ***Split structure***



b. ***Unsplit structure***



(De Belder 2011: 187)

To summarize, De Belder (2011) argues that the division of labor between Div^0 and Size^0 can derive the different syntactic and semantic effects inside the Germanic DP.

Out of the above discussion, we adopt the idea that the mass *vs* count distinction is syntactically derived via the presence/absence of DivP (Borer 2005).[16] Moreover, we adopt De Belder's (2011) view that the kind *vs* unit distinction in count DPs cannot be solely derived by Div^0, but rather, the distinction is derived via the presence of additional functional structure, namely SizeP. It is generally accepted that plural marking and the singulative *-ah* in Arabic are morphological realizations of Div^0 (Mathieu 2013; Ouwayda 2014; Fassi-Fehri 2016, 2018; Alhailawani 2018, among others). Nonetheless, there is an asymmetry between singulatives and regular plurals in JA with respect to the kind *vs* unit distinction. In particular, the example in (31) shows that pluralization of mass nouns yields a count noun that is ambiguous between a kind and unit reading.[17] On the other hand, nouns suffixed with singulative *-ah* or diminutive *-ay* only get a unit reading (32).

(31) *akalt* *xams* *asmaak* *ʕa-l-ʕaša*
ate.1.M.SG five fish.PL at-the-dinner
'I ate five fishes at dinner' or 'I ate five kinds of fish at dinner.'

(32) a. *akalt* *samak-ih* *ʕa-l-ʕaša*
ate.1.M.SG fish-CLS.F at-the-dinner
'I ate five fishes at dinner'.
*'I ate five kinds of fish at dinner.'
b. *akalt* *samak-ay-(ih)* *ʕa-l-ʕaša*
ate.1.M.SG fish-DIM-(CLS).F.SG at-the-dinner
'I ate one small fish at dinner'.
*'I ate a certain kind of small fish at dinner.'

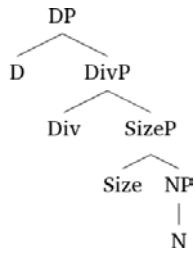
In the next section, we will argue that the presence/absence of SizeP in the functional domain of the DP accounts for the asymmetry between (31) and (32).

5. Deriving countability in Jordanian Arabic

In this section, we show that De Belder's (2011) DP decomposition can be fruitfully employed in deriving the JA diminutivization and singulativization facts.

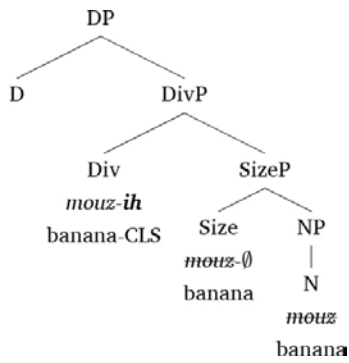
To being with, we propose that JA count DPs have a split DivP/SizeP structure, as seen in (33).[18]

(33)



Starting with the singulative, we assume following Ouwayda (2014), Fassi-Fehri (2016, 2018), and Alhailawani (2018) that singulative *-ah* is a realization of Div^0. We argue, however, that SizeP projects inside DPs containing singulative *-ah*. This explains the asymmetry between plural marking and singulatives with respect to the kind *vs* unit distinction observed in (31) and (32). To be precise, we argue (following De Belder 2011) that the presence of SizeP inside count DP yields a count unit reading, whereas its absence yields a count kind reading. Thus, the presence/absence of SizeP inside plural count DPs accounts for the availability of count unit and count kind readings, as in (31) above. On the other hand, singulative *-ah* always gives rise to a count unit reading. As such, we argue that SizeP always projects in the singulative, as seen in (34).

(34)



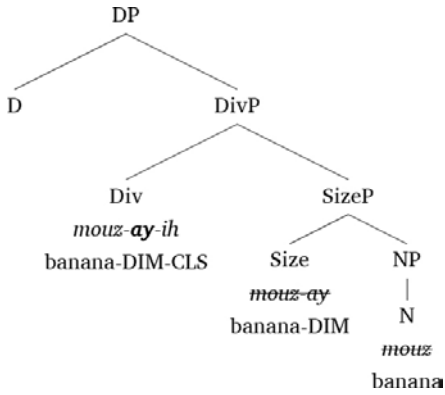
In (34), both DivP and SizeP project, with the latter being realized by a zero morpheme.[19] The mass noun first undergoes head movement to Size^0, and subsequently to Div^0, where it combines with the singulative morpheme *-ah*.[20]

Turning now to the structure containing the diminutive *-ay*. We argue that the morpheme is a realization of Size^0, in line with De Belder

(2011) and De Belder *et al.* (2014). The absence of the kind reading in (35a) supports this view. Following De Belder (2011), we assume that the function of Size^0 is to assign size to mass nouns, and as such, nouns that acquire size are automatically deemed count. Given this, we propose that the structure of a DP containing diminutive *-ay* is as schematized in (35b).

(35) a. *akalt* *mouz-ay-ih*
ate.1.M.SG bananas-DIM-CLS.F.SG
'I ate one small banana.
*'I ate a certain kind of small bananas.'

b.



The kind reading is also absent when the diminutive appears by itself, as seen in (36). For (36), we propose the same structure in (35b), with Div^0 being realized by a zero morpheme.

(36) *akalt* *mouz-ay*
ate.1.M.SG bananas-DIM.F.SG
'I ate one small banana.'
*'I ate a certain kind of small bananas.'

Thus far, the picture emerges from the above discussion is that SizeP is underlyingly present in the structure of all count DPs containing singulative *-ah*. The diminutive morpheme *-ay* is simply an (optional) overt morphological realization of SizeP. The presence of *-ay* in Size^0 denotes the smallness of the noun to be divided by the singulative in Div^0. This view is further supported by the fact that there are no nouns in JA that can bear diminutive *-ay* and cannot bear singulative *-ah*. We could not find any noun in JA that can be diminutivized via *-ay* and at the same time cannot be singulativized via *-ah*. In other words, all nouns that can realize the diminutive morpheme can also realize the

singulative morpheme, but the opposite is not true. In the context of the analysis being developed in this section, this amounts to saying that all nouns that can be diminutivized in Size^0 can also be singulativized in Div^0. A similar situation is found in Dutch. De Belder (2011) shows that all diminutivized Dutch nouns can be pluralized in Div^0. Similarly, we assume that in JA any noun that can be assigned size in Size^0 is eligible for division in Div^0. In Dutch, plural marking performs the division function, whereas in JA, the mode of division employed is the singulative, both of which taking place in Div^0.

At this point, the question to consider is whether nouns that acquire size in Size^0 can also bear plural marking in Div^0. The following examples show that both the diminutive and the singulative morphemes can co-occur with plural marking:

(37) *akalt* *xams* *mouz-ay-aat*
ate.1.M.SG five bananas-DIM-CLS.F.PL
'I ate five small bananas.'

(38) *akalt* *xams* *mouz-aat*
ate.1.M.SG five bananas-CLS.F.PL
'I ate five bananas.'

The construction in (38) is known as the plural of the singulative (POS henceforth), first discussed by Ouwayda (2014) in LA and by Alhailawani (2018) in JA. By analogy to the POS, we will use the term plural of the diminutive (POD) to refer to examples like (37).[21] The POS contradicts a well-known generalization concerning plural marking and classifiers. More specifically, it is generally assumed that plural marking and morphological classifiers are in complementary distribution (e.g. Greenberg 1972; T'sou 1976; Borer 2005; Cowper & Hall 2012, among others).[22] Borer (2005) observes that in languages that have both classifiers and plural marking (e.g. Armenian), the two never co-occur. Ouwayda (2014), however, shows that the POS in LA is not a real plural, but an agreement marker with the numeral. Her conclusion is based on the fact that the POS does not have the typical properties of regular plurals in LA. In what follows, we will show that, like the POS, the POD does not exhibit the typical properties of regular plurals. Thus, we will argue that the plural maker *-aat* in the POD is not realized in Div^0. For the POS, we will use the JA equivalents of Ouwayda's (2014) original LA examples.

Ouwayda (2014) shows that the distribution of the POS and regular plurals (i.e. sound plurals and broken plurals) is not the same in LA. In particular, the POS is possible inside definite DPs (39a) and DPs containing numerals 3-10 (40),[23] whereas the POS is not possible inside indefinite DPs (39b).

(39) a. *mouz* → *mouz-ay-(ih)* (Definite NP)
bananas bananas-DIM-(CLS).F.SG
'Bananas – a small banana.'
b. **akalt* *mouz-aat* (Indefinite NP)
ate.1.M.SG bananas-CLS.F.SG
'I ate bananas.'

(40) *akalt* *xams* *mouz-aat*
ate.1.M.SG five bananas-CLS.F.PL
'I ate five bananas.'

The same is also true of the POD. The following examples show that, like the POS, the POD is possible inside definite DPs (41) and DPs containing numerals 3-10 (42), but not inside indefinite DPs (43).

(41) *akalt* *il-mouz-ay-aat*
ate.1.M.SG the-bananas-DIM-CLS.F.PL
'I ate the small bananas.'

(42) *akalt* *xams* *mouz-ay-aat*
ate.1.M.SG five bananas-DIM-CLS.F.PL
'I ate five small bananas.'

(43) **akalt* *mouz-ay-aat*
ate.1.M.SG bananas-DIM-CLS.F.PL
'I ate small bananas.'

Second, regular plurals in Arabic give rise to a kind and a unit reading (see (31) above). Ouwayda (2014), however, shows that the POS only gives rise to a unit reading, as seen in (44).

(44) *akalt* *xams* *samak-aat*
ate.1.M.SG five fish-CLS.F.PL
'I ate five fishes.'
*'I ate five kinds of fish.'

Likewise, the POD also does not give rise to a kind reading, as seen in (45).

(45) *akalt* *xams* *samak-ay-aat*
ate.1.M.SG five fish-DIM-CLS.F.PL
'I ate five small fishes.'
*'I ate different kinds of small fish.'

Finally, weak quantifiers such as *ktiir* ('many') and *šway* ('few') must be followed by plural nouns (46).

(46) *ktiir/šway* *zulum/banaat*
many/few men.M.PL/girls.F.PL
'Many/few men/girls.'

Ouwayda (2014) points out that, unlike regular plurals, the POS cannot co-occur with weak quantifiers (47).

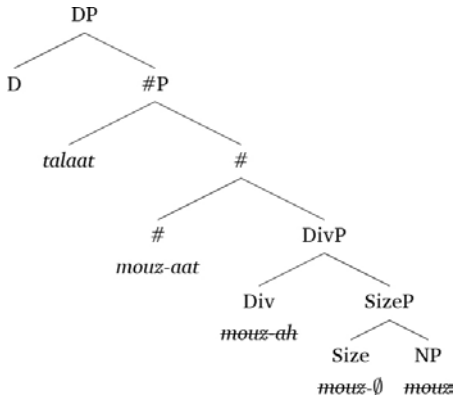
(47) **akalt* *ktiir* *mouz-aat*
ate.1.M.SG many bananas-CLS.F.PL
'I ate many bananas.'

The POD is also incompatible with weak quantifiers, as seen in (48).

(48) **akalt* *ktiir* *mouz-ay-aat*
ate.1.M.SG many bananas-DIM-CLS.F.PL
'I ate many small bananas.'

Summing up, the above facts suggest that the POD and POS are different from regular plurals.[24] Given this, we argue that Ouwayda's (2014) analysis of the POS in LA can be extended to account for the POD in JA.[25] Thus, the plural marker *-aat* is an agreement marker when the numeral merges in spec-#.[26] As concerns definite DPs, we adopt the proposal by Borer (2005) and its implementation in Ouwayda (2014) that the definite marker is a discourse anaphor (Heim 1982), that merges a copy in spec-#, thus explaining the projection of #P.[27] The structures of the POS and the POD are seen in (49) and (50) respectively.[28]

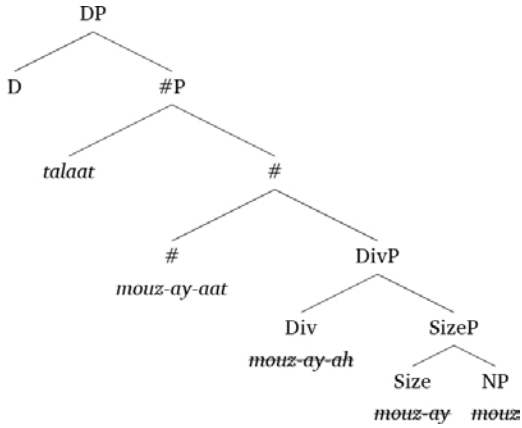
(49) POS:
a. *talaat* *mouz-aat*
three bananas-CLS.F.PL
'Three bananas.'
b.



(50) POD:

a. *talaat* *mouz-ay-aat*
three bananas-DIM-CLS.F.PL
'Three small bananas.'

b.



One could entertain the possibility that the POS and the POD are both realized in Div^0, and that the absence of the kind reading is due the presence of Size^0. While this might explain the absence of the kind reading in both constructions, it does not explain why the POS and the POD are incompatible with weak quantifiers and indefinite NPs. Also, linking such restrictions to the presence of the singulative or diminutive morphemes is problematic – at least for indefinites – since both morphemes are compatible with singular indefinite NPs.

Before proceeding further, it is worth noticing that plural marking is compatible with the low templatic diminutive in JA, which we take to be a realization of Lex^0 (De Belder *et al.* 2014). The examples in (51) show that the low diminutive can co-occur with plural marking inside an indefinite DP, and the presence of a numeral is not required as in the POD.

(51) a. *šuft* *bannut-aat* *ʕam* *yilʕabu* *bi-l-ħadiiqa*
saw.1.M.SG young_girl-F.PL PROG playing in-the-park.F.SG
Intended: 'I saw young girls playing in the park.'

b. *gareit* *ktiir* *kutayyib-aat* *ʕan* *adˁraar* *il-tadxiin*
read.1.M.SG many booklet-F.PL about harms.M.PL the-smoking
'I read many booklets on the harms of smoking.'

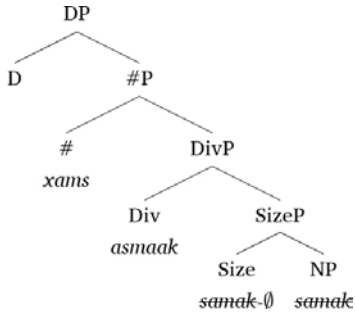
The data in (51) further support the view that the POD is not a real plural as argued above.

As for regular plurals (i.e. sound plurals and broken plurals), we argue that these are realized in Div^0 (52) (Ouwayda 2014; Fassi-Fehri

2018, among others). Here too, both DivP and SizeP project, with Size^0 being absent when the plural refers to kinds (see (31) above).

(52) a. *xams* *asmaak*
five fish.PL
'Five fishes.'

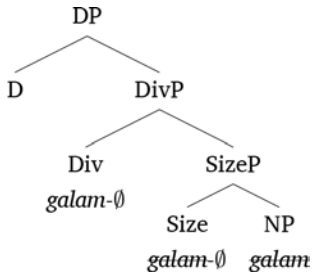
b.



Finally, we argue that count nouns that do not accept singulativization or diminutivization have a structure where both Div^0 and Size^0 are realized by zero morphemes (53).

(53) a. *galam*
pen.M.SG
'A pen.'

b.



An important point to underscore here concerns the productivity of the singulative and diminutive morphemes. As seen in (53), not all count nouns accept singulativization or diminutivization. We assume that the difference between nouns that accept singulativization and diminutivization and those that do not relates to the high *vs* low degree of encyclopedic boundedness.[29] Based on the original insights of Zemach (1970), De Belder (2011) notes that kinds are continuous in space, whereas units are bounded in space (see section 4 above). According to De Belder (2011), human beings have extra-linguistic knowledge that is encoded in the encyclopedia

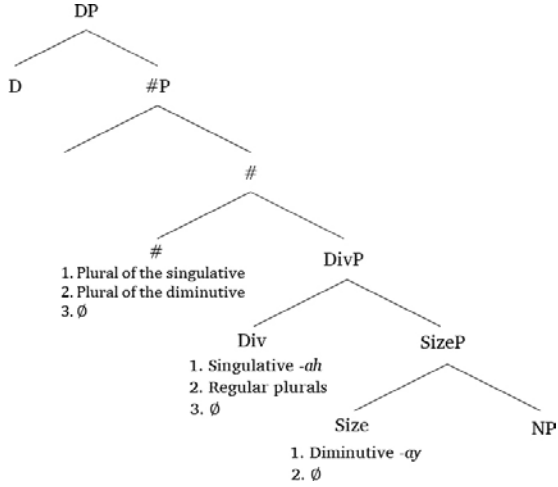
(Harley & Noyer 1999). The role of the encyclopedia is to associate extra-linguistic knowledge and meanings with their corresponding roots and features. For De Belder (2011), this knowledge accounts for the different intuitions English speakers have regarding the sentences in (54). Concepts like *dog* and *blood* can both have a mass reading in (54), with (54a) being more marked than (54b). According to De Belder (2011), this is because human beings have strong encyclopedic knowledge on what constitutes a unit for a concept like *dog*. By contrast, there is no particular convention on what might constitute one instance of a concept like *blood*.

(54) a. *There is dog all over the wall.* (Mass)
b. *There is blood all over the wall.* (Mass)
(De Belder 2011: 198)

Taking the notion of encyclopedic boundedness into consideration, we assume that JA nouns that refer to inedible things (e.g. *galam* 'pen', *sayyara* 'car') have a high degree of encyclopedic boundedness such that they do not accept singulativization or diminutivization. By contrast, nouns that refer to edible things do not have the same degree of encyclopedic boundedness, and as such, they accept singulativization and diminutivization. This distinction could potentially account for the fact that the singulative and diminutive morphemes are mostly available with nouns that refer to edible things.

The following diagram summarizes the main ideas discussed in this section:

(55) *Possible content of #^{0}, Div^0, and Size^0 in JA count DPs:*



6. Conclusion

In this paper, we investigated the syntax of the diminutive morpheme *-ay* and its implications for the structure of count DPs in JA. After careful examination of the main properties of the JA diminutive, we established that the diminutive is best characterized as an inflectional morpheme. Moreover, we showed that the diminutive morpheme projects its own phrase in the functional domain of the DP, as opposed to being an adjoined modifier. We implemented this idea using the DP decomposition proposed by De Belder (2011), where countability is the result of the interplay between two functional heads: Div^0 and $Size^0$. We argued that all count DPs in JA at least contain DivP in their functional structure. In JA, DivP can be realized by singulative *-ah* or regular plurals (i.e. broken and sound plurals). We also argued that SizeP projects with all count unit DPs, and that its absence gives rise to a count kind reading. Morphologically speaking, SizeP in JA can be overtly realized as diminutive *-ay*. To extend the empirical coverage of the analysis, we discussed the interaction between diminutives, singulatives, and plural marking. We showed that plural marking can co-occur with the singulative and diminutive morphemes, yielding the plural of the singulative (POS) and plural of the diminutive (POD) respectively. We provided several arguments to show that the POD is not a real plural that is realized in Div^0. Instead, we argued that the plural marker in the POD is a realization of $\#^0$, in line with Ouwayda's (2014) analysis of the POS in Lebanese Arabic. Finally, we accounted the apparent unproductivity of the singulative and diminutive morphemes in JA by restoring to the notion of encyclopedic boundedness (De Belder 2011). We assumed that nouns that do not accept singulativization or diminutivization have a high degree of encyclopedic boundedness, whereas nouns that accept both singulativization and diminutivization have a relatively lower degree of encyclopedic boundedness. The picture emerges from the discussion presented in this paper is a unified analysis of count DPs in JA.

Abbreviations

1, 2, 3 = first, second, third person; CLS = classifier; DET = determiner; DIM = diminutive; EA = Egyptian Arabic; F = feminine; JA = Jordanian Arabic; LA = Lebanese Arabic; M = masculine; MA = Moroccan Arabic; MH = Modern Hebrew; MSA = Modern Standard Arabic; N = neuter; NOM = nominative; PL = plural; POD = plural of the diminutive; POS = plural of the singulative; PROG = progressive; Q = quantifier; SG = singular.

Acknowledgements

We would like to express our gratitude to two anonymous reviewers for their comments and suggestions.

Notes

[1] The Arabic examples used throughout this paper are from JA, the authors' native language. All the JA examples used in this paper were checked with 15 native speakers of JA living in the western part of Amman, the capital of Jordan.

[2] The singulative morpheme *-ah* in JA is pronounced as either *-ah* or *-ih*; that is, they are in free variation.

[3] See Zabbal (2002) for a detailed discussion of the classifier properties of the morpheme *-ah*.

[4] See Fortin (2011) and the references therein for a detailed discussion of the derivational *vs* inflectional status of expressive affixes (e.g. diminutives, pejoratives, augmentatives).

[5] The key features of De Belder's (2011) analysis are discussed extensively in section 4.

[6] Li & Liu (2019) show that the diminutive *tsi?* in Yichun Gan can be attached to different categories, including: both common and proper nouns, classifiers, verbs, adjectives, and adverbs. Li & Liu argue that *tsi?* is a phrasal diminutive modifier.

[7] Also see Dryer (2019) for a similar observation concerning the diminutive morpheme in Walman. We thank an anonymous reviewer for drawing our attention to this work.

[8] De Belder *et al.* (2014) reject Wiltschko & Steriopolo's (2007) head *vs* modifier distinction of diminutives. For them, cross-linguistic variation observed with diminutives is captured under the assumption that a given language might have access to LexP, SizeP, or both projections.

[9] An anonymous reviewer wonders whether the gender shift observed with the diminutive morpheme could be coming from Div^0, as in the singulative, and not from the diminutive morpheme. Fassi-Fehri (2018) shows that gender shift is observed in several constructions in the Arabic DP (e.g. singulatives, pluratives, augmentatives). He shows that gender in Arabic is distributed over various layers inside the extended nominal projection (e.g. *n*P, ClassP, GroupP, DimP). Given this, we do not rule out the possibility that gender shift could be coming from a different source other than the diminutive morpheme (e.g. Div^0). In fact, we will ultimately argue that DivP projects inside all JA count DPs including DPs containing diminutive *-ay*. We thank the reviewer for drawing our attention to this issue.

[10] Besides the head *vs* modifier view of diminutives, Fábregas (2013) argues that diminutives in Spanish are specifiers of a ClassP. Like Halkomelem, Spanish diminutives do not change the formal properties or syntactic category of the noun. Given this, we exclude the possibility of analyzing the diminutive in JA as a specifier of DivP/ClassP or some other functional projection.

[11] In the interest of space, we present the evaluative and intensive modification functions of diminutives in one single structure. We should note, however, that for Fassi-Fehri (2018: 26), the evaluative diminutive "is placed inside the DP (as a sort of degree phrase), and interpreted in DP (or in CP, through DP, as a subjective expressive)".

[12] The MA low diminutive in (24) seems to be comparable to the low (derivational)

diminutive discussed in De Belder *et al.* (2014), since they are both formed by changing the templatic form of the root (e.g. *sukkar* 'sugar' → *skiker* 'sugar.DIM'). As far as we can tell, Fassi-Fehri (2018) does not mention the morphological similarity between the adjoined diminutive in MA and the low (templatic) diminutives found in other languages like Modern Hebrew and Egyptian Arabic.

[13] De Belder (2011) notes that one important difference between kinds and units concerns semantic boundedness (Zemach 1970). More specifically, kinds and mass nouns are continuous in space (i.e. not bounded in space), whereas units are bounded in space. This asymmetry between kinds and units explains the contrast in grammaticality between (i) and (ii) adopted from De Belder (2011: 175). Being continuous in space, kinds can be in many places simultaneously, whereas units cannot.

(i) Right now, we store this chocolate, the low fat variety, both in laboratory A and laboratory B. [kind]

(ii) *Right now, I keep the chocolate grandma gave me both in the kitchen and in my drawer. [unit]

[14] De Belder (2011) rules out the presence of $Size^0$ in the absence of Div^0. According to De Belder, if a noun acquires a [Size] feature, then it is automatically deemed countable. That is, the presence of $Size^0$ entails the presence of Div^0. De Belder (2011) also notes that Div^0 is not a kind feature, but rather, it is a feature that creates countable items, as in Borer (2005).

[15] See Ott (2011) for an alternative phrasal movement analysis of individuation in German. The analysis is based on Svenonius's (2008) DP composition.

[16] Alternatively, the difference between mass and count DPs could be featural. Alexiadou & Gengel (2012), for instance, assume that Div^0/$Class^0$ could be either specified as [+count] or [-count], giving rise to count and mass readings respectively.

[17] There are two types of plurals in Arabic: sound plurals and broken plurals. Sound plurals come in two types: sound masculine plurals are formed by the suffix *-iin*, whereas sound feminine plurals are formed by the suffix *-aat*. Broken plurals, on the other hand, are formed by changing the templatic form of the root. See Acquaviva (2008) for a discussion of both types in Arabic.

[18] Projections that are irrelevant for the current discussion are left out.

[19] The idea that functional heads might be realized by zero morphemes is not new. For instance, several authors have argued that the ClassP/DivP might be realized by zero morphemes (Zhang 2011; Dékány 2012, among many others). Dékány (2012), for instance, shows that ClassP/DivP is accessible in all languages, and the covertness or overtness of classifiers is what distinguishes classifier languages from non-classifier languages and languages with optional classifiers.

[20] Besides head movement, one can think of other modes of morphological composition, such as Lowering, Local Dislocation (Embick & Noyer 2001), or Spanning (Merchant 2015; Svenonius 2016).

[21] In both the POS and the POD the plural marker is uniformly realized as feminine *-aat*. The singulative morpheme *-ah* seems like it is not morphologically present when it occurs in the POS or the POD, since *-ah* is also feminine. Therefore, we indicate the presence of *-ah* in glosses.

[22] See Kim & Melchin (2018) for a detailed review of the different approaches to the complementarity view of plural marking and classifiers.

[23] Numerals in Arabic belong to three classes: (i) numerals 1-2; (ii) numerals 3-10; and (iii) numerals higher than 10. Numerals 1-2 behave similarly to adnominal adjectives, occurring post-nominally and agreeing with the head noun in number, gender, and definiteness (Alqarni 2015). Numerals 3-10 occur pre or post-nominally, and nouns following these numerals must be plural marked. Numerals higher than 10, on the other hand, are exclusively pre-nominal, and nouns following them are morphologically singular. Due to this restriction, both the POS and the POD are not possible

following numerals higher than 10 (i). Nonetheless, both the singulative and the diminutive morphemes can appear following numerals higher than 10 (ii).

(i) **xamsiin* *mouz-aat* / *mouz-ay-aat*
fifty bananas-CLS.F.PL bananas-DIM-CLS.F.PL
'Fifty bananas / fifty small bananas.'

(ii) *xamsiin* *mouz-ih* / *mouz-ay-(ih)*
fifty bananas-CLS.F.SG bananas-DIM-(CLS).F.SG
'Fifty bananas / fifty small bananas.'

[24] Fassi-Fehri (2016, 2018) argues that the POS in MSA is a real plural, contra Ouwayda (2014). While the POS might be a real plural in MSA, we maintain that it is not at least in JA (and in LA, given Ouwayda's 2014 original insights).

[25] Sarah Ouwayda (personal communication) notes that the POD exists in Lebanese Arabic (LA). According to her, both the POS and the POD in LA have the same distribution, similarly to JA.

[26] Ouwayda (2014, 2017) argues the there are two possible merger positions for numerals in the DP, giving rise to different interpretive effects. The numeral might merge in Spec-QP, yielding a strictly distributive reading. Alternatively, the numeral might merge in Spec-#, a pluralizing function that marks everything above it as plural. Ouwayda's #P is similar to Pesetsky's (2013) feminizing head in Russian, which has the effect of marking everything above it as feminine. When the numeral merges in Spec-#, the reading available could be collective or distributive. A discussion of the specifics of Ouwayda's (2014) analysis of numerals is beyond the scope of this paper. Therefore, we refer the reader to Ouwayda (2014, 2017) for more details.

[27] Mathieu (2013) offers an alternative analysis for the POS, adopting a multi-location view of number. He argues that the POS is a counting plural realized in $\#^0$, above Div^0, where classifying plurals (i.e. regular plurals) are formed. Here as well, the POS is not seen as being a realization of Div^0.

[28] One might wonder whether there is evidence for the presence of singulative *-ah* in the POD. There are two options regarding the morphological realization of Div^0 in the POD: (i) Div^0 is realized by a zero morpheme, and the N + DIM sequence raises to Div^0 and subsequently to $\#^0$; and (ii) Div^0 already contains singulative *-ah*, as argued above. Whereas we prefer option (ii) since it is compatible with the envisaged unification of the POD and POS, we assume that both options are viable.

[29] See Corver (2015) for a discussion of (un)boundedness across categories.

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