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The article *a(n)* in English quantifying expressions: A default marker of cardinality

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Certain English quantificational expressions feature what appears to be an indefinite article, e.g. *a bunch, a few, a hundred*. These can be divided into three types of quantifying expressions: pseudopartitives (*a lot, a bunch, a ton*), article-requiring quantifiers (*a few, a couple, a hundred*), and article-free quantifiers (*three, many, several*); article-free quantifiers have an article under certain circumstances, e.g. modification by an adjective (*a surprising 30 …*). While standard analyses would take the article in these expressions to be a D head, it is argued here that the article is not in D, nor is it singular or count, as evidenced by its (lack of an) interaction with verbal agreement. Instead, it is claimed that *a(n)* is a default cardinality marker, which surfaces when a QP is present, but fails to be spelled-out by other material. The distribution of default *a(n)* further interacts with adjective placement (*a surprising 30*), plural marking on some quantifiers (*tons of*), other determiners (*the hundred*), and the functional status of the quantifier (*a wealth of* vs. *a lot*). The resemblance of this article to the English indefinite article *a(n)* is also considered, and a possible unifying analysis is given.

Keywords: quantifiers; indefinite article; pseudopartitives; numerals; determiners; cardinality

1 Introduction

The DP hypothesis (Brame 1982; Abney 1987) postulates that NPs are dominated by a functional projection DP, for Determiner Phrase. Markers of (in)definiteness, such as English *the* and *a(n)*, are presumed to occupy this position, along with demonstratives, possessives, and some quantifiers (*some, any, every*). Semantically, the DP is the locus of referentiality and argumenthood (e.g. Longobardi 1994; Chierchia 1998). This "standard account", as we can call it, would identify the article *a(n)* in English as a head of D, as in the structure below.

(1)

```
        DP
       /  \
      D    NP
      |     |
    a(n)   noun
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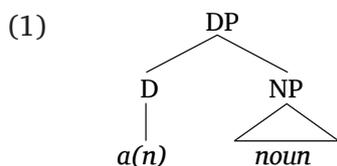
In support of this is the complementary distribution of the article *a(n)* with the definite determiner *the* and other D elements:

(2) a. *the a noun
     b. *this a noun
     c. *every a noun
     d. *Sara's a noun

The co-occurrence restrictions are explained by assuming these items occur in an identical position in the syntactic structure. They are creatures of the DP.

Work in recent decades has challenged this view for certain traditionally D elements. For instance, Giusti (1997) argues that demonstratives originate in a position below DP, moving to Spec,DP; she also argues that certain quantifiers originate in a QP above DP, or as the specifier of an AgrP, and therefore, never occur in DP. Lobeck (1995) postulates that while the definite determiner *the* is a D head, the indefinite determiner *a(n)* is a Num head, an analysis which Ackles (1996) develops further. Zamparelli (2000) proposes to divide DP into three projections, the Strong Determiner Phrase, the Predicative Determiner Phrase, and the Kind Determiner Phrase, distributing traditional determiners among these phrase types. What these and many other researchers have noticed is that not all D elements in the standard account behave alike language-internally or cross-linguistically, and therefore, they cannot all occupy D. Instead, the reaction has been to argue that some of these elements populate other projections in the nominal domain.

The present work moves in this same general direction, but it is concerned primarily with the English article *a(n)* as found in quantifying expressions, as shown below.

(3)   a.   a lot of books
        b.   a ton of books
        c.   a hundred books
        d.   a few books
        e.   a good twenty books
        f.   a good many books

There is a body of work, though relatively small, which challenges the idea that indefinite articles originate in D. Instead, the indefinite article is presumed to originate in NumP (Lobeck 1995; Ackles 1996; Le Bruyn 2010), CardP (Lyons 1999), or ClP (Borer 2005), all projections which have to do with number in some way. In this paper, I restrict myself to a discussion of the article *a(n)* in expressions with quantifiers (like those in (3) above), and I argue that the article is not a marker of indefiniteness per se, but rather a default cardinality marker (drawing inspiration from Ackles 1996 and Lyons 1999), which is inserted in precisely those contexts where a QP is present, but fails to be marked overtly. The article *a(n)*, therefore, functions as a last resort marker of QP, and is not a D head. This raises the question of whether the article *a(n)* in English is ever a true indefiniteness marker situated in D.

The paper is structured as follows. In section 2, I discuss the set of quantifying expressions which are the target of this paper: pseudopartitives, article-requiring quantifiers, and article-free quantifiers. In this and following sections, I present data from the Corpus of Contemporary American English (Davies 2008-) which illustrates properties of the three quantifier types. In section 3, I discuss properties of the article in these constructions, and in section 4, I argue it to be a default cardinality marker which spells out QP when it otherwise fails to be lexicalized. I further show how this interacts with plural marking and other determiners in quantifying expressions. Section 5 briefly addresses differences between quantifiers in the distribution of *a(n)*. Finally, section 6 speculates on the implications of this analysis for the indefinite article in English, and discusses what a unified account might look like.

2 Articles in quantifying expressions

Natural language contains numerous expressions of quantification, which can occur as different categories (e.g. adjectives, adverbs, nouns, etc.), quantifying different types of things (events, individuals, etc.). This paper is concerned with quantifying expressions

of the nominal domain, focusing on those which co-occur with the article *a(n)*. This includes a variety of cardinality-relating expressions, such as quantificational pseudopartitive nouns (*bunch, lot, ton*), vague expressions of quantity (*a few, a couple*), and exact expressions of quantity (numerals, *dozen*), as well as some expressions relating to amount and measurement (*a bit, a little*) which I do not delve into in any detail for most of this paper.[1] I will refer to these together as "quantifiers", reflecting their status as quantifying expressions of English, whether in that capacity as numerals or vague expressions of quantity.

English quantifiers can be divided into three broad types, determined by their morphosyntactic properties in indefinite, unmodified, unpluralized contexts: pseudopartitives, article-requiring quantifiers, and article-free quantifiers. Pseudopartitives feature an article and the marker *of* (4), article-requiring quantifiers an article, but no marker *of* (5), and article-free quantifiers neither an article nor a marker *of* (6).

(4)   *Pseudopartitives*
        a.   a bunch of books
        b.   a lot of books
        c.   a ton of books

(5)   *Article-requiring quantifiers*
        a.   a few books
        b.   a hundred books
        c.   a dozen books

(6)   *Article-free quantifiers*
        a.   one book
        b.   seven books
        c.   many books

Article-free quantifiers are not always article-free. When modified by an adjective, and in some cases a relative clause, an article is obligatory.

(7)   *Modified article-free quantifiers*
        a.   a good one minute
        b.   a good seven books
        c.   a good many books
        d.   a four days that I will never forget

In the coming sections, I report briefly on the different quantifier types, drawing on the literature and data from the Corpus of Contemporary American English (COCA) (Davies 2008-).[2] Corpus examples are indicated by the tag COCA. Unmarked examples are constructed and have been verified by native speaker(s).

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[1] There is a large literature which tackles measure expressions, both syntactically and semantically (see e.g. Rothstein 2017), but in this paper, I limit our attention to expressions of cardinality. Measure expressions may involve a different syntax, and I save a proper exploration of their properties for future work.

[2] The use of the corpus was exploratory in nature, with the first 100 or so randomly generated hits being scanned to check a phenomenon. Given the size of the corpus (1 billion words as of March 2020), most searches returned hundreds or thousands of hits, and it was not possible to verify all hits. For this reason, frequencies are generally not reported, unless needed to support a claim.

2.1 Pseudopartitives

The quantity pseudopartitive construction belongs to a family of pseudopartitive constructions, which involve a similar surface structure, and can trigger a variety of interpretations, such as quantity, measurement, and containment. Vos (1999), for instance, identifies six subtypes of the pseudopartitive, illustrated in (8) below.

(8)   *Pseudopartitive construction types:*
        a.   Quantifier nouns (*a number of examples*)
        b.   Measure nouns (*five liters of water*)
        c.   Part nouns (*a piece of cake*)
        d.   Container nouns (*a glass of water*)
        e.   Collective nouns (*a herd of elephants*)
        f.   Kind nouns (*six types of felines*)

Following conventions in the literature, we can refer to the first noun as N1 and the second as N2. N1 often has a modificational relationship with N2 (Alexiadou, Haegeman, and Stavrou 2008, Part III Chapter 2), with the N2 functioning as the head, despite its position after *of* (see Jackendoff 1977; Selkirk 1977; Abney 1987). In recent work, the construction has generated interest due to the proposed semi-lexical status of N1 (see van Riemsdijk 1998; Vos 1999; Corver & van Riemsdijk 2001; Stavrou 2003; Alexiadou et al. 2008; Hankamer & Mikkelsen 2008), as well as the variation in the form of pseudopartitives cross-linguistically, such as the absence of an equivalent to *of*, or the lack of plural marking on measure nouns (see Grestenberger 2015). I focus on quantifier nouns in pseudopartitives.

There are a number of nouns which can function as quantifier nouns in pseudopartitives. Some canonical quantifier nouns are *lot, ton,* and *bunch,* each of which means 'many' but to a different degree: *a ton* indicates a larger quantity than either *a lot* or *a bunch,* and *a lot* in turn indicates a larger quantity than *a bunch* (*a ton > a lot > a bunch*). In addition, there are nouns which act as quantifier nouns figuratively or metaphorically. For instance, the noun *wealth* can be used as a quantifier noun in a pseudopartitive, and in addition to meaning 'many' also means something like 'richness in quality'; see (9) and (10).

(9)   Kelly brings **a wealth of experience** to her position. (COCA)
(10)   The Soviet era left Russia with **a wealth of highly trained scientists** and many solid academic achievements. (COCA)

This occurs despite the fact that in its lexical noun usage, *wealth* does not permit an argument headed by *of*,[3] nor the article *a(n)*; see (11). Instead, the article *a(n)* and particle *of* appear to be due to the pseudopartitive construction.

(11)   a.   *a wealth
        b.   *wealth of houses/money/riches

Plenty of other nouns occur in a pseudopartitive structure and appear to quantify metaphorically. For instance, in the examples below, *flood, parade,* and *sea* all suggest a very large number of gasps and curses, presidential hopefuls, and tile-roofed houses, but in

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[3] It does allow a possessor: *the wealth of nations and individuals* (COCA).

addition they add imagery to the meaning. This suggests at least some productivity in the pseudopartitive construction.

(12) **A flood of gasps and muttered curses** filled the air. (COCA)
(13) **A parade of Republican presidential hopefuls** gather to talk conservative priorities and strategy for 2016. (COCA)
(14) Today Wright's old studio overlooks **a sea of tile-roofed houses**, […] (COCA)

In their singular forms, each of the pseudopartitive nouns allows for an adjective between the article and the quantifier. This argues in favor of treating the article and quantifier as distinct syntactic units.

(15) a. a whole bunch/lot/ton of books
      b. a tremendous wealth of evidence against him (COCA)
      c. a homogenized sea of faceless readers (COCA)
      d. a biblical flood of information (COCA)

While pseudopartitive quantifier nouns share their quantificational function and general morphosyntactic properties, they differ from each other in minor ways. For example, some have a plural form, while others do not.

(16) lots of books, tons of books
(17) *bunches of books,[4] *wealths of scientists, *floods of gasps, *parades of candidates, *seas of houses

They also differ in terms of what adjectives they allow to precede them, and whether this is possible in both their singular and plural forms. For example, *lot* permits intensifier adjectives like *whole* and *awful*, but its plural form *lots* blocks adjectives altogether (18)–(19). *Ton* likewise allows for intensifier adjectives, but unlike *lots,* its plural form permits certain adjectives (20)–(21).

(18) Zoos still attract **a whole lot** of people too. (COCA)
(19) *whole lots of people
(20) But there are also **a whole ton** of other physicians. (COCA)
(21) I could blab about the subsequent meeting with Smith, Jones and **assorted tons** of other officials. (COCA)

These idiosyncrasies suggest that the pseudopartitive construction is also determined in part by properties of the quantifier noun itself.

Note that many pseudopartitive quantifier nouns have competing polysemic interpretations which can lead to ambiguity. For example, the pseudopartitive noun *ton* means '2000 pounds' (in American English) in addition to its quantifier reading of 'a lot'. Likewise, both *bunch* and *lot* have competing polysemes, representing literal and metaphorical

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[4] Some speakers appear to accept *bunch* in a plural quantifier form, and instances of it surface in the COCA, though they are infrequent: there were only 185 hits (false positives included) for *bunches of N$_{PL}$* compared to 17,376 hits (false positives included) for *lots of N$_{PL}$* and 2,422 hits (false positives included) for *tons of N$_{PL}$*; positive examples include: *only after bunches of jobs are created, but for the bunches and bunches of actors performing, there are whole bunches of newcomers* (COCA). This suggests an ongoing development, with *bunches* working towards quantifier noun status like *tons* and *lots.*

collections. For instance, the phrase *a bunch of keys* is ambiguous between meaning 'many keys' (*bunch* as a quantifier) and 'a set of keys on a key ring' (*bunch* as a literal collection, i.e. a set of objects connected or fastened in some way). This literal collection interpretation can be extended metaphorically to groups of individuals which are connected socially or spatially, as in *this bunch of girls*. A similar set of polysemic interpretations is available to *lot*, which occurs as a quantifier (*a lot of books*), a literal collection of things like shipments (*one lot of cashew nuts*), and a metaphorical collection of individuals (*Get out, the lot of you!* COCA).[5] In this paper, I am concerned with the quantifier uses of these pseudopartitive nouns, and thus set aside collection or weight interpretations; the claims that follow are intended for quantifier nouns in their quantifier interpretations only.

2.2 Article-requiring quantifiers

Article-requiring quantifiers include *a few, a couple, a dozen*, and higher numerals in English such as *a hundred, a thousand,* and *a million*. While these quantifiers are superficially similar in form, they are not a homogeneous class. The higher numerals, as well as *dozen*, function as numeral bases, combining with a multiplier to indicate a higher (multiplied) value (22). They also allow plural forms (23). Neither property is available to *a few* or *a couple* (24)–(25).

(22)   a.   three hundred books
         b.   three dozen books

(23)   a.   hundreds (and hundreds) of books
         b.   dozens (and dozens) of books

(24)   a.   *three few books
         b.   *three couple books

(25)   a.   *fews (and fews) of books
         b.   *couples (and couples) of books

Like pseudopartitives, these quantifiers combine syntactically with the article. This can be seen in the availability of adjectival modification between the article and the quantifier.

(26)   a.   a scant hundred trees, a full hundred years (COCA)
         b.   a crisp dozen sentences, a good dozen dogs (COCA)
         c.   a lucky few brands, a fair few people (COCA)
         d.   a successful couple primaries, an extra couple hours (COCA)

Both *a couple* and *a few* are vague quantifiers which indicate a small amount (*a few* being more than *a couple*). The quantifier *a couple* has a closely related lexical noun, which means two of something, usually partnered adults (e.g. *the couple is in love*); as a quantifier, it is not restricted to two. It varies between a pseudopartitive syntax and an article-requiring syntax:

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[5] It can also refer to a parking lot (*on the lot of Johnson's flagship dealership,* COCA) or indicate someone's future (*Death was the lot of Adam and Eve,* COCA) or fortune (*improve the lot of humanity*, COCA).

(27)   a.   a couple books
        b.   a couple of books

The quantifier *a few* has no related lexical noun synchronically. However, it shows a surface relation to another quantifier, *few*. *Few* differs from *a few* in that *a few* is an absolute quantifier (its value is fixed to a specified range, e.g. 4–6) while *few* is a relative quantifier (its value is context-dependent) (Gebhardt 2009). These quantifiers also differ in their licensing of negative polarity items (28), and their ability to take degree morphology (29).

(28)   a.   Few participants would ever consider this proposal.
        b.   A few participants would (*ever) consider this proposal.

(29)   a.   fewer participants, fewest participants
        b.   *a fewer participants, *a fewest participants[6]

For this paper, I will consider these separate lexical items, but see Kayne (2005) and Solt (2009) for attempts to derive *a few* compositionally from *few*.

   Despite the differences between these quantifiers, I consider them together as the set of article-requiring quantifiers. Presumably their other properties derive from their status as numerals or vague quantifiers, neither of which is directly relevant to our study of the status of the article *a(n)* as used with them.

2.3 Article-free quantifiers

Article-free quantifiers are those quantifiers which do not usually include an article. This class mostly includes non-base numerals (*one, seven, ten, fifteen, fifty*), but also some vague quantifiers (*many, several*). This class does not use an article or particle *of* in an indefinite, unmodified context.

(30)   a.   one book
        b.   seven books
        c.   many books
        d.   several books

Generally, article-free quantifiers do not co-occur with the article *a(n)*. They can co-occur with other determiners, such as *the* or *every*, but the use of *a(n)* leads to ungrammaticality.

(31)   a.   the one book
        b.   the/every seven books
        c.   the many books
        d.   The several interlocking rooms are in good order. (COCA)

(32)   a.   *a one book
        b.   *a seven books
        c.   *a many books
        d.   *a several books

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[6] But note that *a very few participants* is possible, which Solt (2009) takes to support a compositional analysis.

However, when modified by an adjective, this judgment reverses. The article *a(n)* becomes obligatory. This phenomenon has also been found to occur with some relative clauses, though corpus data is too sparse to provide an accurate characterization.[7,8]

(33) a. a mere one day of joy (COCA)
      b. a further seven questions (COCA)
      c. a great many disturbances (COCA)
      d. a tumultuous several years (COCA)

(34)   one of a[n] eleven buildings that were destroyed by the fire (COCA)

The modified cardinal construction, as it has been termed in Ionin and Matushansky (2018), has received a lot of attention in the literature (see Jackendoff 1977; Honda 1984; Solt 2007; Ionin & Matushansky 2004; Ellsworth, Lee-Goldman & Rhodes 2008; Maekawa 2013; Keenan 2013; Bylinina, Dotlačil & Klockmann 2016), due to the odd occurrence of the apparent indefinite article with non-singular expressions. I will address some of these analyses in the discussion below. For now, it suffices to recognize that even article-free quantifiers require an article in certain contexts.

2.4 Towards a unified treatment

Before turning towards properties of the article *a(n)*, I will briefly discuss what unites these quantifiers. Their differences are easy to spot; each has a slightly different morphological form:

(35)   *Morphosyntactic form of cardinality quantifiers*

A	B	C	Noun
a	lot	of	books
a	few		books
(a good)	three		books

Despite this, they behave remarkably similarly when it comes to their interpretation, verbal agreement, and extraposition. Interpretation-wise, each of these quantity expressions quantifies: they indicate the cardinality of an expression, e.g. a large set (*a lot*), a small set (*a few*), some specific cardinality of a set (*three*). In terms of verbal agreement, they are all "invisible" and the verb targets the quantified noun:

(36) a. A lot of books were destroyed.
      b. A few books were destroyed.
      c. (A good) three books were destroyed.

Finally, with regards to extraposition, they behave differently from lexical nouns, but in a similar way to each other. This test has been adapted from Selkirk (1977: 309). Given an expression consisting of three nouns, each presumably an argument of the other, extraposition targets the complement of the head noun, but nothing beyond that.

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[7] Currently no examples surface for the search *a(n) numeral* N_{PL}. Prior to the March 2020 update of the COCA however, the example in (34) was found.

[8] Note the similarity of this phenomenon to modified proper names which also need a determiner for grammaticality, e.g. **(the) Paris that I love*.

(37)   a.   A review of answers to your argument was given.
       b.   A review was given of answers to your argument.
       c.   *A review of answers was given to your argument.

With each quantifier type, it is the complement of the quantified noun, not the quantifier, which is extraposed; the quantifiers do not seem to add the right kind of structure to interact with extraposition. This is most striking with *lot,* as the possible embedding signaled by *of* is irrelevant for extraposition, despite not being irrelevant if the noun is lexical (37).

(38)   a.   A lot of answers to your argument were given.
       b.   *A lot were given of answers to your argument.
       c.   A lot of answers were given to your argument.

(39)   a.   A few answers to your argument were given.
       b.   *A few were given answers to your argument.
       c.   A few answers were given to your argument.

(40)   a.   (A good) three answers to your argument were given.
       b.   *(A good) three were given answers to your argument.
       c.   (A good) three answers were given to your argument.

These patterns suggest that a unified analysis for the three quantifier types is desirable, and given the extraposition test, that despite their differences in form (including the presence of *of*), they combine with the lexical noun in a similar way. This may suggest that the quantified noun is not a DP on its own and forms a single DP in combination with the quantifier (notice that use of a determiner on the N2 in a pseudopartitive forces a shift to the partitive, e.g. *a lot of the answers*); see Keenan (2013) for a similar conclusion. In sum, the *of* does not seem to indicate deep internal differences between the quantifiers, contra various accounts on pseudopartitives (e.g. Abney 1987; Grestenberger 2015); this view harkens back to earlier accounts which paid little attention to *of,* e.g. Jackendoff (1977), Selkirk (1977), and is compatible with data like *these kind of books*, which also favors a single DP analysis despite *of* (see Klockmann 2018). I assume here that these constructions are single DPs and in the remainder of the paper, set aside the status of *of* and how quantifiers combine with the noun; instead, I focus on the article and quantifier.

3 What the article *a(n)* is not

In this section, I lay the groundwork for the claim that the article *a(n)* found in pseudopartitives, article-requiring quantifiers, and article-free quantifiers is a default cardinality marker. I do this by exploring what the article is not, arguing that it is not singular, count, in D, or the article of an adjective or silent noun. What remains is an article with a limited morphosyntactic distribution and no apparent semantic contribution, aside from its correlation with indefiniteness. I conclude that it is a "default", and in fact, a default cardinality maker, in the terminology of Lyons (1999).

3.1 A(n) is not singular

The article *a(n)* is considered to be singular because it surfaces with singular nouns (41), and verbal agreement with subjects marked by *a(n)* is usually singular (42). By standard accounts, the article gets its singularity from a syntactically singular noun: D agrees with the noun for number, being realized as *a(n)* when D is indefinite and the noun is singular. The verb is singular in agreement with the singular DP.

(41)   a.   a book
           b.   *a books
           c.   books

(42)   a.   A book is something that people read.
           b.   *A book(s) are something that people read.

A different pattern occurs with the article *a(n)* in quantifying expressions. In the expressions considered here, verbal agreement consistently targets the quantified noun. This means that despite the "singular" article *a(n)*, the expression is not singular for verbal agreement. This is illustrated in (43), with two examples from each quantifier type.

(43)   a.   […] unless a bunch of comebacks **are** in the making. (COCA)
           b.   A lot of factors **go** into merchandise sales. (COCA)
           c.   A few teenagers **were** even arrested Thursday morning. (COCA)
           d.   A dozen entries **were** displayed last Friday at the Ecology Center in San Juan Capistrano. (COCA)
           e.   A further 18 women **were** diagnosed with ovarian cancer in the five-year period that followed. (COCA)
           f.   A great many directors **have** suffered severely from that. (COCA)

This implies that D and the verb have different agreement targets since they are realized as singular and plural, respectively; D presumably agrees with the quantifier and V with the lexical noun. However, this view faces a problem, if we consider other number-sensitive determiners, such as demonstratives. Demonstratives are consistently marked plural, in line with the verbal agreement pattern.[9] This is illustrated with article-requiring and article-free quantifiers only, as pseudopartitives resist definite environments (see section 3.4).

(44)   a.   these few lines (COCA)
           b.   these dozen songs (COCA)
           c.   those recuperative twelve steps (COCA)
           d.   those many spaces (COCA)

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[9] One exception is the use of *every* with numerals, *few*, and *couple*, e.g. *every seven steps*, *every couple steps*, *every few steps*, given that usually, *every* does not co-occur with non-singular nouns (**every books*), and hence is often taken as a diagnostic for singularity (see e.g. Kayne 2005). There are a few things to be said here. Firstly, a more accurate characterization of *every* is one in which it needs to combine with an expression which has a "counter" (Borer 2005), counters being elements which pick out a subset of individuals from a divided mass; singulars and expressions with quantifiers have this property, but not plurals. A second point has to do with the measure interpretation of certain quantifier-noun expressions, which appears to license singular verbal agreement:

(i)   **Two drops deodorizes** anything in your house. (Kim 2004: 1113)
(ii)   Most of us can agree that **8 million people is** too many to be receiving disability payments from the government. (Maekawa 2013: 430)
(iii) **A few drops decontaminates** your water. (COCA)
(iv) **A couple bucks isn't** too much to pay for peace of mind. (COCA)

In these examples, it is the culmination of drops, people, etc. which "decontaminates" or "is(n't) too much" rather than the individual drops or people. Verbal agreement is sensitive to whether the predicate applies to individuated instances of a subject (=plural), or a culmination of those instances (a measure) (=singular) (see e.g. Rett 2014). Expressions like *every seven/couple/few steps* seem to similarly involve packaging of a quantity of steps, which *every* iterates over; the counter (a quantifier or singular noun) defines the number of steps contained in that package. As such, it suggests that *every* is a poor diagnostic for being singular.

If both the article *a(n)* and demonstratives belong in D, then we have a contradiction: D agrees with the noun if it contains a demonstrative, but not if it contains the article *a(n)*, and in either case, the verb targets the noun. Given that both the verb and demonstrative suggest agreement is with the noun, it seems unlikely that we can take the article to be singular if it is situated in D.

A counterproposal might be to say that the article is singular, but it is buried deep enough in the structure (somewhere below D) that it does not interact with verbal or demonstrative agreement. It is the quantifier which is singular, and the article agrees with the quantifier (rather than the quantified noun). This is the approach pursued for pseudopartitives in Keizer (2007: 149), for instance; her representation is reproduced below:

(45) a. a lot of people
      a'. $[_{NP} [_{Q\text{-compl}} [_{Det} a] [_{N} lot]] [_{L[inking]E[lement]} of] [_{N\text{-head}} people]]$

While this type of account captures the agreement pattern, it struggles with the fact that the article can co-occur with plural quantifiers, as illustrated below.[10]

(46) a. It's **a collected thousands** of songs. (COCA)
      b. Like **an estimated hundreds** of thousands of boys and men, […] (COCA)
      c. Yet there are records **a mere thousands** of years ago of Persied storms […] (COCA)
      d. […] for centuries to come he might, amongst **a teeming millions**, satiate his lust for blood. (COCA)
      e. The case could reach **an extraordinary tens** to hundreds of thousands more documents. (COCA)
      f. Our government will be beck footing the bill for **an additional tens** of billions of dollars within a few years. (COCA)

If the article agrees with the quantifier, then it is not predicted to surface if the quantifier itself is plural. While this is true for pseudopartitive nouns like *lots* and *tons* (a fact which needs to be accounted for if *a(n)* is not singular; see section 4.2), it is not true for pluralized numerals. Instead, it is possible for the article and plural numeral to co-occur. This suggests that the article is not agreeing with the quantifier for number.

Putting these facts together (the plurality of the construction as evidenced by verbal and demonstrative agreement, the availability of the article with plural quantifiers), it seems unlikely that the singularity of *a(n)* can be maintained. I therefore suggest that the article *a(n)* as found in quantifying expressions is not singular.

3.2 A(n) is not the determiner of a silent singular noun

Some accounts in the literature argue that the article is due to a silent singular noun. Given the discussion in the previous section, this position seems difficult to maintain. In this section, I briefly discuss two such analyses, Kayne (2005) and Keenan (2013), and indicate where agreement is problematic.

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[10] It is not always the case that an article appears with a modified plural numeral. I do not know yet what determines when an article does and does not occur.

  (i)   Without them, **untold thousands** of innocent victims, among them many children, will die. (COCA)
  (ii) I have raised **countless thousands** of plants from seed over the years. (COCA)

Kayne (2005) compares the quantifier *a few* to *a small number of*, and notes that they have a similar meaning and syntax; both contain an article but trigger plural agreement.

(47)   A small number of books were on sale.
(48)   A few books were on sale.

He proposes that *a few* contains NUMBER, a silent singular noun, and this triggers the article:

(49)   a few NUMBER$_{SG}$ books

He further builds a comparison with *many* which lacks an article, except when modified by an adjective (*a good many books*). He suggests that *many* co-occurs with a numberless silent NUMBER (hence no article), but can combine with singular NUMBER if an adjective is present to license it. He generalizes this pattern to *a few* and concludes that *a few* must likewise contain a silent adjective GOOD, which licenses singular NUMBER.

(50)   a GOOD few NUMBER$_{SG}$ books

Kayne supports this by noting the limited availability of adjectives like *good* with *few*. (Note however, that the COCA shows that adjectives with *a few* are not so limited, e.g.: *a goofy few minutes, a precious few generations, a mere few scratches, a long, hot, and dry few months.*)

(51)   John has a good few books. (Kayne 2005: 194)

There are a few comments regarding this analysis. While the comparison with *number* is valid, *number* is a pseudopartitive quantifier noun, and is therefore plagued by the same problematic article as *a few*; the comparison in and of itself does not explain the agreement. Instead the silent noun predicts singular demonstrative and verbal agreement. This follows from locality: the singular feature on NUMBER (or *number*) is higher in the structure than the plural feature on *books* and should intervene in agreement, leading to singular demonstratives and verbs.

Keenan (2013) proposes a related account and analyzes modified cardinals like *a pleasant three days* as involving a silent noun in a mono-phrasal pseudopartitive-like structure. Like Kayne, she associates the article with a singular silent noun. She proposes that it is the specifier of a singular #P (Number Phrase), belonging to a silent measure noun GROUP in an MP (Measure Phrase); the adjective licenses the silent noun GROUP, making it obligatory. Marušič and Žaucer (2016) adapt this account to Slovenian, but propose that the (non-measure) silent noun restarts the functional sequence within the DP. Keenan's structure is partially given below.

(52)   [$_{DP}$ ∃ [$_{#P}$ a [$_{#'}$ [+sg] [$_{MP}$ [$_{AdjP}$ pleasant] [$_{M'}$ <GROUP>$_M$ [$_{FP}$ …three days…

Like Kayne, Keenan makes a comparison to (collection) pseudopartitives in setting aside the agreement facts. Yet, this does not solve the agreement problem: by locality, singular GROUP should block agreement with *days* predicting singular all around. It is unclear how agreement targets the quantified noun in this structure.

Both Kayne and Keenan purposefully make the silent noun singular; in Kayne, this is to relate *a few* to article-less *few*, and in Keenan to capture singularity in the group interpretation. However, such singularity contradicts the plurality of the DP, since it makes the silent noun a possible target for agreement. For this reason, I conclude that *a(n)* is not the determiner of a silent singular noun. Any approach which builds a singular into the analysis will face the same issue, e.g. Ionin & Matushansky (2004), who relate the article to singular numerals, or Solt (2007), who takes (part of) the numeral expression to be coerced into singular.

3.3 A(n) is not count

The article *a(n)* is also considered to indicate count syntax. This follows from the fact that it only surfaces in count contexts (53). Furthermore, the addition of the article *a(n)* to an otherwise mass noun results in a count interpretation (and its absence with an otherwise count noun leads to a mass interpretation, the Universal Grinder effect, Pelletier 1975) (54).

(53)   a.   a book
            b.   *a sand

(54)   a.   water
                   'unbounded notion of water'
            b.   a water
                   'packaging of water, such as in a water bottle'
            c.   There's dog all over the road.

However, in quantifying expressions, the presence of *a(n)* does not guarantee a count interpretation. This suggests that *a(n)* does not interact with the count status of the phrase.

While many of our quantifiers are restricted to count contexts, some quantifiers, like *lot/lots* and *ton/tons*, combine with mass nouns. Likewise, certain article-requiring and pseudopartitive quantifiers such as *a little* and *a bit* seem to be restricted to combining only with mass nouns. In these cases, the article *a(n)* is free to occur with quantified mass nouns; it does not convert the expression to a count expression (unlike in (54)).

(55)   a.   a lot of sand
            b.   lots of sand
            c.   a ton of sand
            d.   tons of sand
            e.   a bit of sand
            f.   a little sand

When we consider the plural form quantifiers *lots* and *tons*, we see that they fail to be the target of verbal agreement; instead, the quantified noun is. Likewise, predicate choice is related to the quantified noun, not the quantifier.

(56)   a.   Lots of knowledge **needs** to come together in order to catch a fish. (COCA)
            b.   Tons of technology **starts** in the game/entertainment sector. (COCA)

The quantified noun acts as the head of the construction for verbal agreement and predicate choice, a conclusion which we can extend by assumption to cases with the article, *a*

lot of sand, a ton of sand. Such facts lead to the conclusion that the article does not interact with the count/mass status of the DP. If it did, we would predict it not to surface with quantified mass nouns, as the DP itself is treated as mass (see de Vries & Tsoulas 2018). Instead, the article freely occurs in both mass and count DPs. This suggests that the article *a(n)* has nothing to do with whether the nominal expression is count or not. If the article is in D, it cannot be count.[11]

What is also interesting is the fact that the article can surface with the canonically mass quantifier *much*.

(57)   "Has it changed shape?" "It's shrunk **a good much** since this morning." (COCA)[12]

The point is essentially the same as that with mass-requiring *a little* and *a bit*, but what (57) adds is that even article-free mass quantifiers surface with the article, given the right circumstances. Here, it is adjectival modification which triggers the article, much like with numerals, *many*, and *several*. For these reasons, I suggest that the article *a(n)* as found in quantifying expressions is not count.

3.4 A(n) is not in D

The standard analysis takes the article *a(n)* to sit in D, surfacing only with singular count nouns. We have already seen why it is difficult to consider the article of quantifying expressions to be singular or count. However, this does not immediately exclude the possibility that it is a non-count, non-singular article of D. If we drop the count singular assumption, can we still maintain the position of the article in D? I argue here that we cannot. The argument I build is rather simple: if the article and D-level material are realizations of the same structural position, then they will alternate with each other, producing a pattern of complementary distribution. If this is not the case, then it cannot be maintained that they realize the same position (or same class of elements) and thus, the article cannot be in D. I develop this argument based on two pseudopartitive nouns *bunch* and *lot* which permit the article in their quantifier interpretations, but no D-level material. To begin, I start by addressing the competing polysemic interpretations mentioned in section 2.1, which must be excluded.

In indefinite contexts, *bunch* and *lot* can be ambiguous between a quantifier interpretation and a collection interpretation, with both literal and metaphorical collections possible. Examples are given below. The metaphorical collection interpretation of *lot* seems to be harder to access, but adding a qualitative adjective facilitates this.

(58)   a bunch of flowers: 'many flowers', or
                                'a bouquet of flowers'

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[11] An anonymous reviewer has suggested that the quantifier itself is count, and because the quantified noun is the head, the count status of the quantifier does not interact with the count status of the DP. While this is a possible analysis, it is not clear that English gives us the necessary data to verify this. As illustrated in (46), the article can co-occur with a plural numeral (*a collected thousands…*). This means that we cannot trust the article to tell us whether a quantifier is singular. As such, it's not clear that we can trust it to tell us if a quantifier is count. Another issue to consider is that when a mass lexical noun like *wealth* occurs in a pseudopartitive, it occurs with the article. This would mean that the article not only reflects the count/mass status of the quantifier, but also makes the quantifier count. Given the difficulty in verifying this position, I take the article not to be count.

[12] I have been unable to find or come up with examples where *much* is modified by an adjective and quantifies a noun, along the lines of *???a good much time* (which is still better than: **good much time*). I have little insight into why the modified version of *much* is happy in adverbial contexts, but not so much as a noun quantifier.

(59)   a bunch of girls: 'many girls', or
                                 'girls forming a group in some way, e.g. spatially'

(60)   a lot of headphones: 'many sets of headphones', or
                                 'a shipment or sale of headphones'

(61)   a lot of volunteers: 'many volunteers', or possibly
                                 ???'volunteers coming together in some way'

(62)   a fine lot of volunteers (COCA): 'a fine/nice/successful group of volunteers'

The interpretational difference is accompanied by morphosyntactic differences. For example, collection *bunch* easily pluralizes and even allows quantification by a numeral (63)–(64). Quantifier *bunch* does not (65).

(63)   Angelo purchased **two bunches of cut flowers**. (COCA)
(64)   **Four or five bunches of birds**, dozens in each clamoring gang, would be working at once. (COCA)
(65)   *two bunches of mistakes

Both collection and quantifier *lot* have a plural form, but only collection *lot* allows quantification by a numeral, e.g. (66)–(67) vs. (68).

(66)   Let me say that we have determined that there were **13 lots of strawberries** implicated in this outbreak. (COCA)
(67)   Just because **two lots of physicians** have decided not to merge does not mean our own course should falter. (COCA)
(68)   *two lots of mistakes

A further difference arises in the accessibility of the individuals denoted by the N2 (the quantified noun). In a collection, the individuals denoted by the N2 are not accessible external to the DP (though this is mediated by animacy to some extent, see e.g. de Vries 2015; Henderson 2017), while this is possible in the quantifier interpretations. This relates to a more general difference between collections and quantifiers, with collections tending towards collective readings and quantifiers towards both collective and distributive readings, as discussed in e.g. Wągiel 2015 for Polish *para* 'a pair, several.' Given this, the quantifier interpretation can be isolated by combining the expression with something which requires access to the plurality denoted by the quantified noun. Here, I use *one-by-one*, which requires a plural:

(69)   The keys fell one-by-one.
(70)   #The key fell one-by-one.

Collections do not permit access to the plurality denoted by the N2, and hence, are expected to be incompatible with *one-by-one*. This seems to be true, as in the following, only the quantifier interpretation is available:

(71)   He dropped a bunch of keys in the water one-by-one.
(72)   He dropped a lot of nuts in the water one-by-one.
(73)   He dropped a bunch/lot of kids off one-by-one at their schools.

Thus, *one-by-one* can be used as a test to exclude the collection interpretation. Turning now to the use of the definite determiner, inserting *one-by-one* in examples with a definite determiner and *bunch* or *lot* results in semantic awkwardness or ungrammaticality.[13]

(74)   #He dropped the bunch of keys in the water one-by-one.
(75)   #He dropped the bunch of kids off one-by-one at their schools.
(76)   *He dropped the lot of nuts in the water one-by-one.
(77)   *He dropped the lot of kids off one-by-one at their schools.

The unacceptability of these examples suggests that the quantifiers *bunch* and *lot* are incompatible with the definite determiner.

   This result is supported by the COCA. In searches for *the bunch of N* and *the lot of N*, which returned 65 and 132 hits respectively, most examples had nothing to do with quantity. The majority of hits for *bunch* dealt with collections, either literal (N = 35) or metaphorical (N = 25), and only 3 of the 5 remaining hits seemed like they could deal with quantity, but not unambiguously so. The examples below illustrate a literal collection, a metaphorical collection, and a possible exception.

(78)   Felice cupped her mother's hands around **the bunch of lilies** and assisted her in lifting them toward her face. (COCA)
(79)   Nancy, with **the bunch of men** behind her, followed where he had gone. (COCA)
(80)   There was the bulletin board above my desk with **the bunch of photographs** of me over the years. (COCA)

With regards to *lot,* most hits involved fortune/luck (N = 80), future (N = 13), parking (N = 13), or a collection (N = 11). Of the remaining 15 hits, only 2 were possible contenders for quantifier *lot,* though both were judged ungrammatical or odd; the other 13 were irrelevant (e.g. an acronym, unclear, or in an ungrammatical text). The examples below illustrate fortune, a literal collection, and a possible, though judged ungrammatical, exception.

(81)   Markets are linchpins to improving **the lot of citizens** via a change in social arrangements. (COCA)
(82)   More unlikely still was **the lot of newspaper hair rollers** that went for $3,300. (COCA)
(83)   And below you can see that the house is just completely surrounded by water [...]. It was a good house for **the lot of years**. (COCA)

Given the unacceptability of the definite determiner in combination with *one-by-one* for both *bunch* and *lot,* along with a general lack of such examples in the COCA, I maintain that the definite determiner does not occur with quantifier *bunch* and *lot.*

   We can extend this generalization further: canonical DP material (as determined by patterns of complementary distribution), like definite demonstratives, possessives, quantifiers

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[13] I've assigned # to the *bunch* examples and * to the *lot* examples. The collection *bunch* examples sound odd or "non-native" (in the words of a consultant), while the collection *lot* examples sound outright bad. This might be due to the fact that collection *lot* is less common (it seems to have a very specialized meaning), or that collection *bunch* and quantifier *bunch* represent a "closer" polysemy than collection *lot* and quantifier *lot.*

like *every, some,* and *any,* and the indefinite use of *this/these* (as in, *I met this girl yesterday*), are not compatible with quantifier *bunch* and *lot.*

(84)
$$* \begin{Bmatrix} \text{that} \\ \text{his} \\ \text{every} \\ \text{some} \\ \text{any} \\ \text{this} \end{Bmatrix} \begin{Bmatrix} \text{bunch} \\ \text{lot} \end{Bmatrix} \text{of mistakes}$$

In the corpus, the use of these determiners with *bunch* and *lot* was rare. Between the two quantifiers, possessives surfaced as a determiner in 17 examples, the quantifier *every* in 3, *some* in 4, and *any* in 5; demonstratives were most frequent with 133 hits for *bunch* and 16 hits for *lot*. However, if we compare this to the frequency of the article in a pseudopartitive structure (*a lot/bunch of N*), with 231,896 hits for *lot* and 18,849 hits for *bunch*, it's clear that the use of determiners is rare. Furthermore, the examples which surfaced were not quantificational. With *bunch,* all examples appeared to involve a collection; with *lot,* this also seemed to hold true, though some examples remained unclear and potentially ungrammatical (e.g. *there is that lot of people,* COCA). Together, this supports the claim that quantifier *lot* and *bunch* do not permit determiners. Examples of literal and metaphorical collection *bunch* and *lot* with various determiners are provided below; these are not ambiguous.

(85)   Under NSSP, **every lot of shellfish** is tagged with the date and location of harvest. (COCA)

(86)   And the fact that we're going to try and assign some sort of martyrdom to David Koresh and **his lot of criminals** […] (COCA)

(87)   I stopped in at Doe's office and got **that bunch of old X rays** you wanted. (COCA)

(88)   A pack of hounds and **some bunch of idiots** on horses almost did him in last fall. (COCA)

The quantifiers *bunch* and *lot* permit the article *a(n)*, but no other D-level material, whether definite (*the*, demonstratives) or indefinite/not definite (*every, some, any,* indefinite *this*). A foundational argument for locating the article in D was its complementary distribution with other determiners, i.e. the fact that *the* and *a* each occur independently with a noun (*the cat, a cat*), but never together (**the a cat*). While it is true that *the* and *a* cannot occur together here either (**the a lot of cats*), it is also true that they cannot both appear independently: *the* is ungrammatical (**the lot of cats, a lot of cats*). This is therefore not a true pattern of complementary distribution, and without it, the argument collapses. These quantifiers were found to be incompatible not only with one type of determiner, but a whole class of determiners, with *a(n)* being the exception. *Lot* and *bunch* seem to be incompatible with the DP itself, and presumably, the projection is absent altogether. If so, an analysis of the article *a(n)* as being situated in D cannot be maintained, and we must conclude that it is not in D. This conclusion can be extended to the article in other quantifiers; the major difference, however, is that other quantifiers are not inherently incompatible with DP, and hence, cannot reproduce the same evidence. It is precisely the idiosyncratic restrictions of *lot* and *bunch* which makes the non-D position of the article apparent. I now turn to a brief discussion of an approach which relates the article to an adjective.

3.5 A(n) does not agree with the adjective

Ellsworth et al. (2008) take a unique position and propose that the article in modified cardinal constructions (*a whopping six admirals*) is due to agreement with adjectives like *whopping,* which are singular. The account is developed within the HPSG framework. In this section, I argue that this account cannot capture the full range of facts.

Ellsworth et al. (2008) propose that adjectives which occur in the modified cardinal construction form a special class of adjectives which specify their own agreement features, namely singular. They make a distinction between INDEX features, which determine verbal agreement, and AGR features, which are DP-internal. The singular on the adjective is an AGR feature, which forces the article *a(n)* to appear, but does not interact with verbal agreement (since it is not an INDEX feature). This captures the discrepancy between internal form (SG) and external agreement (PL). They develop a similar account for numerals like *hundred,* though there it is the numeral which is specified for singular and controls the article.

The advantages to this account are that verbal agreement is accounted for, as is the presence of an article with modified plural numerals (*an estimated hundreds of…*), since agreement is with the adjective. A disadvantage is that it does not clearly capture the difference between phrases like *a recuperative twelve steps* and *those recuperative twelve steps*; this requires that in indefinite contexts, the adjective controls the determiner, while in definite contexts, it does not. A second issue is that relative clauses can also trigger the article:

(89)   a five days I will never forget

Here, no adjective is present, yet we still see an article. Given these considerations, I conclude that the article of quantifying expressions is not due to agreement with an adjective.

4 What the article *a(n)* is: A realization of QP

I have argued extensively that the article of quantifying expressions is not singular, count, or in D, and furthermore, that it cannot be attributed to a singular silent noun or singular adjective. In terms of grammatical content, very little is left to the article, aside from its occurrence with quantifying expressions and correlation with indefiniteness. In this section, I present an alternative analysis for the article, taking it to be a default, last-resort marker of cardinality, potentially comparable to *do*-support at the clausal level. The article surfaces when a QP is structurally present, but otherwise fails to be spelled-out. I further discuss how its complementary distribution with the marker *-s,* as in *lots of books,* and the definite determiner, as in *the hundred books,* can be accounted for in the present analysis.

4.1 The proposal

These quantity expressions share the property of quantification, but differ in their need for an article in indefinite, unmodified, unpluralized contexts. If we set the status of *of* aside (see section 2.4), there are two main types of quantifiers: those that need an article (pseudopartitives, article-requiring) and those that do not (article-free).

(90)   a.   a lot of books, a few books
         b.   three books

I explore the possibility that these quantifiers have a similar syntax, but spell out the functional projections in slightly different ways. I suggest here that the difference is morphophonological rather than purely syntactic.

Suppose quantifiers in English include at least two projections (and some quantifiers may have more): one which hosts the article and another which hosts the quantifier. This division is easily applied to article-requiring quantifiers and pseudopartitives:

(91) $[_{YP}$ *a* $[_{XP}$ *lot / hundred*$]]$

It is less applicable to article-free quantifiers at first glance, given the absence of the article. However, recent work has argued for a decomposition of numerals (Fassi Fehri 2018; Wągiel 2020), distinguishing between a root position and functional structure. I suggest that article-free quantifiers similarly consist of multiple projections, but the difference is that those projections are usually spelled-out together:

(92) $[_{YP+XP}$ *three*$]$

What are XP and YP? Following work on numerals by Fassi Fehri (2018) and Wągiel (2020), I suggest that for some quantifiers, it is a root and a QP. The quantifiers themselves correspond to roots (and this captures the semi-productivity of pseudopartitives), and that root is embedded under a QP which makes it into a quantifier. This gives us a basic structure as below, with different realizations for different quantifiers:

(93)

The present work is a shift towards representing quantifiers in terms of pieces of structure which can be smaller than the word. A similar direction is found in nanosyntactic work, where lexical entries contain tree structures which are matched to syntactic representations during spell-out. For example, De Clercq (2017) analyzes English relative quantifiers *many, much, few,* and *little* as containing up to four pieces of syntactic structure, arranged according to a functional sequence: [Num [Div [(Neg) [Q]]]]; these features relate to scalarity/gradability (Q), negation (Neg), division/count syntax (Div), and having a cardinality feature (Num). She builds her argument based on the morphological realization of these quantifiers cross-linguistically, showing that the same four pieces of structure are present across languages, but with different spell-outs (e.g. while English distinguishes four quantifiers, Dutch has only two, collapsing the count/mass distinction). The present work moves in this same direction, by claiming that the one-word article-free quantifiers are internally complex and furthermore, structurally similar to their pseudopartitive and article-requiring cousins.[14]

The behavior of article-free quantifiers with modification provides evidence for the decomposition proposed in (93). Recall from section 2.3 that article-free quantifiers are

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[14] De Clercq (2017) proposes that the relative quantifiers *many, much, few,* and *little* do not contain roots, but consist solely of subsets of the four functional features Num, Div, Neg, and Q. She analyzes *many* as mapping to the structure [Num [Div [Q]]]. This structure is incompatible with (93), but her work suggests that the class of article-free quantifiers may differ in internal structure, with some quantifiers having different projections under QP (if the two accounts can be reconciled). For many of the quantifiers discussed here, especially pseudopartitives with lexical nouns (e.g. *a wealth of information*), the structure in (93) is appropriate. For quantifiers like *many*, it may be necessary to assume other or additional projections under QP. However, all quantifiers considered in this paper are unified by the article, and thus, by the account developed here, will have QP.

not always article-free; modification by an adjective or relative clause can trigger the article:

(94) a.   a mere one minute
      b.   a tumultuous seven/several days
      c.   a four days I will never forget

This follows straightforwardly from the present analysis. Suppose modification applies under QP, and introduces additional structure into the representation. This is shown in the structure below, which, for simplicity, makes use of a label FP to introduce the adjective. As proposed above, article-free quantifiers spell-out the RootP and QP together; however, in (95), the additional structure introduced by the adjective acts as an intervener, interrupting the spell-out of the RootP and QP. Because the two projections are no longer structurally adjacent, they cannot spell-out together (see Ionin & Matushansky 2018: 282; Bylinina et al. 2016 for similar analyses); this is marked in the illustration with an X over *three*. Instead, *three* can only spell-out the RootP. QP is instead realized with the article.[15]

(95)

QP
├─ Q
└─ FP
   ├─ AP
   └─ RootP
      └─ Root

{ } *three* (crossed out)   { } *a*
                              { } *good*
                              { } *three*
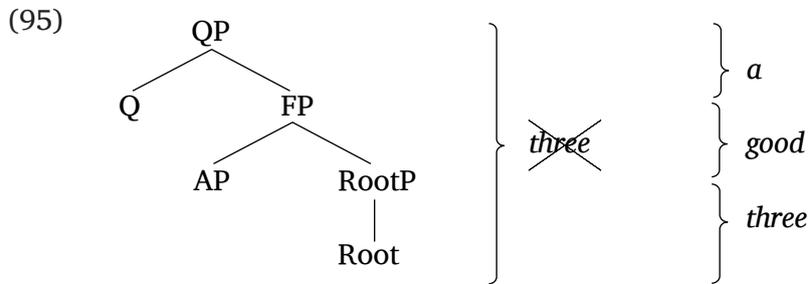
Modification not only interrupts structural adjacency between the RootP and the QP, but also robs QP of its spell-out. The effect we see is the article *a(n)*. I propose that *a(n)* is inserted as a last-resort mechanism for spelling-out QP when no other material is available. The article *a(n)* is a default realization of QP, and is therefore a default cardinality marker. Given that it has no features of its own, it does not make an expression count (cf. section 3.3) and it cannot interact with agreement (cf. section 3.1).

In the case of pseudopartitives and article-requiring quantifiers, the use of an adjective has no special effect on the spell-out. In neutral contexts, the quantifier was not capable of spelling-out QP (see (93)), and instead was limited to spelling-out RootP. The addition of an adjective into the structure does not change this, and QP and RootP continue to be spelled-out independently. This is illustrated below.

(96)

QP
├─ Q
└─ FP
   ├─ AP
   └─ RootP
      └─ Root

{ } *a(n)*
{ } *whole / extra*
{ } *bunch / couple*

---
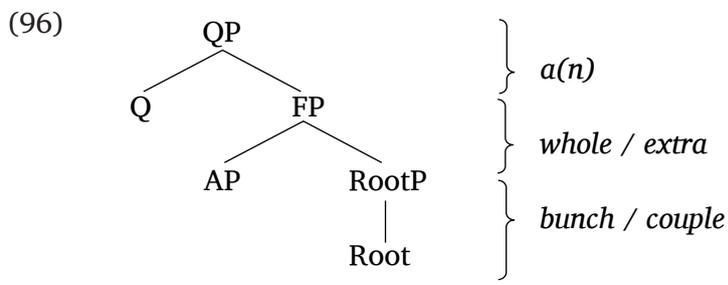
[15] An anonymous reviewer points out the following paradigm which might also be accounted for under the present analysis: *I read a book / *a one / a good one*. Use of an adjective with pronominal *one* triggers the article.

Here too, the article is a default realization of QP. The difference from article-free quantifiers, however, is that pseudopartitives and article-requiring quantifiers can never spell-out QP. As such, the article is a necessity in those contexts where nothing else is available. Thus, language internal variation in quantifier form arises from differences in the ability of quantifiers to spell-out QP. Those which cannot (or do not for whatever reason) co-occur with the article.

I have not been explicit about an implementation of the spell-out procedure. The present analysis requires a spell-out mechanism, which is sensitive to structural adjacency and interveners. Depending on the assumed structural contribution of modifiers (e.g. as specifiers, adjuncts, or heads of functional projections), this can be achieved in multiple ways. Head movement, m-merger (Matushansky 2006), and spanning (Svenonius 2012), for example, are possible analyses, if we assume that the modifier blocks head movement or m-merger, or alternatively disrupts the contiguous set of heads that the spanning morpheme can spell-out. Nanosyntax is also possible (and the inspiration for this analysis): quantifiers are differentiated by their lexical entries which include QP or not; interveners will block a quantifier from spelling-out QP, with QP being realized as the article instead. I have not adopted a specific analysis in this paper, but I assume a spell-out which allows structurally adjacent projections to be spelled-out together, unless an intervener is present. I turn now to apparent issues for this analysis, namely the lack of an article with plural pseudopartitives and unmodified plural numerals (*a tons of books, *a hundreds of books*) and the complementary distribution of the article with DP material (**the a hundred books*).

4.2 QP and the plural marker -s

Under the proposed analysis, quantifiers *ton, lot, hundred,* and *dozen* cannot spell-out QP, and therefore necessitate the article. We might expect this behavior to carry over into their plural forms. However, once pluralized, the article is necessarily absent:

(97)   a.   (*a) tons of books
       b.   (*a) lots of books
       c.   (*a) hundreds of books
       d.   (*a) dozens of book

This is an unpredicted case of complementary distribution: if the article is featureless, it should not distinguish between plural and non-plural quantifiers. How can we account for this?

Under the present analysis, the article only surfaces if there is nothing to spell-out QP. To maintain this, we must assume that pluralized quantifiers are capable of spelling-out QP, where non-pluralized quantifiers are not. If we take these quantifiers to be morphologically complex, consisting of the quantifier and the plural marker (e.g. *ton-s*), then the *-s* on these quantifiers is a realization of QP.

(98)

```
              QP
            /    \
           Q     RootP        }  -s
                   |
                  Root        }  ton / hundred
```
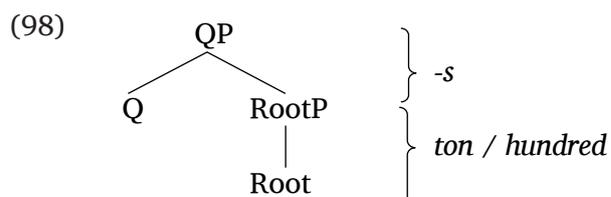
Note that the different realizations of QP, as a free morpheme preceding the quantifier in *a lot* and a bound morpheme following the quantifier in *lot-s* may suggest that spell-out

proceeds differently. Presumably, for bound morpheme *-s*, the quantifier moves to QP in some way.

There is evidence to suggest that treating *-s* as Q is the right approach. Despite the similarity in form to plural morphology, the morpheme *-s* in pseudopartitives does not add plurality to the interpretation (*lots* is not necessarily more than *a lot*), but rather informality (*lots* is slightly more informal than *a lot*). With *hundreds* and *dozens* the contribution of the morpheme *-s* is approximation (Rothstein 2017). None of these quantifiers is semantically plural: they cannot be quantified in their quantifier interpretation.

(99)　　a.　*two tons of mistakes
　　　　b.　*two lots of mistakes
　　　　c.　*two hundreds of mistakes
　　　　d.　*two dozens of mistakes

In addition, among the pseudopartitive nouns, the ones which allow a "plural" are a very restricted set: *lots, tons,* and for some, %*bunches*. Together, this suggests that the *-s* in these quantifiers may not be a plural marker; instead, it could be a specialized Q-head, which is restricted to certain complements; being Q itself, it does not license further quantification.

Further in line with this is the distribution of adjectives with pseudopartitive nouns. *Lots*, for example, permits adjectives in the singular, but not the plural:[16]

(100)　　a.　Zoos still attract **a whole lot** of people too. (COCA)
　　　　b.　*whole lots of people

We can assume a similar structure as before, with the adjective sitting between QP and RootP:

(101)

```
        QP                    ⎫
       /  \                   ⎬   a   /   *-s
      Q    FP                 ⎭
          /  \                ⎫
        AP    RootP           ⎬   whole
               |              ⎭
              Root            ⎫   lot
                              ⎭
```
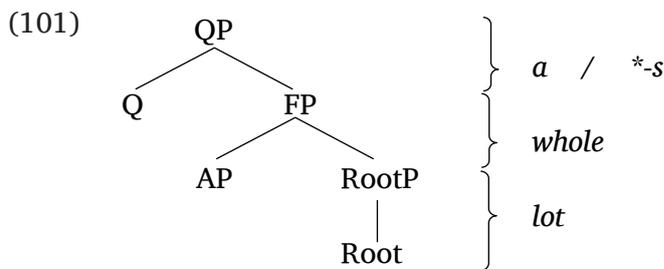
Like in the case of modified numerals (*a good three*), the adjective is an intervener. However, the status of the Q *-s* is different from *a(n)* in that it is a bound morpheme and must attach to the quantifier. The use of an adjective prevents the bound morpheme from combining with the quantifier, and results in ungrammaticality. This account provides a principled explanation for the ungrammaticality of *whole lots.*[17]

---

[16] This is confirmed in the COCA. A search for *ADJ lots of N* returned 91 hits, the majority of which were false positives (*I'm still itchy lots of places*), literal collection *lot* (*the various lots of consignment goods*), or *lots* as parking or open spaces (*on the streets and vacant lots of Baghdad*). A few genuine examples surfaced (N = 3), but they were judged ungrammatical (*a lovely lots of clapboard houses; there mere lots of suds*) or seemed to be part of elided structures (*Lauren is an adopted child. Unintelligible lots of questions.*).

[17] Note that while *whole tons* is ungrammatical, an example like *assorted tons of other officials* is acceptable. This suggests that some adjectives might occur in a higher position and not interrupt spell-out. More research into how different adjectives cause an intervention effect is needed.

Treating *-s* as QP seems to be problematic for modified plural numerals. Recall that they can trigger an article when modified, although this is not always the case. Thus, modified plural numerals sometimes show complementary distribution between *-s* and *a(n)* and sometimes not.

(102)   It's **a collected thousands** of songs. (COCA)
(103)   I have raised **countless thousands** of plants from seed over the years. (COCA)

I set aside the issue of what determines this, pending further research, and sketch out a possible analysis under the present proposal. Plural numerals are treated as approximatives by Rothstein (2017) who proposes an APPROX semantic operation. We might consider an approximative functional projection here, ApproxP, which combines with the numeral to form an approximative. I will depict ApproxP as combining under QP. The facts above can be accounted for in the present analysis if we assume that (a) *-s* is a spell-out of both ApproxP and QP, and (b) adjectives can combine above or below the QP projection.[18] A non-modified structure is presented below.

(104)

```
            QP
          /    \
        Q      ApproxP          }  -s
              /      \
          Approx    RootP       }
                      |           }  thousand
                     Root        }
```
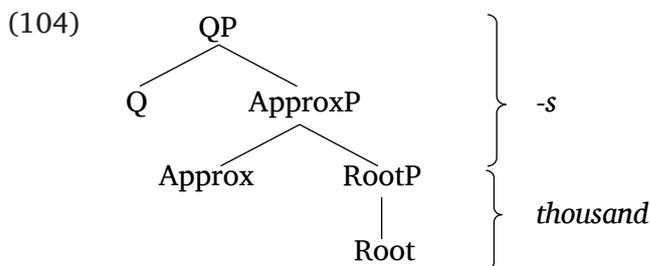
If an adjective occurs outside this structure (above QP), it will not interfere with the spell-out of QP, and hence, is not predicted to trigger an article. This is a difference between *lots* and *thousands*, as *lots* does not permit adjectival modification at all (so, no adjectives above QP), while *thousands* does. Regarding an adjective under QP, there are two logically possible positions: above RootP and above ApproxP. The first of these two positions is predicted to lead to ungrammaticality in the same way as an adjective with *lots* did: it blocks the ability of the bound morpheme *-s* to combine with the quantifier. This is depicted below.

(105)

```
            QP
          /    \
        Q      ApproxP           }  *-s
              /      \
          Approx     FP          }
                    /   \
                  AP    RootP    }  collected
                          |
                         Root    }  thousand
```

---
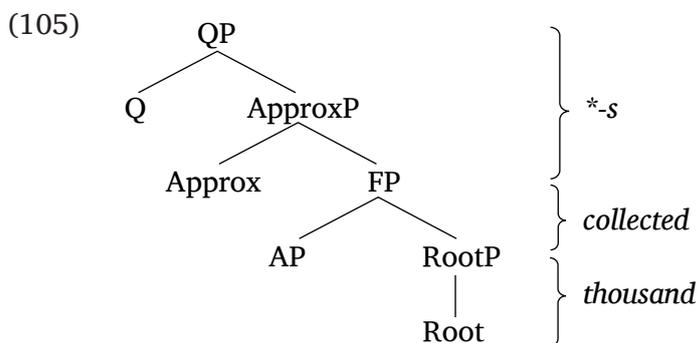
[18] This opens the question of whether adjectives have such freedom with non-plural quantifiers. At the moment, I have little to say on this. Answering this question requires an in-depth study on the types of adjectives that occur as modifiers to quantifiers in their singular and plural forms, and whether the same types of adjectives occur with both forms. With *lots*, for instance, we already saw that this was not the case. I leave the distribution of different types of modifiers in quantifier expressions as a topic for future work.

The second position, however, is predicted to allow for the co-occurrence of *-s* and the article. In a similar way to how article-free quantifiers like *three* were taken to spell-out multiple projections (RootP, QP), I have proposed in (104) that the *-s* that combines with article-requiring numerals spells-out two projections, ApproxP and QP. Insertion of a modifier between ApproxP and QP therefore has the same effect as the insertion of an article between RootP and QP. It interrupts the ability of the morpheme *-s* to spell-out both ApproxP and QP and therefore, the default cardinality marker *a(n)* surfaces. This derives the use of an article with modified plural numerals. I present the structure below.

(106)

QP
├─ Q
└─ FP
   ├─ AP
   └─ ApproxP
      ├─ Approx
      └─ RootP
         └─ Root

a
collected
-s
thousand
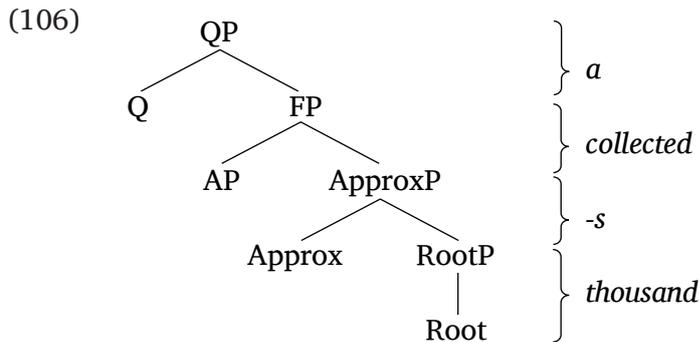
In this section, I have addressed some issues relating to the interaction of the article with the morpheme *-s*. This has led to me to assume different *-s* morphemes, related to different effects on the interpretation (e.g. informality in the case of *lots* and *tons*, but approximation in the case of *hundreds* and *dozens*). This section has extended the initial analysis by showing that other morphemes can lexicalize QP, with predictable effects on the need for the default cardinality marker *a(n)*.

4.3 QP and the definite determiner

A second issue is the complementary distribution of the article with DP material. Quantifiers which license a D (not *lot* or *bunch*) do not require the default article when a determiner is present; this is unexpected under an analysis in which the article is associated with QP and not DP.

(107)   a.   the / every (*a) hundred books
        b.   the (*a) ton of hype and all the excitement over Howard's debut (COCA)

Previous work which argues for a lower position of the indefinite article faces the same issue. I briefly discuss solutions in the literature, as they can be extended to the default article *a(n)*.

  Ackles (1996) argues that the indefinite article in English is a realization of NumP. She proposes that the article (and plural marking) identifies a NumP in the structure, and thus, distinguishes grammatically between mass and count. In her account, she is faced with the issue of why the article is not necessary if a definite determiner is present, given that they occupy different projections. She assumes that DP only occurs in definite nominals, and proposes a rule, such that the left-most node of an extended projection must be "identifiable." A projection becomes identifiable by having an overt element in it. In definite contexts, the left-most node will be DP, given that it is the highest projection; for these contexts, it only matters whether DP is identifiable, not NumP, and hence, no article is necessary. In indefinite count contexts, however, the left-most node will be NumP, and

this will necessitate the article for otherwise unmarked count nouns. In Ackles' approach, it is a rule of identifiability which forces the article to surface in indefinite contexts, but not in definite contexts.

A similar account is presented in Lyons (1999), though he locates the article in Card(inality)P and explicitly identifies it as a default marker of cardinality, terming it a quasi-indefinite article. Like Ackles, he assumes DP to be restricted to definite nominals, and similarly faces the question of why definite DPs do not also have *a(n)*. Lyons proposes that a phonological constraint is responsible: both *the* and *a(n)* are weak forms and must occur in an initial position in the phrase. However, there is only one phrase-initial position, and thus, phrase-initial *the* blocks *a(n)* from surfacing. For this reason, *a(n)* does not occur in definite environments, but only indefinite environments, where no DP is present.

Borer (2005) takes a different route; her nominal syntax consists of a root, a Cl(assifier)P (= a divider, divides a mass), a #P (= a counter, counts out a portion or cardinality), and a DP. In her account, the article *a(n)* is both a divider and a counter, occupying (or "assigning range to") ClP and #P; it divides a mass and counts out a single portion of it. She models the inability of *the* to co-occur with *a(n)* by arguing *the* also to be a counter, which occupies #P in addition to DP. Thus, the complementary distribution which prevents *the* and *a(n)* from co-occurring arises at the #P level and not the DP level.

Each account could be applied in the present context. Under Ackles' and Lyons' account, DP only occurs if a determiner is present, and if present, it blocks the article *a(n)* from surfacing (either because it is no longer left-most, or because it is phonologically weak). This would derive the finding that DP-level determiners do not co-occur with *a(n)*. Borer's approach would imply that the determiner *the* also spells-out QP, alleviating the need for *a(n)*; this account, however, requires that all determiners which *a(n)* is incompatible with similarly spell-out QP, which remains to be verified. In sum, the complementary distribution between the article *a(n)* and determiners like *the* and *every* is not necessarily problematic for the present account, as long as the nature of the relation between the spell-out of determiners and the default marker *a(n)* is addressed.

5 Inter-quantifier variation

Quantifiers show variation in terms of whether they spell-out QP, this reflected in the distribution of article *a(n)*. In this section, I briefly discuss the source of this variation, and suggest that it concerns (a) the functional status of the quantifier, as modulated by grammaticalization, and (b) the presence of hidden interveners.

The pseudopartitive construction is semi-productive, and while not all lexical nouns can be made pseudopartitive, some can, e.g. *wealth, sea, flood, parade*, as was illustrated in (12)–(14). The effect of the pseudopartitive construction on non-count nouns like *wealth* is striking as it licenses an otherwise unacceptable article:

(108) a. *a wealth
       b.   a wealth of scientists

Such nouns constitute lexical nouns in English, despite having the flexibility to quantify via a pseudopartitive. They cannot spell-out QP, however. I suggest that this is related to grammaticalization; such quantifiers have not grammaticalized into a quantifier function, and hence, cannot spell-out QP. QP is a functional projection, and presumably, items which are fully lexical are not capable of spelling-out QP until they have functionalized. In this regard, *lot* seems to be working its way towards spelling-out QP, as (anecdotally)

evidenced by the tendency of some speakers to treat *a* and *lot* as a single word in written English: *alot*. For those quantifiers which spell-out QP, presumably they are also functional, which is what makes this possible. In sum, it is the level of functionalization which I suggest determines whether a quantifier can spell-out QP or not.

A second possibility is the presence of interveners which are not overt. This is something which might be claimed of base numeral expressions, e.g. *hundred, dozen, thousand*. Kayne (2010), for instance, proposes that English higher numerals contain a suffix -NSFX, which licenses their use as a multiplicand in a multiplicative numeral (e.g. the difference between *three hundred* and **three seven*). If this suffix is situated between QP and the root, then it might function as an intervener and trigger the article; in other words, the very property of being a base numeral via a suffix like -NSFX would have the effect of triggering the article in the absence of other material. The use of an article with some relative clause-modified numerals might also be the result of an intervention effect. Depending on where the relative clause attaches, it may introduce structure between the numeral root and QP which prevents them from spelling-out together. This type of approach predicts that other post-nominal modifiers, such as PPs, should be able to produce a similar effect. While nothing surfaces in the COCA, a Google search for the phrases *a five days of* and *a five days with* identified relevant hits, which appeared to be written by (British) native speakers. These are presented below; these examples involve a group effect, such that the five days must be contiguous, which could suggest that the PP modifies [five days] together rather than just [days].

(109)   My role involved dressing a model in five different outfits up to three times a day over the course of **a five days with other required tasks** such as [...][19]

(110)   We also have a dedicated Minor Injuries Unit at Stamford, staffed by Emergency Nurse Practitioners, providing **a five days of service** for patients presenting from Stamford and other nearby areas.[20]

In this sense, additional structure or hidden interveners may interact with the need for the article, independent of the grammaticalization status of the quantifier. Whether a similar analysis could be applied to other article-requiring quantifiers like *a couple* and *a few* remains to be seen.

6 Implications for the English indefinite article

The present analysis has argued that the article *a(n)* as found in quantifying expressions is a default cardinality marker which surfaces when QP fails to be spelled-out by other material. Certain quantifiers can spell-out QP, while others cannot, leading to language-internal variation in terms of whether an article is necessary. Throughout the discussion, I have been careful to limit the analysis specifically to the article of quantifying expressions. However, an unavoidable question arises: can this analysis be extended to the indefinite article *a(n)* in English? I show here that yes, it is possible, provided certain assumptions are made. The implication of doing so is that the indefinite article is not actually indefinite; this is the conclusion of Lyons (1999), who terms it a quasi-indefinite article for its correlation to indefiniteness despite not being indefinite.

There have been efforts in the literature to locate the English indefinite article in a position under DP. Lobeck (1995), Ackles (1996) and Le Bruyn (2010) each place the article

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[19] https://uk.linkedin.com/in/cidella-brown-451264179.
[20] https://www.nwangliaft.nhs.uk/a-z-of-services/e/emergency-and-out-of-hours-care/peterborough-city-hospital-emergency-department/.

in NumP, and Borer (2005) situates it in ClP and #P. Placing the article in a lower position disconnects it from the determiner system, while explicitly connecting it to number, in line with its apparent singular count status. This creates the additional challenge of accounting for the complementary distribution between the article and other determiners (see the discussion in section 4.3), but it intuitively captures the relation between the article and singular number. The article is limited to a singular distribution, never occurring in plural or mass contexts:

(111)   a.   a book
        b.   *a sand
        c.   *a books

This is a crucial difference from the default article proposed here, and one which must be overcome for a unified analysis to succeed. As shown in section 3.3, the default article surfaces in DPs with mass and plural lexical nouns:

(112)   a.   a ton/lot of books
        b.   a ton/lot of sand
        c.   a few books
        d.   an amazing several books

An extension of the present analysis to (111) requires certain assumptions to be made. If (111) is also characterized by a default article, then there must be something which prevents it from surfacing with mass nouns and bare plurals. The difficult route is to say that the conditions on where QP needs to be spelled-out are more intricate than we have assumed. The simpler route is to say that bare plurals and mass nouns do not contain QP, while singular nouns do. Without QP, there is nothing for the article to spell-out, predicting it to be absent in those contexts. Let us briefly pursue this here.

If the pattern in (111) is attributed to the presence or absence of QP, then we must assume the following syntactic structures for lexical nouns:[21]

(113)   a.   *Singular count noun:* $[_{QP}$ a $[_{NumberP}$ SG $[_{NP}$ book $]]]$
        b.   *Plural count noun:* $[_{NumberP}$ PL $[_{NP}$ book $]]$
        c.   *Mass noun:* $[_{NP}$ sand $]$

Neither bare mass nouns nor bare plurals contain a QP. However, singular nouns do. Where would this distinction derive from?

Borer (2005) makes a distinction between dividing and counting projections in her syntax. A ClP divides, while a #P counts; we can compare these to the NumberP and QP in (113). Depending on how the noun is to be interpreted, its denotation may or may not be divided and subsequently counted. In her analysis, only count nouns undergo division (i.e. the "mass" is divided into units). Mass is the absence of division, i.e. the absence of ClP/NumberP, while count is the presence of division, i.e. ClP/NumberP. In addition, both count nouns and mass nouns can be counted via counters, producing cardinalities or portions. With regards to the structures in (113), a singular count noun must involve both division and counting, division to produce countable units, and counting to select exactly

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[21] This assumes a basic structure of DPs as: [DP (determiners) [QP (quantifiers/quantification) [NumberP (singular/plural) [NP (the root/noun)]]]], and compares the quantifier QP to the QP of nouns.

one of those units (and Borer ascribes both dividing and counting to the article itself). A singular count noun necessarily involves a #P/QP to allow for that counting. This is not the case with bare plurals and mass nouns. For a bare plural, division has occurred but not counting; to count a plural, an overt quantifier/counter must be present, e.g. *three, a couple, a bunch of*, etc. A mass noun can also be portioned, but again, an overt #P/QP is needed, e.g. *much, a bit of, a little*. In the absence of an overt quantifier, neither bare plurals nor mass nouns involve counting, and hence, no #P/QP. For this reason, no *a(n)* could surface with them. The distribution of *a(n)* is therefore a consequence of the internal structure of the nominal expression, with some nominal expressions involving QP and others not. By this analysis, the indefinite article is never an article of indefiniteness; it is always a marker of quantification/counting.

7 Conclusions

The article of quantifying expressions is puzzling in that it surfaces in non-singular contexts, i.e. with quantified mass and plural nouns. More puzzling is the fact that it does not control agreement, failing to trigger singular agreement, as we expect from expressions with the indefinite article. In this paper, I have argued that this is because the article of quantifying expressions is not a typical run-of-the-mill indefinite article. It is a featureless default cardinality marker, which surfaces when a QP is present, but has not been spelled-out by other material. Furthermore, it interacts with interveners, determiners, and other markers of Q, such as *-s*, surfacing in those contexts where QP cannot otherwise be realized. Some quantifiers never realize QP, and I have proposed that this may be a matter of grammaticalization, where certain quantifiers are not functional enough to lexicalize the quantifier function; instead, the article *a(n)* marks its presence. Finally, I have also suggested that this account can be extended to the case of the regular indefinite article in English; however, to do so, we must assume that bare plurals and bare mass nouns do not contain a QP. The plausibility of this must be further tested.

Abbreviations

PL = plural, SG = singular

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Competing Interests

The author has no competing interests to declare.

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