

COLLECTIVE MASS AFFIXES:

WHEN DERIVATION RESTRICTS FUNCTIONAL STRUCTURE

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Abstract

In this paper I discuss a class of nouns which strongly resist number marking, viz. collective nouns (e.g. *cutlery*). At first sight they falsify the claim that roots can combine with all morphosyntactic structures. I show that they do not: collectives are not roots, but derivations that contain a featureless root and an n° with a feature specification that is semantically incompatible with number marking.

Keywords: mass-count distinction, Exo-Skeletal Model, roots, morphosyntax, Dutch

1. Introduction: The Exo-Skeletal Model and collective mass nouns

The Exo-Skeletal Model (Borer 2005a,b) is designed to capture the semantic malleability of lexical items. The central claim in this framework is that lexical roots (such as *cat*, *milk* or *jump*) do not carry any morphosyntactic features, not even categorial or selectional ones. For example, the root *cat* is not classified as a noun in the lexicon, let alone as a count noun. In the same vein, the root *milk* can be inserted both in a nominal and in a verbal structure. Of crucial importance to the Exo-Skeletal Model is the fact that all roots can be inserted in all syntactic structures. Indeed, roots which we traditionally call

mass nouns can be inserted in structures triggering count readings and vice versa. This is illustrated by the examples in (1)-(5). Although *sugar* is traditionally considered to be a mass noun and can be used as such, as in (1), it can also get a count reading, as shown in (2)-(3). Similarly, while *dog* is traditionally treated as a count noun (see (5)), it can get a mass reading. This is illustrated in (4).

(1) a lot of sugar	[mass]
(2) three sugars: glucose, fructose and saccharose	[count]
(3) coffee with two sugars	[count]
(4) There's dog in this soup.	[mass]
(5) three dogs	[count]

Given the right context, nouns can be inserted freely in either mass or count structures. Observations like these are central to the Exo-Skeletal claim that roots do not carry any morphosyntactic features that may restrict the structures in which they can be inserted.

In this paper I will examine a set of nouns that at first sight present a problem for the Exo-Skeletal Model. These are the so-called collective mass nouns, such as *ondergoed* 'underwear' or *suikerwerk* 'confectionery'. They can only get mass readings and strongly resist count readings, regardless of the context¹. The question arises if collective mass nouns form a class of roots that are endowed with morphosyntactic features restricting their insertion possibilities, calling into doubt a basic assumption of the Exo-Skeletal Model. In this article I show that they do not; I argue that they are not roots, but

¹ The term 'collective noun' is sometimes also used to refer to nouns such as *committee* or *team*, which represent a collection of members. Denoting one collection, such nouns have a count reading. I do not intend that interpretation here. Moltmann (1997:88) has a contrast which sets the apart the collective nouns and the nouns denoting collections: 'The ring was among Mary's jewelry' (collective noun) vs. # 'The ring was among Mary's collection of jewelry' (collection noun). Only collective nouns such as *jewelry* fall under the scope of this article, nouns denoting collections such as *collection* do not.

derivations. As they are not bare roots, they obviously cannot challenge any claim about roots. Rather, it is the feature specification of the derivational suffix which restricts insertion. This suffix realizes n^0 . The more general conclusion is that what appear to be features on/of the root are in fact features added to the structure by the derivation. This line of reasoning suggests that derivational material just above the root restricts the insertion possibilities of that root, as suggested by Borer (2005b:346-354)².

The paper is organized as follows. In section 2, I discuss the data that constitute my central argument. I show that collective mass nouns only get mass readings, but that they also refer to a collection of salient individuals. In the next two sections, I argue that all collective mass nouns in Dutch are products of derivation. I first discuss obvious examples of polymorphemic collective mass nouns (section 3); I then go on to extend the analysis to the less obvious examples of monosyllabic collective nouns (section 4). Section 5 gives an analysis for the observation that collective mass nouns are restricted to mass readings. I attribute the property of being mass to the derivational suffix and I examine which features the collective suffix realizes. I subsequently argue that they are semantically incompatible with count readings. I further discuss another derivational affix which has the same effects as the collective suffix. In section 6 I comment on cross-linguistic variation in the domain of collective nouns. The last section sums up and concludes.

2. The properties of collective mass nouns

In this section I characterize collective mass nouns. To do so, I compare collective mass nouns with nouns heading regular mass NPs. I first focus on the similarities to show that

² Borer discusses roots which do not correspond to well-formed phonological words, such as is the case for Semitic languages. In such languages roots first have to combine with derivational nodes in order to form an acceptable phonological word. These derivational nodes restrict the malleability of the new-formed word.

collective mass nouns indeed give rise to singular mass readings. I then discuss the properties which set the two types of mass readings apart.

First observe that collective mass nouns are truly singular from a syntactic point of view³. This is shown by the fact that they trigger singular agreement when in subject position. Example (6) shows that collective nouns trigger singular agreement on both the adjective⁴ and the verb⁵.

- (6) Net- \emptyset ondergoed/zilverwaar/huiswerk **is/*zijn** belangrijk.
neat-SG.NEUTER underwear/silverware/homework is/are important
'Neat underwear/silverware/homework is important.'

They share this property with all other nouns heading mass NPs in Dutch, as is illustrated in (7).

- (7) Helder- \emptyset bier/water/vernis **is/*zijn** goed.
Clear-SG.NEUTER beer/water/varnish is/are good
'Clear beer/water/varnish is good.'

As singulars, collective mass nouns can be combined with the fuzzy quantifier⁶ *veel* 'much' (see (8)) and the universal quantifier *alle* 'all' (see (10)), just like nouns heading

³ Idiosyncratic plural forms, such as *groceries*, and other plural forms do not fall under the scope of this article. See Acquaviva (2008) for a detailed discussion.

⁴ The noun *ondergoed* is neuter, hence the adjective gets neuter agreement. Neuter, singular adjectival agreement is marked by a null morpheme in Dutch. If the noun were to trigger plural adjectival agreement, the result would be a schwa. See Schoorlemmer (2009) for recent discussion.

⁵ A reviewer asks whether Dutch has a pluractionality morpheme, i.e. cases in which a verbal stem allomorph indicates a plurality of participants in the event, even though the agreement may be singular (see for example Corbett 2000:254). It does not.

⁶ A fuzzy quantifier refers to a non-specific quantity. Examples are *many* and *several*.

regular mass NPs in Dutch, as in (9) and (11). This is a defining property of mass readings (Allan 1980).

(8) veel ondergoed / zilverwaar / huiswerk
much underwear / silverware / homework
'much underwear/silverware / homework'

(9) veel bier / water / vernis
much beer / water / vernis
'much beer / water / vernis'

(10) alle ondergoed / zilverwaar / huiswerk
all underwear / silverware / homework
'all underwear/silverware / homework'

(11) alle bier / water / vernis
all beer / water / varnish
'all beer / water / varnish'

In contrast, a singular count reading does not allow for the quantifiers *veel* 'much' and *alle* 'all', as can be concluded from the illicit examples in (12)-(13).

(12) # veel hond
a lot of dog
Intended: 'a large part of the dog'

(13) # alle hond

all dog

Intended: 'the whole dog'

A third point of similarity is the fact that both types of mass nouns obey cumulativity although they are singular. Cumulativity is defined in (14) (the definition is taken from Borer 2005a:127).

(14) P is cumulative iff $\forall x, \forall y [[P(x) \wedge P(y)] \rightarrow P(x \cup y)]$

It is well known that regular mass readings are cumulative (Quine 1960). For example, if one adds sugar to sugar the result is still sugar. Collective mass nouns are cumulative as well. This is illustrated in the example below.

(15) a. Een onderhemdje is ondergoed.

an undershirt is underwear

b. Een beha is ondergoed.

a bra is underwear

c. Een onderhemdje en een beha zijn samen nog steeds ondergoed.

an undershirt and a bra are together yet still underwear.

'An undershirt counts as underwear. A bra counts as underwear. An undershirt and a bra together still count as underwear.'

Similarly, cutlery remains cutlery regardless the number of forks, knives and spoons which are added to the set.

Collective mass nouns do not simply allow a cumulative reading, they always occur in such a reading. In other words, cumulativity is an *obligatory* property of collective mass nouns. Let me elaborate this claim by comparing them to a different set of nouns. They contrast with nouns which, like collective mass nouns, refer to a collection but which can be pluralized⁷. Examples are *kudde* ‘herd, flock’, *kapitaal* ‘capital (i.e. fortune)’ and *familie* ‘family’. Although these nouns easily allow for mass readings in which they are interpreted cumulatively, the cumulativity does not hold in all contexts. This is illustrated below. Example (16) shows that *familie* ‘family’ is compatible with a cumulative reading.

(16) a. Een moeder is familie.

a mother is family

b. Een zus is familie.

a sister is family

c. Een moeder en een zus zijn samen nog steeds familie.

a mother and a sister are together yet still family.

‘A mother counts as family. A sister counts as family. A mother and a sister together still count as family.’

Yet, the cumulativity does not hold in all contexts for these nouns. If one mixes members of one family with members of another one the result is two families, not just family. This is made explicit in (17) for Dutch.

⁷ I would like to thank Gertjan Postma for drawing my attention to this contrast.

- (17) a. Mijn moeder, opa en tante zijn familie.
 my mother, grandfather and aunt are family
- b. Jouw moeder, opa en tante zijn familie.
 your mother, grandfather and aunt are family
- c. Mijn moeder, opa en tante en
 my mother, grandfather and aunt and
 jouw moeder, opa en tante zijn samen twee families.
 your mother, grandfather and aunt are together two families
- ‘My mother, my grandfather and my aunt are family. Your mother, your grandfather and your aunt are family. My mother, my grandfather and my aunt and your mother, your grandfather and your aunt are together two families.’

In short, nouns such as *familie* ‘family’ are not cumulative obligatorily. These nouns typically do not resist number marking either. This is illustrated in (18).

- (18) twee families
 two families
 ‘two families’

In short, a possible cumulative reading is not restricted to collective mass nouns; nouns such as *familie* ‘family’, *kapitaal* ‘capital’ and *kudde* ‘herd, flock’ can be used in a cumulative reading as well. It is thus not simply the licitness of a cumulative reading which characterizes collective mass nouns. For these nouns the claim is stronger. They obligatorily obey cumulativity. This property clusters with the fact that they resist number marking.

In sum, collective mass nouns resemble nouns heading regular mass NPs in the sense that both are syntactically singular, combine with fuzzy and universal quantifiers and they have cumulative references.

Unlike for regular mass readings, however, for collective mass nouns the mass syntax co-occurs with an item-based measure of quantity, on a par with plural NPs. This was shown in an experiment by Barner and Snedeker (2005). Informants were presented a picture of one large shoe, one large spoon and one large portion of toothpaste next to pictures of three tiny shoes, three tiny spoons and three tiny portions of toothpaste. When the informants were asked: “Who has more shoes?” the informants picked the picture showing the three small shoes. For plurals, more small items count as more than one big item. Reversely, when they were asked: “Who has more toothpaste?”, they judged the one large portion to be more than the three little portions. Interestingly, the question “Who has more silverware?” was answered by pointing to the picture with three tiny spoons. To conclude, the experiment showed that collective mass nouns⁸ behave on a par with plurals and not with regular mass readings. Their reference domain is structured into individuals, whose number provides the standard of size, just like plural NPs.

Because collective mass nouns refer to salient individuals, they do not obey divisiveness, whereas regular mass readings do. Divisiveness is defined in (19).

$$(19) \text{ P is divisive iff } \forall x [P(x) \rightarrow \forall y [y \leq x \rightarrow P(y)]]$$

Regular mass readings observe divisiveness, which states that if a predicate holds for a referent it also holds for all of its parts (Krifka 1989). For example, a subset of a certain amount of sugar is still sugar. This property, however, does not carry over to collective

⁸ Collective mass nouns are called object-mass nouns by Barner and Snedeker (2005).

mass nouns. They have salient subparts that cannot be divided any further. The collective noun *cutlery* can serve as an example in this respect. Although one item of cutlery, say a fork, is still cutlery, it is doubtful whether one tooth of a fork can still be called cutlery.

The non-divisivity of collective mass nouns results from the fact that they are atomic. In other words, they refer to salient individuals. Atomicity is defined in (20) (Moltmann 1997:17).

(20) a. *Definition of an atom*

a is an atom in a set *X* iff $(\neg \exists x)[x \in X \wedge x < a \wedge x \neq a]$.

b. *Definition of atomicity*

A set *X* is atomic iff $\forall x [x \in X, x = \cup Y]$ for a set *Y* of atoms in *X*.

An atom is the smallest part a certain predicate can refer to and an NP is atomic if it refers to sums of atoms. This semantic property holds for collective mass nouns. They refer to collections of salient individual items as Barner & Snedeker (2005) have shown (see above)⁹.

A final characteristic which sets collective mass nouns apart from other nouns which occur in a mass NP is the resistance to occur in a count NP. In other words, collective mass nouns are not malleable, they are syntactically mass and therefore exclude count readings. Example (21) shows collective nouns in a mass reading; (22)-(23) illustrate the illicitness of the count reading. The indefinite determiner triggers a count reading in (22), whereas in (23) the numeral and the plural suffix force a count reading.

⁹ Gertjan Postma points out that the fact that collective mass nouns are both cumulative and atomic gives rise to a curious effect. Such nouns refer to a set of individuals of which it is left implicit whether this set contains a singular atom or a plurality. In other words, collective mass nouns have neither a singular denotation nor a plural one. They share this property with nominalized past participles (which arguably can be analyzed as collective mass nouns as well), such as *het verworvene* 'the possessions' (Lit. the acquired).

(21) veel ondergoed / zilverwaar / huiswerk [mass]

much underwear / silverware / homework

‘much underwear/silverware / homework’

(22) * een ondergoed / zilverwaar / huiswerk [count]

a underwear / silverware / homework

(23)* drie ondergoed(er)en/zilverwaren/huiswerken [count]

three under-GOOD-PL / silver-WARE-PL / home-WORK-PL

This lack of malleability is not found for other nouns. Any noun heading a mass NP - apart from collective mass nouns- can occur in a count NP too (this effect is known as the Universal Sorter, see Bunt 1985:11)¹⁰.

(24) veel bier / water / vernis [mass]

much beer / water / varnish

‘much beer / water / varnish’

(25) een helder bier / water / vernis [count]

a clear beer / water / varnish

‘a clear (kind of) beer / water / varnish’

(26) drie heldere bier-en/water-s / vernis-en [count]

three clear beer-PL / water-PL / varnish-PL

¹⁰ Some roots are found more frequently in a count reading and others are more natural in a mass reading. De Belder (2011b) argues that this effect is not due to syntax, but to an interference of Encyclopedia.

‘three clear beers / waters / varnishes’

The examples discussed so far show that Dutch collective mass nouns get bona fide mass readings, both from a syntactic and from a semantic point of view. Nevertheless, they refer to a collection of salient individual items¹¹. In this respect they differ from nouns heading ordinary mass NPs. The conclusions are summarized in the table below.

(27)

	REGULAR MASS NP	COLLECTIVE MASS NP
syntactically singular	+	+
allows for fuzzy & universal quantifiers	+	+
cumulative	+	+
salient individuals	-	+
divisive	+	-
N of NP is always mass	-	+

The most righthand column in the table above should be interpreted as a definition of collective mass nouns. The table shows those features which characterize a specific class of nouns for which these properties cluster. A word is thus a collective mass noun if and only if it shows all features summed up in the most right hand column of the table in (27).

¹¹ Chierchia (2005) calls collective mass nouns ‘fake mass’ because they are syntactically mass, but pattern with count structures from a semantic point of view as they are atomic. See also Ware (1979) on the count-like meaning of collective mass nouns.

Recall from the introduction that the goal of this article is to discuss a class of nouns which at first sight seem to falsify the Exo-Skeletal Model. The Exo-Skeletal Model predicts that all roots can be used in all syntactic contexts. Yet, some nouns, which I called collective mass nouns, do not show this kind of flexible behavior. They only occur in mass NPs. They rigidly have the features listed in the most righthand column of (27) and these features cannot be overridden by the context. The fact that a specific class of nouns are rigidly marked with certain properties, such as the ones in (27), constitutes the empirical observation which will be accounted for in this article.

In the remainder of this article, I show that these characteristics of collective mass nouns follow from their morphological structure. I argue that they contain a derivational affix which is marked with specific syntactic features. The next section addresses the fact that these nouns are morphologically complex.

3. Polysyllabic collective mass nouns are derivations

This section shows that collective mass nouns are derivations morphologically. It is first argued that they are morphologically complex. I then refute that the righthand part realizes a grammatical functional head and argue against the possibility that they are compounds. Finally, I show that a derivational analysis correctly accounts for the data. The conclusion is that collective mass nouns are derivations.

3.1 *Collective mass nouns are morphologically complex*

Dutch collective mass nouns may be clearly morphologically complex. They typically end in the following morphemes: *-schap*, *-goed*, *-waar*, *-werk*, *-(er)ij*, *-gerei*¹², *raad*, *-air*,¹³...

Examples are given in (28)-(42).

(28) de koop-waar¹⁴
the buy-WARE
'the merchandise'

(29) de smokkel-waar
the smuggle-WARE
'the contraband'

¹² Northern Dutch informants prefer the form *-gerei*, Southern Dutch informants prefer *-gerief*.

¹³ In West-Flemish dialects, the suffix *-erij* is commonly used as a collective suffix. Blankenberge Dutch, for example, has the following derivations: *koterij* /kɔtəriə/ 'the collection of small rooms and porches which did not originally belong to a house, but which were attached later on' (Lit. shack-ery). and *bedderij* /bɛdəriə/ 'bed linen' (Lit. bed-ery), amongst many others.

¹⁴ Words with *-waar* as their righthand part are of common gender in Dutch. However, a Google search makes clear that there is a slight tendency to assign neuter gender to them.

- (30) de eet-waar
the eat-WARE
'the food'
- (31) het huis-werk
the house-WORK
'the homework'
- (32) het vlecht-werk
the plait-WORK
'the wickerwork'
- (33) het aarde-werk
the earth-WORK
'the ceramics'
- (34) het speel-goed
the play-GOODS
'the toys'
- (35) het bed-e-goed
the bed-LINKING VOWEL-GOODS
'the bed linen'

(36) het klein-goed
the small-GOODS
'the small pastries and cookies'

(37) het schrijf-gerei
the write-WARE
'the stationery'

(38) het naai-gerei
the sew-WARE
'the things one needs to sew'

(39) het vis-gerei
the fish-WARE
'the fishing tools'

(40) het gereed-schap¹⁵
the ready-SHIP
'the tools'

¹⁵ It is not clear what the correct gloss for *gereed* is. The word etymologically refers to being ordered and installed (cf. the English word *ready*). By extension it equally refers to having all the necessary tools to start a task. The word *gerei* is derived from this word (see De Vries & te Winkel 2001 lemma GEREED).

(41) de kled-ij¹⁶

the cloth-ERY

‘clothing’

(42) de huis-raad

the house-GOODS

‘the household goods’

(43) het sanit-air

the sanit-ARY

‘the plumbing and sanitary facilities’

(44) het meubil-air

the MEUBIL-ARY

‘the furniture’

The question immediately arises what the status of these morphemes is¹⁷. Three options readily come to mind: (i) they realize grammatical functional heads, (ii) they are the righthand part of a compound, i.e. they are roots, or (iii) they are derivational affixes, i.e. they realize categorial heads. In the remainder of this section I discuss each option in turn. The conclusion will be that these morphemes are derivational suffixes.

¹⁶ A reviewer points out that not all speakers treat *kledij* ‘clothing’ as a collective mass noun in Dutch, in that they allow a plural for this noun. In the remainder of this article it will become clear that such variation does not pose any problems for the analysis.

¹⁷ Some of these morphemes, such as *-schap* en *-werk*, are not restricted to collective mass nouns (e.g. *wetenschap* ‘science’). Other morphemes can even occur freely without having collective properties (e.g. *werk* ‘work’, *goed* ‘stuff’ and *waar* ‘items’). These nouns can be pluralized when used as a free morpheme. In De Belder (2011a) I discuss these cases extensively and I analyze them as semi-lexical vocabulary items. (See further Beard 1995 on the universal fact that affixes realize a wide array of semantics and see Lieber 2004 on the semantic range of collectives).

3.2 Collective suffixes do not realize grammatical functional heads

In the previous section we have seen that collective mass nouns are morphologically complex. In this section I argue against the possibility that the righthand part realizes a grammatical functional head.

In what follows I adopt Borer's (2009) bifurcation between grammatical and lexical functional heads. Grammatical functional heads project a functional node. Such nodes include inflectional heads such as plural or tense marking and other grammatical heads such as a D⁰ head. Grammatical functional heads are interpreted fully compositionally and regularly. Lexical functional heads realize a categorial head. In traditional terms they are often referred to as derivational heads. The interpretation of such heads is subject to irregularity and non-compositionality.

I argue against the hypothesis that collective morphemes are suffixes which realize grammatical functional heads. I will present two arguments. First of all, collectives can get non-compositional meanings. Examples (45)-(47) serve as an illustration of this fact.

(45) gereed-schap

ready-SHIP

'tools'

(46) linnen-goed

linen-GOODS

'linen' (can be made of cotton)

(47) leeg-goed
empty-GOODS
'return bottles'

As compositionality is the hallmark of grammatical functional heads, the non-compositional meanings of the above examples would be highly problematic under such an analysis.

The second argument concerns the fact that many lexical gaps can be found in polymorphemic collectives. Example (48) shows a well-formed and frequently attested noun. The new formations in (49)-(51), however, do not occur, although they are highly plausible from a semantic or pragmatic point of view.

(48) speel-goed
play-GOOD
'toys'

(49)* studeer-goed
study-GOOD
Intended: 'study material'

(50)* sport-goed
sport-GOOD
Intended: 'sport material'

(51)* schilder-goed

paint-GOOD

Intended: 'painting material'

Such lexical gaps are suspect under an analysis which proposes that these suffixes realize grammatical functional heads, as such heads are characterized by a high degree of productivity. In conclusion, the non-compositionality and the fact that this word formation process is not fully productive are incompatible with an analysis according to which collective mass nouns are the product of the merger of a grammatical functional head. I therefore reject this hypothesis.

3.3 Polymorphemic collective mass nouns are not compounds.

In the previous section we have seen that the righthand part of collective mass nouns does not realize a grammatical functional head. This leaves us with the hypothetical possibilities that they are compounds or derivations. In this section I refute the hypothesis that they are compounds.

A textbook distinction between compounding and derivation is that compounds are prototypically built up of free morphemes and derivations of bound morphemes. Collective mass nouns, however, show both types of morphemes as their righthand part (e.g. *-werk* can be used as free morpheme, whereas *-ij* cannot). Moreover, it has been pointed out that compounding occasionally allows for bound morphemes, such as the *berry*-morphs, as in (53). Derivation sporadically seems to employ a free morpheme, such as *weg* 'way' in Dutch (see (54)), which is used to create adverbs as in (55).

(52) cranberry

(53) * *cran*

(54) *de weg*
the way
'the way'

(55) *simpel-weg*
simple-way
'simply'

(53) shows that the morpheme *cran* as in *cranberry* does not occur independently. (54)-(55) illustrate that *weg* 'way' occurs both as a free and bound morpheme. As such, the free or bound status of the righthand morphemes in collectives is uncertain.

The formation of endocentric compounds with a noun as the righthand part is fully productive in Dutch (Booij & Van Santen 1998:150; Booij 2002: 142; De Haas & Trommelen 1993:370). An example is given in (56).

(56) *tafel-laken*
table-cloth
'table cloth'

(56) is a nominal endocentric formation with the righthand part as the head: a tablecloth is a type of cloth. If collective mass nouns were such compounds, they should be fully productive. This expectation, however, is not borne out, as the previous section has demonstrated. The unproductivity of collective mass nouns can further be illustrated by the following test. Highly productive processes often allow for a full syntactic phrase as

its lefthand part in Dutch (see Booij 2002: 123 and 142). A case in point are endocentric nominal compounds (Booij 2002:143).

- (57) bruin-e-suiker-fabriek
brown.MASC.SG-sugar-factory
'factory which produces brown sugar'

If collective mass nouns were nothing but endocentric nominal compounds, the two should behave on a par, contrary to fact. Consider, for example, the collective noun *suikerwerk* 'confectionery', illustrated in (58). If this collective noun were a compound, it should allow for an [[AN]N] structure, contrary to fact. This is shown in (59)¹⁸.

- (58) het suiker-werk
the sugar-WORK
'the confectionery'

- (59)* het bruin-e-suiker-werk
the brown-MASC.SG-sugar-WORK
Intended: 'the brownsugar-based confectionery'

It may be clear from the lexical gaps and the above example that collective mass nouns are not productive in Dutch. This unproductivity is unexpected under a compounding analysis.

¹⁸ A reviewer points out that not all compounds may allow for this recursive pattern. Indeed, compounds which get an idiomatic interpretation may lose their idiomatic interpretation and therefore become nonsensical. For example, the compound *zakgeld* 'pocket money' is not interpretable when *zak* 'pocket' is modified by an adjective, e.g. **kleinezakgeld* (Lit. [[small pocket] money]). However, if *suikerwerk* were a compound, there would be little reason to assume that it gets an idiomatic interpretation. It is very transparent semantically.

Summing up, in this section I have shown that the unproductivity of collective mass nouns cannot be reconciled with a compounding analysis. In the previous section I showed that the collective morpheme does not realize inflection either. This leaves us with only one possibility left; they are derivations. In the next section I discuss this option and show that this analysis fits the data.

3.4 Polymorphemic collective mass nouns are derivations¹⁹

In the two previous sections we have seen that collective mass nouns show lexical gaps (see example (49)). Lexical gaps are not at all surprising under a derivational approach, as many derivational processes are known to be unproductive²⁰. As a consequence, these data are immediately captured under the assumption that collective mass nouns are derivations and that collective mass suffixes realize lexical functional heads as defined in section 3.2. Note that the degree of productivity of collective mass affixes varies. Some (semi-)suffixes, such as *-ij* and *-raad*, combine with only a few roots, others, such as *-waar* and *-werk* attach to a larger group (e.g. *eetwaar* ‘food’, *handelswaar* ‘merchandise’, *smokkelwaar* ‘contraband’, *koopwaar* ‘merchandise’, *winkelwaar* ‘shop goods’, ...). In this respect collective suffixes do not deviate from other derivational suffixes.

Another property of collective mass nouns which can be understood under a derivational approach is the fact that the selection of the precise suffix is determined by convention. This is a well known property of derivation. In English, for example, several nominalizing suffixes are in competition to form a noun expressing a quality from an adjective. *Sincere* takes *-ity* to form *sincerity*, *jealous* selects *-y* to form *jealousy* and others, such as *sad*, just take the default *-ness*. The specific choice is unpredictable; I shall take it

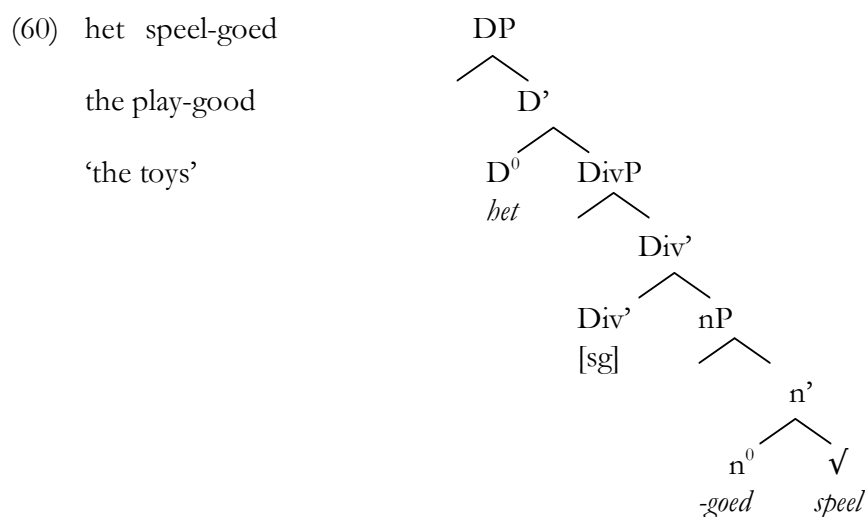
¹⁹ I assume that some of them are suffixes (such as *-ij*), whereas others are semi-suffixes (e.g. *-werk*) (see Marchand (1969:356-358) and Lieber (2005:40) on *-ware* as a semi-suffix in English). No theoretical consequences follow from this distinction in the present model.

²⁰ Examples of unproductive suffixes in Dutch are *-in* which derives female nouns (e.g. *koningin* ‘queen’) and the agentive suffix *-(l)ing* (e.g. *zuigeling* ‘newborn baby’ Lit. suck-ling). See de Haas & Trommelen 1993 for a plethora of examples.

to be dependent upon convention²¹. In the same vein, we have the conventionalized Dutch collective mass nouns *ondergoed* ‘underwear’, *kleedij* ‘clothing’ and *schrijfgerei* ‘stationery’, but not the new forms **onderwaar*, **kleedgoed* or **schrijfraad*.

Finally, note that the semantic notion of collectivity is often found in other types of derivation than the one under discussion here. In English, collectivity can be expressed, for example, by *-ity* as in *humanity* or by *-age* as in *plumage*. In Dutch it can be realized by *-dom* as in *mensdom* ‘humanity’, by *-age* as in *pluimage* ‘plumage’ or *-schap* as in *nalatenschap* ‘inheritance, heritage’, amongst others. I propose to consider the collective mass nouns under discussion here as a specific subset of such derived collective nouns, i.e. as derived collective nouns which have the extra syntactic property of being mass.

I will treat the collective mass suffix as an instance of n^0 , simply because it always and only derives nouns (see also Lieber 2004:40-43 and 148-151). The precise structure of a Dutch collective mass noun is given in (60)^{22,23}.



²¹ As an anonymous reviewer points out, the derivations may show semantic opacity. For example, the denotation of *buis* as a concrete object is not necessarily present in the derivation *buiswerk* ‘homework’. This is expected under a derivational approach and certainly compatible with the Exo-Skeletal Model; derivational structures are only interpreted when finished (cf. Borer 2009).

²² For ease of exposition I simplified the functional structure of the DP somewhat.

²³ DivP hosts number marking. Borer (2005a) suggests that the definite article may realize this head. It may as well be assumed that an empty morpheme realizes this head. Nothing depends on it in this article.

In the above structure, the lefthand part of the bimorphemic collective noun is treated as the root, and the collective mass suffix is a realization of the n^0 head²⁴.

4. Monosyllabic collective mass nouns

As pointed out in the previous section, the overwhelming majority of Dutch collective mass nouns are polymorphemic. In this section, I address the small minority of collective mass nouns that are monosyllabic and therefore less transparent qua morphological structure. I argue that they also contain a collective suffix. In other words, they are polymorphemic too, despite appearances. Consequently, they are analyzed on a par with the collective nouns above which are clearly polymorphemic, i.e. as derivations.

Monosyllabic collective nouns are rare in Dutch. The set has probably fewer than ten members. All members of this class known to me are listed below.

(61) het fruit²⁵
the fruit
'the collection of fruits'

(62) het kroost
the offspring
'the offspring'

²⁴ I assume that the surface order of the morphemes results from morphological reordering in the post-syntactic morphophonological component of the grammar (see Embick & Noyer 2001).

²⁵ Standard Dutch distinguishes between the collective noun *fruit* 'fruit' and the pluralizable noun *vrucht*, which refers to a piece of fruit. Archaically, *fruit* 'fruit' was both used as a collective noun and as a pluralizable synonym for *vrucht*. It is still used as such by a small minority of speakers.

(63) het vee
the livestock
'the livestock'

(64) het aas
the bait/carrion
'the bait/carrion'

Although the first two examples are monosyllabic, they may well be overtly polymorphemic. They end in a *-t*, which is an unproductive, but nevertheless *bona fide* Dutch suffix²⁶. The suffix *-t* can get a wide variety of meanings and is associated with both common and neuter gender (de Haas & Trommelen 1993:246). Some examples of derivations with this suffix are given below²⁷.

(65) de vaar-t
the sail-T
'the speed/navigation/canal'

(66) het span-t
the stretch-T
'the rafter'

(67) het zich-t
the see-T

²⁶ The archaic Dutch collective mass noun *oofst* 'fruit' may contain the same collective mass suffix *-t*.

²⁷ The morpheme *zich* is an allomorph of *zie* 'see', *half* is an allomorph of *half* 'half'.

'the view'

(68) de helf-t

the half-T

'the half'

(69) de buur-t

the neighbor-T

'the neighborhood'

As the *-t* is a Dutch suffix, the child is able to recognize examples (61) and (62) as derivations.

Finally, I argue that the remaining collective mass nouns, *vee* 'livestock' and *aas* 'bait/carrion' are marked with a zero affix which fulfills the same role as the overt collective mass nouns. This is depicted in (70).

(70) het vee-∅

the livestock-∅

'the livestock'

Note that it is not uncommon that overt and null affixes express the same meaning.

Consider the following examples. Standard Dutch employs the overt suffix agentive *-er* to form the Dutch word for pharmacist, as in (71).

(71) Hij is apotheek-er.

he is pharmacy-er

‘He is a pharmacist.’

Blankenberge Dutch, on the other hand, uses a null nominalizing head to derive a word with the same agentive meaning.^{28,29}

(72) Hij is apotheek.

[Blankenberge Dutch]

he is pharmacy-∅

‘He is a pharmacist.’

Conversely, Blankenberge Dutch uses an overt morpheme to derive the word that refers to a store where medicinal drugs are sold, as can be seen in (73).

(73) De apotheek-erije is afgebrand.

[Blankenberge Dutch]

The pharmacy-ERY is off.burned

‘The pharmacy burned down.’

In this case, however, Standard Dutch displays a null affix, as is illustrated in (74).

²⁸ I would like to thank Katlijn Van Audenaerde en Monica Roose, both native speakers of Blankenberge Dutch, for providing these data.

²⁹ I adopt the standard view from Distributed Morphology that each lexical item is combined with a categorial head (Harley & Noyer 1999). Moreover, these categorial heads may come in different varieties, i.e. so-called flavors (Folli & Harley 2005 and Harley 2009).

(74) De apotheek-Ø is afgebrand.

The pharmac-Ø is off.burned

‘The pharmacy burned down.’

Similarly, within one variety of Dutch overt and null affixes can have a similar function too. First consider the examples in (75)-(76) which refer to place names³⁰. They show that *Mechel* and *Zweed* are roots in Dutch. In these examples the root combines with the affix *-en* which is used to derive place names.

(75) Mechel-en

Mechel-en

‘Mechelen’

(76) Zweed-en

Sweed-en

‘Sweden’

From these roots the name of the inhabitant of the place can be derived too.

Interestingly, in (77) this is done by means of an overt affix, viz. *-aar* ‘-er’. In (78), in contrast, a null affix is used. The examples therefore illustrate that overt and null affixes can serve similar purposes.

(77) Mechel-aar

Mechel-AAR

‘inhabitant of Mechelen’

³⁰ *Mechelen* is a Belgian city.

(78) Zweed-∅

Sweed-∅

‘inhabitant of Sweden’

The above examples show that overt and null affixes can express the same semantics. I therefore propose to assume the collective mass suffix has a null variant too.

Having established that a null vocabulary item may realize a collective noun, I propose that the collective nouns in (63) and (64) should be analyzed on a par. Although overtly they show only one morpheme, I propose that they contain a collective zero morpheme, as in (79) and (80)³¹³².

(79) het vee-∅

the livestock-∅

‘the livestock’

(80) het aas-∅

the bait/carrion-∅

‘the bait/carrion’

³¹ A reviewer asks whether these forms can be verbalized. There is a verb *azjen* ‘to feed/ to eat/ to search for food / to desire’. The hypothetical verb *veein* does not seem very good to me, but I do not know whether I should ascribe this to syntax or to pragmatics (see Clark & Clark 1979 on pragmatic constraints on noun-verb conversions). It is always possible that a zero verbalizing head merges above the root or even above the nominalizing head. Such stacking of categorial heads is run-of-the-mill in derivation.

³² The morpheme *gerief* can occur independently as a collective mass noun too. Gertjan Postma suggested that *gerief* is complex by and of itself: it may be analyzed as a combination of a root *-rei* and a derivational morpheme *ge-*. The morpheme *waar* behaves on a par with *gerief*: it can be used as a collective mass noun too. Presumably, the morpheme *waar* is not the collective morpheme. Its collectiveness may be ascribed to a null morpheme.

The neuter gender of these words support the proposed morphemic structures. The reader may have noticed that the greater part of the collective nouns take the neuter article *bet* (see the examples (31)-(44) and footnote 13). For reasons which are not clear to me, collective mass suffixes tend to trigger neuter gender. Beard (1995) notices in this respect that it is often the case in languages that suffixes which express comparable denotations are marked with the same gender³³. It is therefore probably no coincidence that both *vee* ‘livestock’ and *aas* ‘bait/carrion’ take the neuter definite article; this gender is associated with the collective mass suffix. As such, the gender of these nouns supports the structure proposed in (79) and (80).

Summing up, in this section I proposed that collective mass nouns with only one overt morphemes are derivations too; they take a null nominalizing head.

³³ Beard (1995:79) observes, for example, that in many Indo-European languages the majority or all of the suffixes which primarily denote abstractness, such as French *-té*, Dutch *-heid* and *-iteit* and German *-heit* are feminine. See Beard (1995:79) for a careful discussion and further examples.

5. The analysis: The semantics of the collective mass suffix

5.1 The feature [atomic]

In the previous sections I suggested that it is the derivational nature of collective mass nouns that gives rise to their characteristics. Recall from section 2 that collective mass nouns invoke singular mass readings just like regular mass readings. Nevertheless, they refer to salient individuals. Moreover, they form a set of nouns which are not malleable. More specifically, they are illicit in a count structure and force a mass reading. In this section I discuss how the properties of the derivational suffix can give rise to their specific behavior. To be concrete, I propose that the derivational suffix realizes the feature [atomic] and I show that all properties of collective mass nouns follow from the effect of this single feature.

Let us start with the fact that collective mass nouns strongly resist a count reading. The examples are repeated in (81)-(82). Example (81) shows the noun *suikerwerk* ‘confectionery’ in a mass reading, whereas (82) illustrates an illicit count reading.

(81) veel suiker-werk [mass]
much sugar-WORK
much confectionery

(82)* drie suiker-werk-en [count]
three sugar-WORK-PL

It is clear that it is not the root *suiker* which causes this restriction. Nothing prohibits *suiker* ‘sugar’ from occurring in a count reading, as is illustrated in (83).

- (83) drie suikers: fructose, glucose en saccharose [count]
 three sugars: fructose, glucose and saccharose
 ‘three sugars: fructose, glucose and saccharose’

As the restriction does not come from the root, I propose that it stems from the derivational suffix. The derivational suffix apparently realizes a feature which blocks a count structure. In what follows I propose that this feature is [atomic].

Recall from section 2 that there are two types of mass NPs. Collective mass NPs exist alongside regular mass NPs. It was shown in that section that they are semantically distinguished by the fact that collective mass nouns refer to salient individuals, whereas nouns heading regular mass NPs do not. As is well-known, regular mass NPs result from the absence of number marking or classifiers in a given structure (Doetjes 1997, Borer 2005a). An example of such a mass reading is given in (84).

- (84) veel suiker
 much sugar
 ‘much sugar’

In the absence of number marking or classifiers as in (84), the default reading is a mass reading (Borer 2005a). The default option allows for all nouns to be interpreted as mass. The famous example from Gleason (1965:136-137), which is given in (85), is illustrative in this respect.

- (85) Mother termite is concerned over her child: “Johnny is very choosy about his food. He will eat book, but he won’t touch shelf.”

This effect was recognized by Pelletier (1979:5-6) and called the universal grinder. In examples like (85), the noun always gets a ground reading. Such ground structures are characterized by divisiveness (see section 2). I take it that the divisive mass reading is the default mass reading, whereas the atomic one established by collective mass nouns is a marked mass reading. I will therefore say that the collective suffix carries the feature [atomic]; this feature causes the salient subparts to be understood as the atoms.

In other words, the semantic difference between the two mass readings is reflected syntactically. The regular mass reading results from the absence of a count structure, the collective one comes from the presence of a feature [atomic]. Below I propose that this feature blocks both the default mass reading and number marking. In other words, it is both anti-divisive (i.e. it blocks divisiveness) and anti-count.

Collective mass nouns never get the default ground interpretation. Recall that the ground interpretation is the default interpretation. As collective mass nouns are marked for atomicity, they are too specified to get the default reading. In other words, the feature [atomic] blocks the default mass reading as it brings precise information on the make-up of the mereological structure of the referent of the noun into the structure. As such, it blocks a ground mass reading.

The feature [atomic] equally blocks a count structure. In what follows I adopt Borer's (2005a) proposal that count structures are derived by the presence of a classifier projection. This projection is called the divider or DivP. Cross-linguistically, it can be realized as plural marking or as a classifier. Semantically, it creates an infinite number of reticules on unpartitioned stuff. In other words, it provides molds that allow the mass stuff to be counted. Recall that the default interpretation of a noun is mass, i.e. undivided stuff. The dividing head thus provides possible divisions of this stuff. I propose to adopt Borer's proposal as literally as possible; the Div⁰ head imposes a division on unpartitioned stuff. It immediately follows that the Div⁰ head cannot be built on top of

the feature [atomic]. Once the feature [atomic] is merged, the stuff ceases to be unpartitioned. As such, it follows that it cannot serve as a possible input for the Div^0 head which solely modifies unpartitioned stuff.

Note that semantically the head which is realized by means of collective suffixes is similar to the Div^0 head as both serve to identify atoms in the reference domain of the root. However, syntactically the two heads differ greatly; the head which hosts the feature [atomic] is a lexical functional head, the Div^0 head on the other hand is a grammatical functional head (see section 3.2). Below I discuss that they therefore differ in their ability to interact with other heads which are required to derive a count NP.

Let us first consider the Div^0 head in more detail. The Div^0 head is part of the functional domain of the nominal projection. Although it serves to divide stuff, it does not create individuals in and of itself. According to Borer (2005a:122) individuals rather result from the interplay between the dividing head Div^0 and the counting head $\#^0$. More specifically, the counting head $\#^0$, which is realized by means of a quantifier or a cardinal, picks individuals from among the division which is created by Div^0 . As such, count NPs are defined by the presence of both Div^0 and $\#^0$. This is illustrated in (86) for the count NP *the three cats*³⁴.

(86) [_{D°} the [_{#°} three [_{Div°} -s [_N cat]]]]

In sum, the Div^0 head is a grammatical functional head which divides stuff into units in the nominal domain. This head can be selected by the counting head $\#^0$. In the presence of both heads a count NP is derived.

³⁴ In the absence of $\#^0$ the merger of Div^0 results in bare plurals. In the absence of Div^0 the merger of $\#^0$ results in quantized mass NPs.

Now recall that it was argued above that the head which is realized by a collective suffix is an instance of a lexical functional head. Being a derivational head, it is not part of the grammatical functional domain of the noun by definition. Syntactically, it therefore has a different status than the Div^0 head, which is part of the noun's functional domain. Whereas Div^0 can interact with other heads in the nominal functional domain, I assume this does not belong to the possibilities for the collective head.

It has been observed that grammatical functional heads and lexical functional (i.e. derivational) ones belong to different realms semantically. Whereas the meaning of grammatical functional heads is fully compositional, the interpretation of lexical functional heads is subject to non-compositionality (Marantz 1996, Borer 2009). In other words, whereas the functional domain derives its meaning from logical form, the derivational domain gets its meaning from a learned list, called encyclopedia. One could formalize this difference by assuming that grammatical functional heads block encyclopedic search, hence only the root and lexical functional heads can be interpreted non-compositionally (Borer 2009). Alternatively, one can assume that lexical functional heads are phase heads. They are therefore never in the same derivational cycle as grammatical functional head and thus cannot form an idiomatic unit with such heads (Marantz 2001). For the purposes of this article, nothing hinges on the precise execution of the idea that grammatical functional heads and lexical functional heads cannot belong to the same interpretational unit. It suffices to acknowledge that $\#^0$ cannot interact with the collective nominalizing head to create a count NP. The feature [atomic], which is present on the collective nominalizing head therefore has the side-effect of being anti-count (cf. anti-telicity effects in the verbal domain in Borer 2005b). As such, collective suffixes realize lexical functional heads that affect the amount of structure than can be merged in the grammatical functional domain of the noun (cf. Folli & Harley 2005; Kallulli 2007 for a comparable approach in the verbal domain).

5.2 Another mass affix

Support for the claim that derivational affixes can have anti-count effects comes from the existence of a bona fide affix which has the same effect. In this section I show that collective mass suffixes are not an isolated case in blocking count structures. There is an affix in Dutch which shows similar behavior. This prefix is *ge-*. It serves to create abstract, pluractional eventive nouns³⁵. These nouns can be paraphrased as ‘the continuous or repetitive action in which the denotation of the root is involved’ (as in (87)-(90))³⁶. The process is highly productive (see De Haas & Trommelen 1993:85 for more details)³⁷.

(87) het ge-tik van de klok
 the GE-tick of the clock
 ‘the ticking of the clock’

(88) het ge-maar van mijn collega
 the GE-but of my colleague
 ‘the endless objections of my colleague’

(89) het ge-babbel van de studenten
 the GE-babble of the students
 ‘the babbling of the students’

³⁵ The prefix *ge-* has homonyms that serve different functions in Dutch (see De Haas & Trommelen 1993). I disregard those here.

³⁶ In traditional morphological descriptions it is mentioned that *ge-* attaches to verbal stems, causing an example like (88) to be an exception. In the Exo-Skeletal Model, it would be said that *ge-* assigns an eventive status to the root with which it combines (see Borer 2009). The Exo-Skeletal Model thus does not need to assume that example (88) is an exception to the rule.

³⁷ These derivations often have a pejorative connotation, as in (88) and (89), but this is not necessarily the case (see (87) and (90)).

- (90) het ge-fluit van de vogel-tje-s
the GE-whistle of the bird-DIM³⁸-s
'the whistling of the birds'

Crucially, such derivations are highly deviant in count structures. Examples are given below. Note that the cardinal numeral and the plural marking force a count reading in these examples.

- (91) *de duizend ge-tik-en van de klok
the thousand GE-tick-PL of the clock

- (92) *de twintig ge-maar-en van mijn collega
the twenty GE-but-PL of my colleague

These examples can be analyzed on a par with the collective mass nouns in section 5.1.

I take it that *ge-* expresses pluractionality and I adopt the view that pluractionality is a pluralization of events, where the events can be understood as individual atoms and the pluralization of events yields a mass interpretation (Yu 2003: 304). If we thus assume that the prefix *ge-* carries the features [atomic] and [eventive], it cannot serve as an input for the dividing head for the same reason that collective mass nouns cannot. The feature [atomic] imposes a division and the dividing head can only operate on undivided stuff.

This analysis shows that derivational processes may restrict the nature of the grammatical functional structure above it, in that affixes may be marked for features which block count projections. As such, it supports the view according to which it is the

³⁸ DIM = diminutive

derivational status and the [atomic] feature of the collective mass suffix which gives rise to its ungrammaticality in a count structure.

6. Collective mass nouns cross-linguistically

In some language collective nouns can be pluralized regularly. Hungarian, for example, does not have collective nouns which resist plural marking (Adrienn János p.c.). Hebrew collective nouns behave on a par (Borer 2005:103fn14). The same holds for French (Amélie Rocquet p.c.) as illustrated in the examples below.

(93) deux lingerie-s
two underwear-PL
'two types of underwear'

(94) deux argenterie-s
two silverware-PL
'two types of silverware'

The examples above show that collective nouns can occur in a count reading in French, i.e. they can take a cardinal and plural marking. This shows that although French has nouns with a collective denotation, they are not collective *mass* nouns.

Collective mass nouns are therefore a language-specific phenomenon³⁹. I assume that variation comes from the fact that languages may select a subset from the universal set of UG features (Iatridou 1990). Languages which do not have collective mass nouns lack the feature [atomic] as a functional feature. Note that this line of reasoning gives us an

³⁹ German does not seem to have collective mass nouns. German collective nouns can generally be pluralized, e.g. *das Bettzeug* 'the linen', *zwei Bettzeuge* 'two sets of linen' (Bettina Grüber and Ingrid Bollaerts p.c.). Nevertheless, the German word *Obst* 'fruit' cannot be pluralized.

insight in variation in malleability across languages. Malleability depends on the presence of absence of features. When a word cannot be molded, it realizes features. When it can, it does not.

Although collective mass nouns do not occur in every language, they are not specific to Dutch. They are common in Spanish and English too. Below I show that the morphological make-up of the Spanish and English examples resembles the Dutch one. Given the similarity, there is no reason not to extend the analysis given for Dutch to the Spanish and English data.

Spanish and English collective mass nouns are, just like their Dutch counterparts, morphologically complex. The Spanish suffix which is used to derive collective mass nouns is *-ería*, as illustrated in the examples below (Ana Aguilar Guevara p.c.).

(95) *charcut-ería*
charcut-ERY
'meat products'

(96) *lenc-ería*
ling-ERY
'lingerie'

The derived nouns strongly resist count readings, as shown in (97)-(98)⁴⁰.

⁴⁰ The nouns *charcutería* and *lencería* have homonyms which refer to the shops where one can buy charcuterie and lingerie. These homonyms can be pluralized: *dos charcuterías* 'two butcher shops' and *dos lencerías* 'two lingerie shops'. This indicates that *-ería* can be used both as a collective mass suffix and as a regular nominal head. See De Belder (2011) for an elaborate account of how the same affix can realize two very different heads.

(97)* dos charcut-ería-s

two charcut-ery-PL

(98)* dos lenc-ería-s

two ling-ery- PL

I propose that the suffix *-ería* expresses the feature [atomic] and should be treated on a par with the Dutch affixes expressing this feature.

The Englishes suffixes which can realize the feature [atomic] are for example *-ure*, *-(e)ry*, *-erie*, *-wear*⁴¹ and *-ware* as shown in the examples below.

(99) furniture

(100) weaponry

(101) stationery

(102) lingerie

(103) underwear

(104) software

⁴¹ There is speaker variation in whether the suffix *-wear* creates collective mass nouns. For some speakers derivations such as *underwear* triggers plural agreement and is thus a plurale tantum (see Acquaviva 2008).

It is clear from the examples that English equally employs both suffixes (*-er*) and semi-suffixes (*-wear, -ware*) to form collective mass nouns⁴². I assume that these suffixes express the feature [atomic] which blocks the merge of the Div⁰ head. In sum, English collective mass nouns can be accounted for in a similar fashion.

7. Conclusion

In this article I have shown that Dutch collective mass nouns, both polysyllabic and monosyllabic ones, are products of derivation. I have argued that the derivational suffix realizes the feature [atomic]. Because of its semantics, this feature blocks both a ground mass interpretation and a count structure. I have extended this analysis to Spanish and English collective mass nouns.

Dutch collective mass nouns do not falsify the Exo-Skeletal claim which states that roots do not carry any morphosyntactic features. What could appear to be features on the root are in fact features added to the structure by derivation. More generally, this line of reasoning may be pursued to capture more (apparent) counterexamples against the Exo-Skeletal Model.

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⁴² The morphological make-up of the English word *cattle* is not clear to me: it might be overtly complex in which case it contains the suffix *-le* (see Marchand 1960:261) or it might contain a zero affix (on a par with the Dutch word *vee*). However, I do not know if *cattle* is a collective mass noun: it does not pattern with the other collective mass nouns as it triggers plural agreement on the verb.

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