One classy number: Linking morphemes in Dutch and German*

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1. Introduction

Germanic compounds often contain an element referred to as *linkers*, (L). These elements are homophonous with inflectional suffixes, like *plural* or *case* markers, but do not necessarily have the same meaning or function as the corresponding inflectional suffix. This is exemplified by Dutch below where, outside of compounds, *schaap* is obligatorily interpreted as plural in the presence of the plural marker, (1a). This is not the case in compounds, where *schaap* is unspecified for number interpretation in the presence of the L in (1b) and does not necessarily match the choice of inflectional suffix outside of the compound in (1c).

(1) *Dutch* (Krott et al. 2007:28)

a.	schaap -**en**	b.	schaap -**en** -bout	c.	schaap -**s** -kooi
	sheep -PL		sheep -L -leg		sheep -L -fold
	'sheep'		'sheep leg'		'sheep fold'

These L have received a wide range of analyses but typically they are analyzed as something distinct from the corresponding inflectional suffixes. In this paper however, we argue, focusing on German and Dutch, that the behavior of L follows from their structural position. Following De Belder (2013), we argue that both Ls and the corresponding inflectional affixes are class markers and that the complex behaviors observed follows from their distribution in the DP. Ls thus shed light on the feature system of the Germanic DP and their interactions. We furthermore propose that the presence or absence of L can be taken as an indicator of the size of the non-head element and thus used to disambiguate the structure of three part compounds.

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2. What is the head?

Linking morphemes/phonemes are found across the Germanic languages, and in West Germanic, they usually bear some resemblance to inflectional affixes, usually the plural affix. Typically they appear to be selected by the non-head element and often match the choice of affix outside of compounds, (Botha 1968, Augst 1975, Mattens 1984 i.a.).

The nature of this element received a wide range of analyses: They have been argued to be distinct from the homophonous inflectional suffixes, though somewhat related, where their appearance is argued to be conditioned by phonology, morphology, and/or semantics; or they have been argued to not be distinct from inflectional (plural/case/class) morphemes (e.g., Botha 1968, Augst 1975, Mattens 1984, Becker 1992, Hoekstra 1996, Clahsen et al. 1996, Booij 2001, Krott et al. 2007, Neijt and Schreuder 2009, De Belder 2013). In general, no absolute patterns have been established with respect to their distribution, hence the consensus has been that there are only tendencies with respect to their distribution. However, in this section we show that their distribution is not as ungoverned and arbitrary as is often assumed. We extend to German De Belder (2013)'s analysis of Dutch L, namely that both L and plural suffixes are class markers rather than inflectional suffixes. We also show that a containment pattern, as Mattens (1984) showed to hold for mismatches between plural and L in Dutch, is also applicable to German. Note that although we will alternatively focus on Dutch or German in the discussion below, this is only done for the sake of space. The patterns under discussion hold for both languages.

2.1 When two become one

Before establishing the identity of L we must first address the question of whether the separation of number and L is warranted. Traditionally, these elements have been argued to be distinct from each other on the basis of less determinism and inconsistent plural interpretation in the presence of L. However, we show this argument does not hold as both can be observed outside of compounding. Hence, taking seriously the fact that number and the corresponding L are consistently homophonous, the data very strongly supports treating the two elements as realizations of the same morpheme or feature(s).

A common argument for distinguishing Ls from inflectional plural markers is the fact that their presence does not obligatorily coincide with plural interpretation (Mattens 1984, Booij 2001, Neijt and Schreuder 2009). This argument, however presupposes that the presence of plural markers outside of compounds always coincides with plural interpretation. This is not the case (see, e.g., Sauerland et al. 2005). If that were so, the expectation would be that in (2), the invitation would only be to bring one's two or more children, but the invitation also extends to those with only one child, despite the presence of the plural. Hence the appeal to the obligatoriness of plural interpretation is not sufficient to distinguish L from the homophonous inflectional markers.

(2) *Dutch*
Je mag je **kinderen** meenemen
you can your children bring
'You can bring your (one or more) children'

Another argument for distinguishing between L and inflectional markers is the difference in determinism where a particular noun typically only appears with a particular plural suffix, whereas the choice of L may vary for that same noun (e.g., Mattens 1984, Becker 1992, Booij 2001, Krott et al. 2002, 2007, Neijt and Schreuder 2009), (3-4).

(3) *Dutch*

a. hond -en/*-s
dog -PL
'dogs'

b. hond- **en**- voer
dog- L- food
'dog food'

c. hond- **s**- dol
dog- L -crazy
'rabid'

(4) *German*

a. Kind- **er**- ∅
child- PL- NOM
'children'

b. Kind- **er**- computer
child- L- computer
'child's computer'

c. Kind- **s**- computer
child- L- computer
'silly/child's computer'

This difference in determinism has often been evoked as an argument for distinguishing between number marking and L. However, there are a number of instances where a single stem may take different number marker, see (5), although these alternations are much rarer outside of compounds (see, e.g, Acquaviva 2008:36ff and Donaldson 1981:34 on Dutch). Note that these alternations can also co-occur with idiosyncratic meaning.

(5) *German* (Duden.de)

a. Mütter- ∅
mother- PL
'mothers'

b. Mutter- n
mother- PL
'nut (to fasten bolts)'

Hence, the difference between L and PL seem a matter of degree. Although non-determinism and absence of plural interpretation does appear to be more common in compounding, it is not the case that these properties are limited to the context of compounding and hence they are not sufficient to distinguish between L and number marking.

Furthermore, the mismatches, as in example in (3-4), are not arbitrary: In Dutch, elements that take the *-s* plural suffix, never take the *-en* L, whereas elements taking the *-en* plural suffix may occur with the *-en* or *-s* L (Mattens 1984, Hoekstra 1996, De Belder 2013). Hence, despite mismatches, there is still a connection between the choice of plural marker and L. Likewise in German, the availability of different Ls also correlates with inflectional classes (e.g., Augst 1975, Gruber 1976). For German, in addition to the interaction with plural, there is also an interaction with case. Again, taking homophony between the different affixes seriously, the markers that occur in the context of plural other than *-s*, also occur in the context of the genitive singular. The two morpheme systems are summarized

in the following two tables, German in (6) and Dutch in (7). What can be seen from these summaries is that a) there is a subset relationship between the different markers, (8), and b) for the marked forms, the instances in which they occur as L are always a subset of the environments the selecting stems occur in.

(6) *German*

GEN.SG	PL	L
-(e)-s	-er	∅, -s, -ens, -es, -er
-(e)-s	-e	∅, -s, -ens, -es, -e
-(e)-s	-en	∅, -s, -en, -es, -e
-(en)-s	-en	∅, -ens
-(en)-∅	-en	∅, -ens, -en
-s	-∅	∅, -s
-s	-s	∅, -s

(7) *Dutch*

PL	L
-en	-en, -s, -er
-s	-s

(8) a. Hierarchy in Dutch
(-er) > -en > -s

b. Hierarchy in German
-er > -e > -en > ∅ > -s

What this shows is that not only is there a strong connection between linkers and the corresponding plural markers, but they also occur in a wider context than plural. This is consistent with De Belder (2013), where, in Dutch, these suffixes were argued to be class markers rather than plural markers.

2.2 One what?

Having established that these elements are indeed realization of the same morpheme or features, we can now turn to the identity of the suffixes. We follow De Belder (2013) in arguing that Ls in Dutch are in fact class markers and extend this analysis to German. This analysis is supported by a number of properties distinguishing between 'derivational' and 'inflectional' morphology (see, Lieber 1980, Acquaviva 2008, Kramer 2016), as class markers as such would have the status of derivational affixes. It should be noted that we do not assume that the morpheme itself inherently has the property of being derivational. We tentatively assume that the derivational properties come from the structure, in that derivational morphology occurs in a domain closer to the root than inflectional morphemes. This analysis relies on a constellation of properties as no single property is sufficient to distinguish between the two, however, when these properties are taken together, clear generalizations arise despite the considerable variation observed.

Two properties have already been mentioned in the previous subsection: the lack of determinism and co-occurrance with idiosyncratic meaning where it has been shown that these properties apply both to L and the corresponding plural suffixes.

Another expectation is that if these elements are in fact derivational in nature, they should occur in derivational contexts. This expectation is borne out. Again, taking homophony seriously, this appears to be the case with Ls which occur with adverbs, nouns and verbs (De Belder 2013, Corver to appear on Dutch). Thus, only looking at L and plurals is too narrow: in fact the usage of these affixes is quite wide-spread, and, furthermore, they all follow the same distribution which is in accordance to the hierarchies in (8).

(9) *Dutch*

a.	b.	c.
gind-**s**/-**er**	help-**en**	Zij is erg stad-**s**
there-L/L	help-n/v	she is very city-L
'over there'	'the help / to help'	'She is very metropolitan'

(10) *German*

a.	b.
leid-**er**	sprach- **en** ∼ Sprach- **e**
sad-L	speak- INF speech- N
'unfortunately'	'to speak' 'language'

These markers hence appear to be highly underspecified and can occur in a wide variety of contexts, and L and PL form only a subset of these contexts.

Derivational elements also tend to be pickier than inflectional elements as to what they attach to. This can be seen for German when number morphology is examined contrasted with case morphology. The plural suffixes are much more restricted than the case suffixes with respect to the noun they attach to. Nouns fall into particular classes with respect to their plural suffixes, specifying: the suffixes *-er, -e*, or ∅, whereas all of then take the suffix *-n* in the dative plural.

(11)

a.	b.	c.
Lamm -**er** -n	Arm -**e** -n	Väter -∅ -n
lamb -PL -DAT	arm -PL -DAT	father -PL -DAT

Only only nouns taking the *-en* and *-s* suffixes do not take the *-n* dative suffix (e.g., Stern and Bleiler 1961, Fagan 2009). The status of *-en* with respect to case can be observed in the genitive singular where either *-e* and *-en* suffixes occur in that context.

(12)

a.	b.
Arm -**e** -s	Herz -**en** -s
arm -PL -GEN	heart -PL -GEN

It hence appears that the *-en* suffix is not in competition with the case suffix. It is plausible that the absence of the dative suffix in the context of the *-en* suffix is that it is due to phonological reasons as it would result in two adjacent alveolar nasals.

Regarding *-s*, there is some evidence indicating that it's status is different from that of the other markers. First, stems that take the *-s* plural suffix do not take L in compounds (e.g., Augst 1975). So, unlike the other plurals, the *-s* plurals do not take the corresponding plural affix as a L. Second, *-s* appears to be an unmarked or default form of the plural, as is evidenced by its usage with loanwords, abbreviations and other coinages (see, e.g., Clahsen et al. 1996). Third, as the sequence of alveolar fricative and alveolar nasal is possible, as in *hos-e-n* 'pants (dat)' [hozn̩], the absence of the dative marker does not seem to be phonologically conditioned. The *-s* marker thus appears to be in competition with the dative marker, and unlike the other affixes under discussion, appears to be a true inflectional suffix.

For Dutch, this distinction is also borne out when Ls are compared to plurals although homophony between the high and the low morphemes obscures the difference. However, a clear distinction is visible with the *-er-en* plurals where the absence of homophony and makes both high and low morphemes visible (see Fenger and Harðarson 2018 for a more detailed discussion on Dutch).

2.3 Generalizations

Despite variation in the the distribution of linkers compared to plural morphemes, clear generalizations arise when their properties are contrasted. Although number in these languages is generally regarded as inflectional, when the properties of both number marking and L are compared with properties ascribed to inflectional and derivational morphology, two generalizations can be arrived at. First, number and L do not seem to significantly differ in terms of their properties. Where the two differ, it appears to be a matter of degree to which the property applies. Hence the traditional argument for separating number and L do not hold. Second, both groups of morphemes pattern with derivational affixes in terms of these properties.

We expect that the apparent arbitrariness observed in the distribution of L are due to their derivational status, that is, their occurring in a lower domain, however, we do not assume that L and the plural marker are distinct elements. Rather we argue that L and the plural markers are linked and both elements correspond to the same class markers that interact with the number system in these languages.

3. Class and number

We argue, following De Belder (2013), that these markers do not in fact spell out number features These markers are These interact with other features in the extended projection and this interaction results in the appearance of a hybrid between derivational and inflectional morphology. First, we show how the proposal works in single-stem words, and then we turn to compounds.

We assume that *n* carries a class feature and these features are in a subset relationship (following De Belder 2013). Thus, α is contained in β, and so forth. The root selects for a *n* of a particular class, and that the class features can be deleted in particular contexts but never added. This captures the fact that the mismatches observed between L and PL are unidirectional. The class-feature systems are shown in (13) for Dutch and (14) for German.[1]

(13) *Dutch class features*

-s	-en	-er	Feature
	+	+	α
		+	β

(14) *German class features*

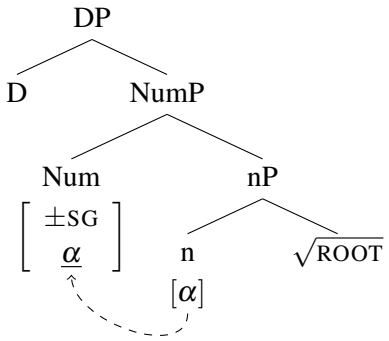
-∅	-∅	-en	-e	-er	Feature
	+	+	+	+	α
		+	+	+	β
			+	+	γ
				+	δ

We assume that the DP in Dutch and German is layered and includes at least the structure in (15), (Abney 1987, Ritter 1991 and others). Features related to number interpretation are situated in *Num* and the class feature originates on *n* and is copied onto *Num*. The root

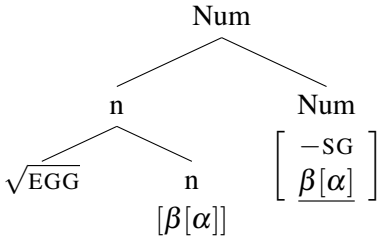
[1] Note that the two ∅ exponents for the class features in German show distinct behaviour, where the marked ∅ triggers umlaut on the root and conditions a ∅ form of Num in plural. The unmarked ∅ does not trigger umlaut and the default *-s* suffix is observed in the plural.

selects for a *n* carrying a particular feature content. The root, *n*, and *Num* come to form a complex head as illustrated for Dutch by *eieren*, (16).

(15)



(16) The structure of *eieren* 'eggs'



To illustrate the system we will first discuss Dutch and subsequently we will turn to German. We assume that the spell-out of (16) involves the vocabulary insertion rules (VI rules) shown in (17). We assume that the subset relation between the class markers can be modeled via impoverishment. Hence we assume the set of Impoverishment rules shown in (18). The rules are ordered in terms of cyclicity (from the root outward) and specificity under the subset principle, (Kiparsky 1973, Halle and Marantz 1993). The output is given in (19).

(17) *Dutch: VI rules*

a.	$\sqrt{\text{PIG}}$	→	/vɑɪkən/	d.	[β]	→	/əɪ/
b.	$\sqrt{\text{DOG}}$	→	/hɔnd/	e.	[α]	→	/ə(n)/
c.	$\sqrt{\text{EGG}}$	→	/ai/	f.	[+NOMINAL]	→	/s/

(18) *Dutch: Impoverishment rules*

a. $\beta \rightarrow \emptyset \; / \; [_{Num} \_]$
b. $\alpha \rightarrow \emptyset \; / \; [+\text{SG}]$

(19) *Spell-out of* (16)

/ai/-	/əɪ/-	/ə(n)/
egg-	n-	PL

For other classes, the initial output results in the doubling of the *-s* and *-en* suffixes, shown for *varkens* 'pigs' and *honden* 'dogs' in (20). This is not the case for the actual surface forms, hence, to account for this we propose that haplology applies to phonologically identical linearly adjacent morphemes, yielding (21). Haplology of this sort, that is sensitive to different stages of the derivation (Yip 1988), has been independently motivated for Dutch (Bennis 1980, Neeleman and van de Koot 2005, Don 2015).

(20) *Inital forms*

a.

/vɑɪkən/-	/s/-	/s/
pig-	n-	Num

b.

/hɔnd/-	/ə(n)/-	/ə(n)/
dog-	n-	Num-

(21) *Final forms*

a.

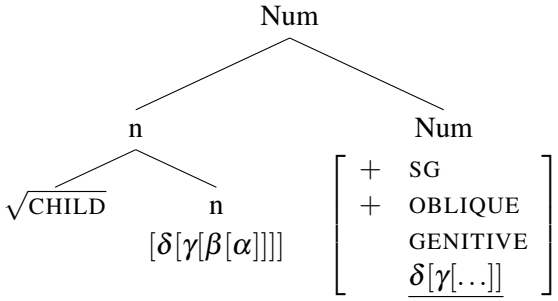
/vɑɪkən/-	/s/
pig-	PL

b.

/hɔnd/-	/ə(n)/
dog-	PL

Turning to German, we assume the same mechanism to be at work although there are two main differences: first, in German the forms of the high and low morphemes are distinct, and second, in addition to number, the class feature also interacts with case. Recall from the discussion above, that the class markers under discussion can also occur in the context of genitive singular. Hence we illustrate this through the derivation of the genitive singular form of *Kind* 'child'.[2]

(22) *The structure of* Kindes *'child (*GEN.SG*)'*



We assume the VI rules in (23) and the impoverishment rules in (24) and the output of these processes is shown in (25).

(23) *German: VI rules*

a.	$\sqrt{\text{CHILD}}$	→	/kɪnd/	e.	n	→	∅	
b.	$\sqrt{\text{GAME}}$	→	/ʃpil/	f.	[DAT]	→	/n/	/ [-SG]
c.	[δ]	→	/ɐ/	g.	[GEN]	→	/s/	/ [+SG]
d.	[γ]	→	/ə/	h.	Num	→	∅	

(24) *German: Impoverishment rules*

[δ] → ∅ / [+SG,+OBLIQUE]

(25) *Spell-out of* (22)

/kɪnd/- /ə/- /s/

child- n GEN.SG

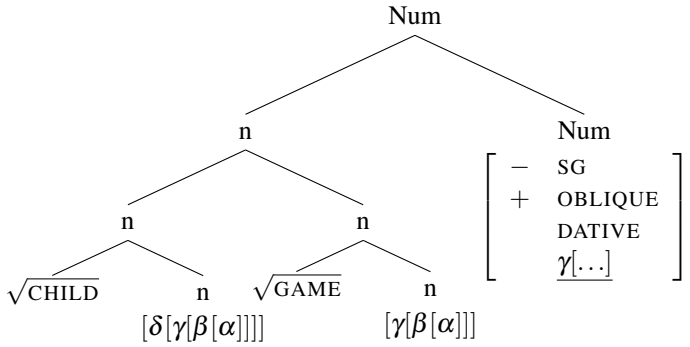
As discussed above, in Dutch and German the markers in question do not in fact spell out number features. Instead these markers themselves are highly underspecified and hence it is possible that they occur in a wide variety of contexts, s.a. on adverbs and verbs as we observed in the discussion on derivational contexts above (in line with Corver to appear).

3.1 Putting the pieces together

With the proposal in place, we can turn back to compounds. In instances where the choice of class marker matches what is observed outside of compounds, the compound formation operates rather straight-forwardly. We illustrate this with the German compound *Kinderspielen* 'child's play'. The structure is shown in (26). The root $\sqrt{\text{CHILD}}$ selects for a *n* carrying the feature [δ] and the root $\sqrt{\text{GAME}}$ selects *n* carrying [γ], yielding the *-er* and *-e* exponents respectively. VI rules are shown in (23) above and the output is shown in (28).

[2]We assume case containment (cf. Caha 2009) and that the genitive and dative are distinguished from nominative and accusative by [±OBLIQUE] (Smith et al. 2018 a.o.).

(26)



(27) Kind- **er**- spiel- **e**- **n**
child- L- play- L- DAT.PL
'child's play (DAT.PL)'

(28) The output of spell-out of (26)
/kɪnd/-/ɐ/-/ʃpiːl/-/ə/-/n/

In cases where the choice of L does not match the choice of plural marker, we argue that they occur when the structure conditions deletion of a class feature. Furthermore, we argue that the unidirectionality of the mismatches is due to only deletion being available post-syntactically. For instance, consider the Dutch from (1), repeated here as (29): the root $\sqrt{\text{SHEEP}}$ selects for a *n* carrying the class marker $[\alpha]$, (29a), which would normally be realized as *-en* in a plural context outside of compounds. When this stem is modifying the stem *kooi-* 'fold', $[\alpha]$ is deleted and *n* is realized as the default form *-s*, (29c). In other contexts, no deletion is applied and *n* is spelled out as *-en*, (29b).

(29) *Dutch* (Krott et al. 2007:28)

a. schaap -**en**
sheep -PL

b. schaap -**en** -bout
sheep -L -leg

c. schaap -**s** -kooi
sheep -L -fold

The question arises of how to achieve a distinction between derivational and inflectional morphology within a single-engine framework, one possibility is that the distinction is related to the structural distance between the root and the affix. If that is the case, the differences between the higher and lower morphemes could could follow as the lower morphemes seem to show properties that are typically attributed to derivational morphology and the higher ones show properties typically attributed to inflection. This, however, cannot merely be a matter of structural position. Structurally, the higher derivational affix will be as distant from the root as the higher inflectional morphemes discussed above. Hence this could alternatively be a matter of domains, such as derivational morphology occurring within the domain of the root whereas inflectional morphology occurs outside (cf. Marantz 2007). This possibility presumes that stacking derivational affixes will extend the domain of the root, however, defending this position will take us far outside the scope of this paper.

4. Bracketing restrictions

The presence or absence of Ls appears to have consequences for the structure of the compound, which has been discussed to some extent for North Germanic (Jónsson 1984, Al-

lan et al. 1995, Josefsson 1997, Mellenius 1997, Bauer 2009, i.a.), where in a three part left branching compound, [[A - B] C], there is a strong tendency for a L to appear between B and C. The structure has typically been taken to condition the appearance of the L. There are a number of exceptions to that patterns, in which the branching of the compound doesn't seem to accurately predict the appearance of a L (cf. Jónsson 1984, Josefsson 1997, Bauer 2009). Reversing the causal relationship, however, allows for including the pattern observed and its exceptions (Harðarson 2016, 2017 on Icelandic). The presence of L hence conditions a particular structural configuration, not the other way around.

Preliminary study of Dutch and German compounds unveils a similar pattern where the position of L restricts the range of available interpretations. In the absence of L, (30), or when both non-head elements contain a L, (31), the compounds are ambiguous.

(30) *Dutch*

a. [riool- water-] pomp
sewer- water- pump
✓ 'pump for sewer water'

b. riool- [water- pomp]
sewer- water- pump
✓ 'waterpump for the sewer'

(31) *Dutch*

a. [katt- **en**- droll-] **en**- bak
cat- L- turd- L- bin
✓ 'bin for cat turds'

b. katt- **en**- [droll- **en**- bak]
cat- L turd- L bin
✓ 'bin for turds with cats'

(32) a. ✓[[A B] C] b. ✓[A [B C]]

However, if only one of the two elements carries a L, the ambiguity is lost. If L is suffixed to the second non head element, the two non-heads form a constituent, [[A - B-L] C]. This is shown for Dutch in (33) and German in (34).

(33) *Dutch*

a. [kleer- kast-] **en**- maker
cloth- cabinet- L- maker
✓ maker of cloth cabinets

b. kleer- [kast- **en**- maker]
cloth- cabinet- L- maker
✗ Cabinet maker for clothes

(34) *German*

a. [Wald- Tier-] **e**- Haus
forest- animal- L- house
✓ House for forest animals

b. Wald- [Tier- **e**- Haus]
forest- animal- L- house
✗ Animal house in the forest

(35) a. ✓[[A B-L] C] b. ✗[A [B-L C]]

Conversely, if the first element carries a L, the head and second non-head must form a constituent to the exclusion of the first, [A-L[B - C]].

(36) *Dutch*

a. [boer- **en**- kleer-] kast
farmer- L- cloth- cabinet
✗ cabinet for farmer's clothes

b. boer- **en**- [kleer- kast]
farmer- L- cloth- cabinet
✓ cloth cabinet for farmers

(37) *German*

a. [See- **n**- Wald-] Tier
sea- L- forest- animal
✗ Animal in a sea forest

b. See- **n**- [Wald- Tier]
sea- L- forest- animal
✓ Forest animal close to a lake

(38) a. ✗[[A-L B] C]

b. ✓[A-L [B C]]

Hence the structure of the compound is not free, but is effected by the placement of L. In structural terms the effects of the presence or absence of L can be stated as follows:

(39) *Size effects of* L *in West Germanic.*

a. Elements carrying L must be structurally peripheral to elements without L.
b. Elements without L cannot be structurally peripheral to elements with L.

It should be noted that the theory being developed here does not exclude null elements corresponding to L. However, we expect the presence of such elements to have consequences for semantics and phonology. For instance, a preliminary study of apparent counterexamples points to an obligatory stress shift in the cases observed. However, further investigation is needed to fully distinguish between null and nothing (see Fenger and Harðarson in prep).

This pattern follows from layered approaches to compounding (Harðarson 2016, De Belder 2013), where compounding takes place at different layers within the nominal structure. We assume that the noun has at least the structure in (40). At each layer the non-head element must match the layer it attaches to. Thus, roots must attach at the root-level, stems at the stem layer. Hence elements with more structure must attach higher than elements containing less structure. The relevant nominal structures are shown below.

(40) $[_{.\text{Num}}\ [_{.\text{n}}\ \sqrt{\text{ROOT}}\ \text{n}\ ]\ \text{Num}\ ]$

The L thus signifies additional structure and the absence of L to typically signify the absence of that structure.

(41) a. $[_{\text{C}}\ [_{\text{B}}\ \sqrt{\text{SEWER}}_A\ \sqrt{\text{WATER}}_B\ ]\ \sqrt{\text{PUMP}}_C\ ]$ = (30a)
b. $[_{\text{C}}\ \sqrt{\text{SEWER}}_A\ [_{\text{C}}\ \sqrt{\text{WATER}}_B\ \sqrt{\text{PUMP}}_C\ ]\ ]$ = (30b)

(42) a. $[_{\text{n}_C}\ [_{\text{n}_B}\ [_{\text{n}_A}\ \sqrt{\text{CAT}}_A\ \text{n}_A\ ]\ [_{\text{n}_B}\ \sqrt{\text{TURD}}_B\ \text{n}_B\ ]]\ [_{\text{n}_C}\ \sqrt{\text{BIN}}_C\ \text{n}_C\ ]]$ = (31a)
b. $[_{\text{n}_C}\ [_{\text{n}_A}\ \sqrt{\text{CAT}}_A\ \text{n}_A\ ]\ [_{\text{n}C}\ [_{\text{n}_B}\ \sqrt{\text{TURD}}_B\ \text{n}_B\ ]\ [_{\text{n}_C}\ \sqrt{\text{BIN}}\ \text{n}_C\ ]\ ]\ ]$ = (31b)

The loss of ambiguity with mismatching non-head elements follows from the assumptions made here as the mismatch indicates a mismatch in structure: Elements without L contain

less structure than elements with L. Hence an element without L cannot be structurally peripheral to an element with L. This is shown below by the Dutch compound *kleer-kast-en-maker* which can only be interpreted in a manner consistent with a left-branching structure.

(43) a. ✗[$_{nC}$ $\sqrt{\text{CLOTH}}_A$ [$_{nC}$ [$_{nB}$ $\sqrt{\text{CABINET}}_B$ n_B] [$_{nC}$ $\sqrt{\text{MAKER}}_C$ n_C]]] = (35b)
b. ✓ [$_{nC}$ [$_{nB}$ [B $\sqrt{\text{CLOTH}}_A$ $\sqrt{\text{CABINET}}_B$] n_B] [$_{nC}$ $\sqrt{\text{MAKER}}_C$ n_C]] = (35a)

A reason to believe that *kleer-* is a root in the examples above is that *kleer-* always requires additional overt morphology outside of compounds, such as overt number marking or a diminutive suffix (cf. De Belder 2017).

(44) *kleer
cloth
Int: 'a garment'

(45) kleer -en
cloth -PL
'clothes'

(46) kleer -tje (-s)
cloth -DIM -PL
'little clothes'

The L hence appears to signify additional structure for the non-head elements in compounds beyond the structure present on those without.

5. Conclusions

The examination of a single morpheme, L in this case, reveals, on the one hand, restrictions on compound structure in three-part compounds where Ls serve to disambiguate the structure indicating additional structure on the non-head elements and restrictions on their combination with the head of the compound. On the other hand this study reveals ways in which features within the DP interact: The variation in the choice of L is a result of an interplay of different features across different contexts. This interplay of features also allows for explaining L's consistent homophony with plural markers in these languages.

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