

COMPOUNDING AND VARIATIONAL MORPHOLOGY: THE ANALYSIS OF INFLECTION IN SPANISH COMPOUNDS*

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ABSTRACT. This paper analyzes the morphological variation related to gender and number in Spanish compounding, such as plural nouns in $[V+N]_N$ compounds (*el lavaplatos*, not *el lavaplato*; *el cazamariposas*, not **el cazamariposa*), gender and number asymmetries between the actual compound and its parts (*cabeza_{fem.} + cuadrada_{fem.} → el cabeza cuadrada_{masc.}*, *relaciones_{fem. pl.} + públicas_{fem. pl.} → el relaciones públicas_{masc. sing.}*), the presence of inflectional markers inside compounds (*sord-o-muda_{fem.}*, not **sord-a-muda_{fem.}*), and the variation that takes place in many plural compounds (*casas cuartel* or *casas cuarteles* ‘house quarter’, *coches cama* or *coches camas* ‘car and bed’). Basing ourselves on the classic model of level ordering with an admixture of Booij’s distinction between inherent and contextual inflection, this piece of research proves that these cases of morphological variation can be approached as a morphological component, accessible to syntax. This model also relativizes the importance of the head in compounding and highlights the value of morphology, lexis and syntax interfaces.

Keywords: compounding; inflection; head; level ordering hypothesis; morphology-syntax interfaces.

RESUMEN. En esta investigación se analizan una serie de casos de variación morfológica relacionados con el género y el número que se producen en el ámbito de la composición en español como el sustantivo plural en los compuestos de $[V+N]_N$ (*el lavaplatos*, no *el lavaplato*; *el cazamariposas*, no **el cazamariposa*), las asimetrías de género y número entre el compuesto y sus miembros (*cabeza_{fem.} + cuadrada_{fem.} → el cabeza cuadrada_{masc.}*, *relaciones_{fem. pl.} + públicas_{fem. pl.} → el relaciones públicas_{masc. sing.}*), la presencia de una marca flexiva interna (*sord-o-muda_{fem.}*, no **sord-a-muda_{fem.}*), y la variación en el plural de muchos compuestos (*casas cuartel* o *casas cuarteles*, *coches cama* o *coches camas*). Así, este estudio demuestra que, a partir de un modelo teórico mixto basado en la hipótesis de la ordenación por niveles y en la distinción entre flexión contextual y flexión inherente, estos casos de variación morfológica pueden resolverse en un componente morfológico, accesible a la sintaxis. Además este modelo permite relativizar la importancia del núcleo en composición y dar cuenta de las conexiones entre morfología, léxico y sintaxis.

Palabras clave: composición; flexión; núcleo; hipótesis de la ordenación por niveles; relación morfológica-sintaxis

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1. Introduction

Nowadays, there are many studies that show morphology and syntax interfaces (Selkirk 1982; Scalise 1984; Lieber 1992; Spencer 2005; Kornfeld 2009, and so on) and compounding is a clear example of these connections. Traditional grammar has usually pointed out the similarity between compounds and some syntactic structures¹, particularly relative clauses. Accordingly, *coche cama* ('car and bed, sleeping car') is equivalent to a syntactic structure similar to 'coche que es cama' 'a car that is also a bed', where the two terms appear as subject and predicate of their actual predicative relation. Later on, authors such as Darmesteter (1874), Bloomfield (1933), Bally (1932) and Benveniste (1974), among others, claimed that compounds should be considered "non plus comme des espèces morphologiques, mais comme des organisations syntactiques. La composition nominale est une micro-syntaxe." (Benveniste 1974: 145)².

In fact, most of the research carried out on compounding draws a parallelism between the relations established at a syntactic level (coordination, subordination, attribution, etc.) and those that occur inside the compound. Thus, "the possible grammatical relations holding between the two constituents of a compound are basically the relations that hold in syntactic constructions: subordination, coordination and attribution" (Bisetto & Scalise 2005: 326)³. Therefore, it is also very important to point out that some compounds⁴ have a head, as well as in syntactic constructions.

However, the fact that compounds show a quasi-syntactic structure at an internal level does not mean that they hold a syntactic status because their projection capability does not exceed the actual limits of the word (Piera & Varela 1999: 4383; Lieber & Scalise 2006: 10). "[...] the morphology and syntax interact, and this interaction is not a one way affair: morphology sees syntax and syntax sees morphology. Nevertheless this two way interaction is highly constrained" (Lieber & Scalise 2006: 10). Fabb (1998: 71-72) states some differences between compounding and syntactic structures: 1) compounds have a head but in certain cases (exocentric compounds) there can be no head, 2) compounding-building rules are rarely recursive⁵, there are few types of compounds clearly recursive⁶ (phrase-building rules are recursive because from a finite number of rules we obtain an infinite number of sentences), and 3) the rules of building compounds are not productive (phrase-building rules are very productive because "each rule can underlie an infinite number

¹ In fact, Spanish compounds reflect the syntactic structure of the language and, therefore, no compounds go against this structure (with the exception of borrowings from English, Latin and Greek).

² This relation between compounding and quasi syntactic structures has its greatest exponent in the transformational method (Lees 1960; Botha 1968). This model assumes that compounds are a combination of elements of the surface structure derived from a set of constituents of the underlying deep structure, i.e., compounds are considered to be sentence(s) reduced by means of several transformational processes. Katz & Fodor (1963) and Chomsky (1970) questioned this model, because it presents two main problems: the syntactic and semantic representations assigned to the compound. The relationships inside compounds are more abstract and complex and too many transformations would be required in order to properly account for them.

³ In fact, these are the features most frequently used to classify compounds. See Bisetto & Scalise (2005).

⁴ It is important to notice that there are exocentric compounds and this fact distinguishes morphology from syntax.

⁵ Recursion is the phenomenon of applying a morphological process (derivation or compounding) more than once on itself (*parabrisas - limpiaparabrisas*, for example).

⁶ In English, according to Fabb (1998) only [NN]_N combination is recursive. This feature depends on the language, i.e., in Germanic languages recursion is very common.

of phrases (partly because of recursion)⁷. It is important to stress the fact that compounds are lexical units with features that are not shared by syntactic constructions (such as the fixed order of their components, restrictions on modifications, etc.) (Montermini 2010).

Compounds are often used to give evidence of the Lexical Integrity Hypothesis (Chomsky 1970), that is to say, they prove that syntax is blind to the constituents of a word (Siegel 1974; Di Sciullo & Williams 1987; Bresnan & Mchombo 1995, and so on)⁸. For instance, syntactic phenomena such as coordination (1), ellipsis (2), anaphora (3) and modification (4) can never occur inside a compound⁹.

- (1) a. *afilecuchillos*
to sharpen+knives, knife grinder
 b. **un afilecuchillos y tijeras*
 ‘a knife grinder and scissors’
- (2) a. *guardacoches*
to take care+car, parking attendant
 b. **un guardacoches y un motocicletas*
 ‘a parking attendant and motorbikes’
- (3) **Juan es guardabosques y los repuebla cuando se han quemado*
to take care+forest, forester
 ‘John is a forester and restocks THEM when burned’
- (4) *falda pantalón*
skirt+trouser, trouser skirt
 **falda muy pantalón*
 ‘skirt very trousers’

However, the Lexical Integrity Hypothesis does not invalidate the fact that compounds can access syntax, i.e., their formation may have implications at a sentence level (like a simple lexical unit)¹⁰. Some compounds (particularly those formed with a verb) show an argument structure, since its constituents fill argument positions¹¹, although it must also be observed that morphological units inside compounds do not occupy syntactic positions¹² (for Spanish see Varela 1990a, 1990b,

⁷ It should be observed that the latter is not considered a significant feature, because productivity is hard to estimate (see Bauer 2005 and Rainer 2005).

⁸ For a review of the historical evolution of this model, see Scalise & Guevara (2005), Lieber & Scalise (2006). In recent times, new approaches have been developed based on the Lexical Integrity Hypothesis as proposed in Lieber & Scalise (2006) and Fabregas, Feliu & Varela (2006). Likewise, different theoretical models such as Distributed Morphology or Minimalist Program have totally rejected the assumptions proposed by lexicalism.

⁹ Lieber & Scalise (2006: 26-27) show the different counterarguments to Lexical Integrity Hypothesis in different languages and classified them according to their strength against the theory. In fact, Spencer (2005: 78) also points out that some of the evidence in favor of lexical integrity are more reliable than others.

¹⁰ This has also been observed in derivation (Varela & Haouet 2001; Feliu 2002). For instance, some Spanish prefixes (*co-*, *inter-*, *auto-*, *sobre-*) are able to modify the argument structure or even the Aktionsart of the underlying verb (see Varela & Haouet 2001; *NGLE* 2009: § 10.7), which influences very significantly the syntactic structure.

¹¹ For instance, in *limpiabotas*, *limpia* fulfils the thematic role of agent whereas the second element, *botas*, is assigned the argument of theme.

¹² In fact, the compound cannot project arguments outside the lexical construction, not even adjuncts: **lavavajillas con jabón*.

1992). Fabb (1998) also outlines the syntactic influence in other languages of other phenomena related to compounds such as incorporation or synthetic compounds.

Therefore it can be assumed that compounding is halfway between morphology and syntax, but do all compounds show this relationship equally? It is only necessary to look at some compounds to conclude that there are some closer to the lexicon and others closer to the syntax¹³. In the first group, fully lexicalized or idiomatic compounds are to be found¹⁴. Their interpretation does not derive from the meaning of their constituents (*diente de león* ‘a type of herb’, *picaflor* ‘a class of bird’, *baño María* ‘specific container in gastronomy’). The compounds in the second group are so close to syntax that sometimes it is difficult to know whether they really have been formed by morphological mechanisms, particularly in [N+N]_N compounds (Fábregas 2006).

So, is *coche cama* ‘sleeping car’ really a compound or a free appositive structure? Some studies (see Ten Hacken 1994 for Dutch; Bisetto & Scalise 1999 for Italian; Buenafuentes 2010 for Spanish) propose different tests that show whether a particular structure has really undergone a process of compounding or not. Bauer (1978) and Fábregas (2006) show that inflection is an essential criterion to distinguish syntax free formations from those developed from processes such as inflection, compounding, to name but a few. Therefore, only the structures that pluralize the head would be considered a compound. However, this criterion is not defining when applied in isolation because speakers often show variation in the formation of some plurals that are undoubtedly compounds, probably as a consequence of other influencing criteria such as formal features or the immutability of some of its components. For instance, some [N+N]_N compounds, such as *casa cuartel* ‘house premise’ or *coche cama* ‘sleeping car’ take the plural form from the head only (*casas cuartel*, *coches cama*) or from both the head and the accompanying element (*casas cuarteles*, *coches camas*). [N+A]_N compounds also follow a similar pattern: *llave inglesa* ‘key + English, wrench’ pluralizes *llaves inglesas*, but *reloj despertador* ‘clock + awakening, alarm clock’ shows double plurality: *relojes despertador* and *relojes despertadores*.

Another problem regarding inflection and compounding is the presence of an inflected mark within the compound that remains unchanged at a syntactic level. Spanish [V+N]_N compounds are a clear example of this phenomenon¹⁵. These compounds usually show the noun in plural (*lavavaplatos* ‘to clean + dishes, dishwasher’, *cazamariposas* ‘to hunt + butterflies, butterfly net’), though the whole compound is singular. If we want to pluralize these compounds we must appeal to the use of determiners (*los lavaplatos*, *los cazamariposas*). The compound *relaciones públicas* ‘public relations’ shows the same process in the resulting inflected form, which is singular, though all its constituents are plural (*María es la relaciones públicas de la empresa* ‘Mary is the public relations of the company’). The compound *cabeza cuadrada* ‘head + squared, stubborn’ has also two feminine nouns but it can also be used to describe male individuals (*Juan es un cabeza cuadrada* ‘John is stubborn’).

Color nouns present a lot of morphological variability in the plural form. In this sense, the most frequent and institutionally favored plural structure (NGLE 2009: § 13.7) is the one in which the two compound members remain singular (*camisas azul*

¹³ This classification is based on Bisetto & Scalise (1999: 34).

¹⁴ Lexicalization is a gradual process. Therefore, it is an unstable criterion if used in isolation. For a discussion on lexicalization in compounding, see Buenafuentes (2010).

¹⁵ This paper focuses on the inflection of this type of compounds. For more information about [V+N]_N compounds in Spanish, see Moina (2011: 198-212).

cielo ‘clear blue shirts’). However, it is possible to find compounds that pluralize only one of its components (*camisas azules cielo*) or all of them (*ojos azules claros* ‘clear blue eyes), though it occurs on very rare occasions.

Taking into account these issues, it is necessary to question whether theoretical morphological, without considering the syntactic component, can explain all these cases of morphological variation or, by contrast, can only be solved syntactically. The purpose of this piece of research is precisely to account for this issue.

This paper structures as follows: in section §2, the function of the head in the process of compounding is analyzed because it is an essential factor influencing the syntactic behavior of the compound and, very particularly, its inflection. In §3, some examples of the different variations in morphological inflection in Spanish compounds are presented. §4 reviews the theoretical treatment that inflection in compounding has received in order to propose a theoretical mixed model based on the level ordering hypothesis that accounts for all cases of morphological variation inside Spanish compounds. This model takes into account all these irregularities in the inflection of compounds in the morphological –not syntactic¹⁶– level.

2. The notion of head in compounding

As already noted in the introduction, one of the parallelisms between compounding and free syntactic structures is that some compounds (endocentric compounds) may have a head, i.e., an element inside the compound that becomes the most important because of its significant influence on the semantic, morphological (grammatical category) and syntactic (selection and distribution properties) features of the whole compound.

The word category has been the criterion traditionally used to identify the head of a compound, i.e., the head is the element that imposes its category into the final compound (Lieber 1980)¹⁷ or the constituent sharing most features with the higher construction (Selkirk 1982).

Therefore, in a [N+A]_N compound like *llave inglesa* ‘wrench’, *llave* is to be considered the head because the resulting compound is a noun, and different from grammatical category of the non-head, *inglesa*. However, according to Scalise & Fábregas (2010) it is necessary to bear also two other aspects in mind when deciding on the head: first, the morphological criterion and, secondly, the semantic criterion.

According to morphological criteria, the morphological head is the constituent that determines gender and number in complex words, i.e., their inflection properties¹⁸. For instance, the head of the compound *llave inglesa* ‘wrench’ would be *llave* because it shares the same inflectional features of the resulting compound: gender (feminine), number (singular) and lexical category (noun).

However, the semantic criterion has also become an essential factor, particularly in compounds formed by two elements with the same grammatical category such as [N+N]_N compounds, because it is very difficult to decide which is the head by means of morphological criteria only. Scalise & Fábregas (2010) –based on Jespersen (1924)

¹⁶ Though, obviously, it does have an effect on syntax regarding, for instance, agreement.

¹⁷ Percolation refers to the fact that a word (or any element of a lower category such as a root or stem) has the same features of its head (Lieber 1980). Bauer (1990) notes that this property (the fact of transferring properties) is not present in heads only, which makes it necessary to provide a more comprehensive definition of the notion of head in morphology (putting aside its parallelism with the notion of head in syntax).

¹⁸ This paper focuses on nominal morphology because it is the most common in compounding. Generally speaking, verbal compounds are barely productive in most languages (see Scalise, Fábregas & Forza 2009 and Buenafuentes 2010 for Spanish), except, for instance, in Chinese.

– claim that the semantic head of a compound is the one functioning as a hyperonym for the whole compound. In fact, Allen proposed the IS A condition in 1978, a principle that tried to account for the interpretation of compounds. In this sense, the semantic head of *llave inglesa* has to necessarily be *llave* because the resulting compound refers to a particular type of *llave* –key–. This principle has been considered by many authors a rather reliable test to identify the head of a compound, turning all formations that do not observe this rule into headless constructions.

On the other hand, although the morphological and semantic head usually coincide in most compounds, there are also some exceptions (as in exocentric compounds, for example). It is for this reason that it is necessary to differentiate the morphological head in compounds, which determines the morphology (grammatical category and inflectional features) and the semantic head –the previously mentioned hyperonym– (Zwicky 1985)¹⁹.

Let us analyze the compound *cascos azules* ‘helmet + blue, United Nations troops’. Whereas the morphological head is the noun *cascos*, since it determines the morphological features of the resulting compound, the semantic head should be approached as an outer element of the complex word because the whole compound is a [+animate] noun but its constituent is [-animate] noun.

The same problems arise with Spanish [V+N]_N nouns (*lavaplatos* ‘dishwasher’, *cazamariposas* ‘butterfly net’) or [V+V]_N unproductive compounds (*alzapón* ‘to elevate + to put, garment’, *duermevela* ‘to sleep + to keep vigil, light sleep’). As can be observed, they are all noun constructions whose head is a verb. Note that in [V+N]_N compounds the noun is not the head because it is plural, though the resulting compound is singular²⁰.

Coordinate compounds such as, for instance, *arquibanco* ‘bench + chest’ or *verdinegro* ‘dark green’ are also examples worth mentioning. It is difficult to decide on the head of these compounds because the two constituents share the same lexical category (adjectives) and they both contribute to the semantic meaning of the whole compound. According to this, an *arquibanco* is a piece of furniture that is a bench and a chest at the same time and *verdinegro* is a middle ground color between green and black. Therefore, it can be assumed that these compounds do not have one but two heads, really (Fabb 1998; Scalise & Bisetto 2005; Scalise & Guevara 2005: 191).

Taking into account the above mentioned problems, former studies have differentiated two types of compounds according to the absence or presence of a head: endocentric compounds, where the head inside the compound percolates its morphological and semantic properties to the complex word, and exocentric

¹⁹ This distinction is most clearly observed in suffixation. The head in suffixed words is the suffix because this is what defines the morphological and grammatical category of the whole complex word. However, deadjectival verbs such as *adelgazar* or *ablandar* show a syntactic behavior derived from the semantic properties of the adjective (*delgado* ‘thin’, *blando* ‘soft’) rather than the affixes involved in their formation (Feliu 2002; Fabregas 2002). Thus, these verbs, which are usually classified like events that involve change, in Spanish may have a durative interpretation (*Juan adelgazó durante un mes* ‘lit. John thinned for a month’). According to Fábregas (2002), it is possible because the adjective refers to a finite scale which may have a higher degree (*delgado* ‘thin’ > *más delgado* ‘thinner’). This behavior distinguishes these deadjectival verbs from prototypic events that involve change, as *romperse* ‘to break’ or *despertarse* ‘to weak up’.

²⁰ Varela (1990a) notes that the first constituent of the compound is a nominalised verb form and identifies these compounds as endocentric (the head is the actual nominalised verb). By contrast, Scalise, Fábregas & Forza (2009) define Italian and Spanish [V+N]_N compounds as exocentric according to the analysis of the morphological and semantic features transferred by the constituents (percolation) to the rest of the compound.

compounds, where none of the constituents transfer their features to the rest²¹. For instance, *cazamariposas* is an exocentric compound because it refers to something not present inside the compound (an instrument); in fact, it refers to its two constituents at the same time (the verb *cazar* and the noun *mariposas*). It is the ‘item’ used to catch butterflies the actual head of the compound and not any of the constituents of the compound.

Although exocentricity in compounding has traditionally been considered as a rare phenomenon in most languages, more recent studies claim that exocentric compounds have an important presence in many languages, though their influence vary according to linguistic typology of each language (see Scalise, Fábregas & Forza 2009; Ralli & Andreou 2012).

The notion of head in morphology has also been defined according to its position inside the complex word (something that does not occur with syntactic heads). If we analyze the previous examples, it is possible to conclude that most Spanish compounds are left-headed²². The head position inside compounds has also been the subject of discussion among many morphologists since Williams put forth the Right Hand Head Rule back in 1981 in which it was claimed that all English compounds had the head on the right. As Scalise & Fábregas (2010) show in their analysis of compounds in 22 different languages, the head position is not a universal parameter; however each language has what they define as ‘canonical positions’²³.

Finally, there is a relation between the notion of head in compounding and inflection, because the gender and number of the whole compound is to be found in its head, according to the Williams’ Atom Condition (1981). In Zwicky’s words, the head of the compounds is a “locus inflectionis” (Zwicky 1985). However, it is necessary to revise this statement because not all compounds use the head as a starting point for the inflection. In Spanish, the orthographic fusion of the constituents in compounds is of high importance for inflection.

Thus, compounds that show orthographic fusion have peripheral inflection, that is to say, the plural mark takes place outside the compound. For instance, a compound like *hierbabuena* ‘herb + good, spearmint’ pluralizes as *hierbabuenas*, but the morphological and semantic head is *hierba*. In these cases, the possible plural *hierbasbuenas* is restrained by the rejection of inflected marks within complex words (Greenberg 1966). Nonetheless, it is possible to find some examples in Spanish in which there is an internal plural mark such as in *lavaplatos* ‘dishwasher’ or *sordomuda* ‘deaf + mute, deaf-mute’. Moreover, when the compound does not show orthographic fusion, inflection can trigger a high degree of morphological variation. This is precisely where the morphological differences between the head of compounds and their inflections arise. The mentioned irregularities in inflection are presented in the following section.

²¹ Although this distinction is accepted in the literature, there are some studies that deny the existence of exocentric compounds (V+N compounds or compounds as *red skin*) and claim that all compounds are endocentric (see Bisetto 1999; Booij 2005). For more information about exocentricity in compounding, see Foster (1976), Contreras (1985), Scalise & Guevara (2005) and Scalise, Fábregas & Forza (2009).

²² There are also some right-headed compounds in Spanish, basically loan translations of structures from other languages such as Latin and Greek.

²³ According Piera (1995), Spanish nouns and adjectives have a word marker, with a phonetic realization in some cases, which prevents attach the head on the right. In English, for instance, haven’t this word marker and, consequently, the head is on the right. This purpose implies that the notion of head is directional and depends on linguistic typology.

3. Some cases of morphological variation in the inflection of compounds

As has been already mentioned, some Spanish compounds –from an internal point of view– have an inflection mark within the construction (inside or outside the morphological head) that is not projected on the syntax²⁴. Let us consider the following examples:

- (5) a. *el lavaplatos* / *los lavaplatos* ‘to clean + dishes, dishwasher’
 b. *la cortacésped* (fem. sing.) / *el cortacésped* (masc. sing.) / *las cortacésped* (fem. pl.) / *los cortacésped* (masc. pl.) ‘to cut + lawn, lawn mower’
- (6) a. *cabeza* (fem.) *cuadrada* (fem.) → *el cabeza cuadrada* (masc.)
 b. *María es la relaciones públicas de mi empresa* / *Juan es el relaciones públicas de mi empresa*. ‘Mary/John is public relations’

(5a) is a compound with a plural mark on the non-head (*platos*) though it is possible to use the compound as a singular form at a syntactic level, preserving the mark (*el lavaplatos*). By contrast, (5b) is a [V+N]_N compound where the inflection behaves differently: *cortacésped* does not have an internal plural but the compound can be used in plural at a syntactic level, without adding the plural mark (*los cortacésped*). Finally, the constituents of the compounds in (6) are feminine but they can be used in syntax as masculine.

In the two examples of [V+N]_N compounds in (5) there is (5a) or there is not a plural mark (5b) according to the semantics of the noun, as Varela (1990a) and Ambadiang (1999) claim. Thus, countable nouns (*platos*) usually take the plural inside these compounds whereas uncountable nouns (*césped*) may remain invariable²⁵, even at a syntactic level²⁶. It is also important to note that the plural noun in these compounds is related to the meaning of the whole compound. Most of these compounds refer whether to the individual who frequently does the action indicated on the two constituents, or designate the instrument most frequently used to do the mentioned action. This semantic feature (‘frequency’) is related to the plural notion and it causes the plural inside the compound, although not projected syntactically. This also explains the gender variation in some of these compounds (see 5b), because the whole compound can refer to both the machine (therefore, a feminine noun) or the device (masculine), or in the case of people, to a man or a woman (*el/la guardabosques* ‘to take care + forest, forester’). Invariable [V+N]_N compounds do not have an internal inflection mark and that is why they need to project it syntactically by means of a determiner (*el aparato cortacésped, la máquina cortacésped*).

The examples seen in (6) are known as metonymical compounds; one of their constituents is a body part (in 6a, *cabeza* ‘head’) but it actually refers to the whole body²⁷. Notice that in (6a) the head (physical part of the human body) stands for intellectual activity it develops. This accounts for the use of the compound in

²⁴ The compounds with an invariable plural form are not considered here because they are also used in the plural at a syntactic level: *bajos fondos* ‘low + funds, underworld’, *paños menores* ‘clothes + less, underwear’, *vasos comunicantes* ‘communicating vessels’ or *números rojos* ‘red + numbers, overdraft’.

²⁵ *Cortacésped* has also a plural *cortacéspedes* (*cortacésped-es*), but it is not interesting from this point of view, because it is a regular plural, i.e., the same plural as in compounds formed by countable nouns.

²⁶ In compounds with an uncountable noun in plural within the construction (*paraguas* ‘to stop + water, umbrella’, for instance), the noun is considered countable. Scalise, Forza & Fábregas (2009: 69-70) note that, in Spanish, mass nouns which usually do not inflect for the plural, take the plural marking inside the compound. This is actually the test that proves that this plural mark takes place at a morphological -not lexical- level.

²⁷ This pattern of behavior is illustrated in *cabeza rapada* ‘head + shaved, skin head’, for instance.

masculine or feminine (*el/la cabeza cuadrada*); it depends on the person the whole compound refers to, not to any of its constituents. As can be seen, all these compounds are [+ human]. This pattern is also possible outside the compound²⁸; Spanish tends to assign a certain attributive value to adjectives and nouns (NGLE 2009: § 2.7.e-j) (*El rata de Juan* ‘li. the miser of John’, *Juan es un caradura* ‘John is rotter’).

Finally, (6b) is also a metonymical compound because the principal function of the activity stands for the activity itself (in this case make a business relationship with your potential shopper public). Here there is an attributive usage that allows the gender of the compound to depend on the person referred, regardless of the gender of any of its constituents.

From an external point of view, compounds inflect for gender and number. Regarding number inflection, the morpheme *-s* agrees with the semantic and morphological head of the compound. Spanish, in general, places the head on the left, as in (7), therefore the plural mark is added to the constituent:

- (7) a. *ojo de buey* ‘eye + ox, porthole’: plural *ojos de buey* (**ojo de bueyes*)
 b. *hombre lobo* ‘man + wolf, werewolf’: plural: *hombres lobo* / *hombres lobos* (**hombre lobos*)
 c. *año luz* ‘year + light, light-year’: plural *años luz* (**años luces*)

Gender inflection in compounds is identical to number inflection: if the head of the compound is feminine, the whole compound becomes feminine, too; when masculine, the compound becomes masculine, as in (8a) and (8b). However, [N+A]_N compounds are special because they have noun-adjective internal agreement²⁹ and the head transfers its features to the non-head (8c). This suggests that this behavior is similar to orthographic compounds (such as *hierbabuena*, *aguamarina* ‘water + marine, aquamarina’). However, orthographic compounds pluralize peripherally (*hierbabuenas*, *aguamarinas*) whereas compounds such as *llave inglesa* do not.

- (8) a. *hermano de leche* / *hermana de leche* ‘brother/sister + milk, foster brother/sister’
 b. *niño probeta* / *niña probeta* ‘baby + test-tube, test-tube baby’
 c. *llave inglesa* (fem.), *perro faldero* (masc.) ‘dog + lap, pomeranian dog’

As some of these examples show, gender and number behave differently, despite that fact that both are mechanisms of inflection. Gender has traditionally been considered an inherent feature of the noun, whereas number has been considered the actual inflectional mark projected at the syntax level (Chomsky 1995: 235-241). As Scalise, Fábregas & Forza (2009: 70) note “gender is a lexical property that nouns carry with them in the lexicon, and, as such, it is not imposed by syntax. This suggests that gender is lexically satisfied in Romance, that is, gender is licensed simply by

²⁸ It is also present in syntactic structures when the gender of the noun does not match with the reference, for instance, in feminine nouns such as *majestad* ‘majesty’ or *santidad* ‘holiness’ when referring to a male: *Hoy su santidad está cansado* ‘Today the holiness is tired.’

²⁹ This agreement does not always occur in the inflection for number in compounds. These asymmetries are later on discussed (examples 9a, 9b and 9e).

being inside a head containing a noun categorical feature”. As has been proved, compounds also show these differences³⁰.

In relation to what has been mentioned, some compounds show different irregularities in their gender and number inflection:

- (9) a. *caja fuerte* ‘box + strong, safe box’: plural *cajas fuertes* / **cajas fuerte*
 b. *guardia civil* ‘guard + civil, Spanish civil guard’: plural *guardias civiles* / **guardias civil*
 c. *reloj despertador*: plural *relojes despertador* / *relojes despertadores*
- (10) a. *pez espada* ‘fish + sword, swordfish’: plural *peces espada* / **peces espadas*
 b. *perro policía* ‘dog + police, police dog’: plural *perros policías* / *perros policía*
 c. *casa cuartel*: plural *casas cuartel* / *casas cuarteles*
- (11) a. *blusas blanco hueso* / **blusas blancos hueso* ‘lit. white bone shirt’
 b. *camisas gris perla* / *camisas grises perla* ‘lit. grey pearl shirt’
 c. *ojos azul claro* / *ojos azules claro* / *ojos azules claros* ‘clear blue eyes’
- (12) a. *palabra clave* ‘word + key, keyword’: plural *palabras clave* / *palabras clave*
 b. *producto estrella* ‘product + star, star product’: plural *productos estrella* / **productos estrellas*

All compounds in examples (9) and (10) belong to the same typology: [N+A]_N, the first one and [N+N]_N the second one. In both cases the noun also functions as the morphological and semantic head³¹. However, these compounds pluralize differently. Thus, only the nouns of these compounds should pluralize because of their nature as heads (see examples 7a and 7c); however (9a) and (9b) does not observe this premise and forms the plural by adding the morpheme -s to both the head and to the non-head (*cajas fuertes*, *guardias civiles*). On the other hand, some examples such as (9c) allow two possibilities for the plural: in the first one only the head is pluralized whereas, in the second one, both constituents pluralize (*relojes despertador* and *relojes despertadores*). The examples in (10) show a similar pattern; (10a) can only inflect for the plural on the head (*peces espada*), but in other cases a plural mark is added on both constituents (*perros policías*, *casas cuarteles*).

Finally, (11) and (12) are all appositive structures. These constructions present a high degree of morphological variation in their plural forms. In some of them, the two elements pluralize (*camisas grises perlas*, *palabras claves*), leave the structure invariable (*camisas gris perla*) or only the head pluralizes (*camisas grises perla*, *palabras clave*). However, other cases are more restrictive: *producto estrella* always pluralizes the head (*productos estrella*) but *blanco roto* always remains invariable (*camisas blanco roto*).

So, how should this morphological variability be approached? [N+N]_N compounds usually pluralize the head (see 10a) whereas [N+A]_N pluralize both of its constituents

³⁰ Fabregas & Pérez (2010) claim that gender and number do not have this difference because gender, in some cases, is not defined by the noun but rather by the syntactic structure where it appears (*Juan es un rata*). This is why two genders in the nominal domain are proposed: gender as an idiosyncratic property of the noun (SClassificador) and gender as a syntactic feature located at the determiner area (SGénero).

³¹ In [N+N]_N compounds it is difficult to determine which nouns impose the category to the resulting compound. However, both the semantic criterion (a *coche cama* is a particular type of car, a *perro policía* is a particular type of dog) and the morphological criterion (*coche* is masculine and also *coche cama*; *perro* and *perro policía* are male too) suggest that the head tends to appear in initial position.

(see 9a and 9b). Therefore, why are plurals such as *perros policías* or *relojes despertador* possible?

It could be claimed that plurals such as *perros policías* or *hombres lobos* are a direct consequence of a phenomenon also present in syntax: the adjectivation of nouns (*Juan es muy hombre* ‘lit. John is very manly’; *Es mucho coche para ti* ‘lit. It is too much car for you’). In these cases, the speaker³² identifies the compound with a [N+A]_N structure and forms the plural according to the default pattern, that is to say, inflecting both constituents. Rainer & Varela (1992) conclude that “some second constituents which are very adjective-like in their meaning are involving towards real adjective status, showing number agreement with the head and sometimes also predicative use”³³.

By contrast, *relojes despertador* shows a nominalization process. The speaker turns the adjective into a noun and forms the plural as if it were a [N+N]_N compound, i.e., pluralizing only the head of the compound.

Color names (11) present a very particular pattern of behavior. In the examples they are all masculine, though their antecedent are all feminine (**camisa blanca hueso*). However, all these formations show morphological variation in their plural forms as has (11) illustrates. The differences in their inflections lie, once again, in the speaker’s interpretation, that is to say, the identification of the color name with a syntactic or a morphologic particular status. In the first case, the speaker perceives an appositive construction formed by two nouns that refers to another noun. Being the antecedent plural, the speaker keeps the color name invariable, and the same goes for their gender inflection (*camisas gris perla*, *blusas blanco roto*). When the speaker pluralizes only the head that means that the construction is being considered an appositive compound (as in *pantalón campana* ‘trousers + bell, bell bottoms’ or *pez espada*). Color names with their two constituents in plural are not common (**camisas grises perlas*, **blusas blancos rotos* / **blusas blancas rotas*), except in cases where a real adjective takes place (*verde claro* ‘light green’ or *azul oscuro* ‘dark blue’). In these cases, the pluralization can work in three different ways (see 11c): the two described in the previous examples and the one in which all members of the appositive construction pluralize³⁴.

Finally, (12) also shows appositive structures. These examples would probably be analyzed as compounds³⁵, however, they do not behave as a prototypical compounds³⁶ (*hombre lobo*, *casa cuartel*). In this sense, *palabra clave* or *producto estrella* would not be forms derived out of a morphological process because their behavior shows a hidden syntactic pattern (García-Page 2011). Thus, the second constituent of these structures functions as a mere intensifier because the semantic load relies on the head.

³² As NGLE (2009: § 11.5m) shows, the interpretation of the substantive as an adjective has some diatopic constrains.

³³ As Rainer & Varela (1992) show, despite the fact that the noun inflects like an adjective, it is easy to see that it does not function as a true adjective. For example, this element cannot appear in prenominal position, it cannot be replaced by another adjective (*perro policía* does not equal *perro policial*) and it does not admit any type of gradation (*perro muy policía*).

³⁴ *Ojos azules claros* is an ambiguous construction because the adjective *claros* can refer to *azul* or *ojos* simultaneously. This is why the construction must remain invariable when the ambiguity disappears and it is the actual color what is being referred (*ojos azul claro*).

³⁵ There are some formal features that these structures share with compounds such as word order or the constraints regarding modifications and determiners.

³⁶ In prototypical compounds, such *hombre lobo*, the two constituents contribute to the meaning of compound. Also, prototypical compounds don’t allow coordination and syntagmatic projections, they don’t select arguments and don’t show both anaphoric references and syntactic operations such as pronominalization and focus.

That is why the second element can be placed next to any type of head (*palabra clave*, *hombre clave*, *fecha clave*, *momento clave*, etc.). By contrast, in real compounds such as *hombre lobo*, the two constituents are influence the meaning of the whole compound.

The examples in (12) also show syntactic –not morphological– features. For example, these structures allow coordination (*hombre y mujer claves* ‘lit. man and women keys’, *un momento clave y otro sin importancia* ‘lit. a key moment and other no important’) and syntagmatic projections (*un momento para nosotros clave* ‘lit. a moment key for us’), they select arguments (*un momento clave para la historia de la humanidad* ‘lit. a moment key for History’) and show both anaphoric references and syntactic operations such as pronominalization and focus (García-Page 2011: 148). All these features are impossible to find in real compounds created by morphological processes. According to this, all examples in (12) are to be considered appositive structures –not compounds–, which means they can inflect in two different ways (like any other type of apposition): only the head (*palabras clave*) or both constituents (*palabras claves*), though there are some appositive structures that allow only the pluralization of the first element (*productos estrellas* would not be a possible plural of *producto estrella*). This behavior suggests that the institutionalization or lexicalization (Bauer 1988)³⁷ of the structure is essential for their inflectional pattern: appositive structures with a low degree of institutionalization can only pluralize the head. Therefore, the higher degree of institutionalization in appositive structures within an attributive environment, the more chances the two elements of the construction have to accept plural inflection simultaneously:

- (13) a. *Estos momentos son claves para el país.* ‘These moments are important to the country’
 b. **Estos productos son estrellas para la empresa.* ‘These products are star to the company’

(13) shows how *palabra clave* can participate in a copulative structure, something that *producto estrella* cannot do. This explains why *palabra clave*, due to its status as an institutionalized structure, has two possible plurals (*palabras clave*, *palabras claves*) and why *producto estrella*, a much less institutionalized structure, can inflect in a single way (*productos estrella*).

The data presented shows cases of morphological variation in inflection inside and outside compounds. Therefore, is it possible to solve these problems in the morphological component or, by contrast, is it necessary to resort to syntax? The following section answers this question and proposes a theoretical model to account for the morphological variation observed so far.

³⁷ Bauer (1988: 246) gives this definition: “A word is said to be institutionalised if it is created by a productive morphological process and is in general use in the speech community”, whereas for lexicalization we read: “A word is lexicalized if it could no longer be produced according to productive rules.” See Hohenhaus (2005) for a discussion about these theoretical terms.

4. Towards a theoretical model for inflection in compounding

Prior to the establishment of a theoretical model, it is necessary to go over the most relevant contributions provided by morphology to the study of inflection in compounding³⁸.

The same way as compounds, inflection has also become an important topic of discussion in morphological theory because of its strong relation to both morphology and syntax. Some approaches analyze inflection from a syntactic perspective but some others take a lexical point of view, similar to derivation. For lexicalists, one of the most essential differences between the two theoretical models (Strong and Weak Lexicalist Hypothesis) is the location of the inflection mark. On the one hand, the Strong Lexicalist Hypothesis (Halle 1973; Jackendoff 1975; Selkirk 1982, Scalise 1987; among others) incorporates inflection in the lexical level (at the same level as derivation or as an independent component). On the other hand, the Weak Lexicalist Hypothesis claims that inflection lies in the syntactic or phonological area (Chomsky 1970; Siegel 1974; Allen 1978; Aronoff 1979; Anderson 1982; among others)³⁹.

The question on whether inflection is a part of the morphological component or is actually a mere syntactic process has always arisen controversy. The literature on the issue presents not only the distinctions between inflectional and derivational morphology but also their similarities.

The similarities between derivation and inflection are obvious when analyzing prototypical cases. Formally, both inflection and derivation use the same process (affixation), modify the segmental and suprasegmental configuration of the complex word, allow the same type of operations (such as syncretism or suppletion), percolate their features to the head and, finally, ban alternative ways to build the compound (Stump 2005: 61).

However, the differences are also very important. Derivation is a creative process, which means it depends on the creative capacity of the language. Derivation holds an open, numerous and varying inventory of affixes that can be modified, i.e. it accepts loans and also lose or recover affixes depending on external factors. These affixes are polysemic and are recursive by nature, though there are some constraints in relation to the way they are applied. By contrast, inflection does not create new lexicon and holds a closed and limited inventory of affixes to form paradigms. In addition, contrary to inflection, derivation sometimes changes the semantic nature of the compound, its grammatical category and its prosodic features. Inflectional affixes are grammatical and, consequently, they become the syntactically relevant constituent of the word. Inflection in complex words applies after derivation processes.

Morphological theory has made evident the weaknesses of some of these assumptions. In Spanish, inflection can show clear semantic distinctions, i.e., different meanings (*ciruelo-ciruela*⁴⁰, *celo-celos*⁴¹) and, in some complex words, there are

³⁸ This overview refers to Lexicalism only because the hypothesis proposed in the paper is based on this model. This is why other theoretical models such as Distributed Morphology (Harley 2009) or the Minimalist Program are not discussed.

³⁹ This paper does not delve into these theoretical models. Only the most relevant issues regarding inflection in compounding is shown in order to account for the morphological cases of variation presented more accurately.

⁴⁰ Obviously *ciruela* is not the feminine of *ciruelo*, the two words are lexically different. In this case, the final vowel is to be interpreted not only like an inflectional marker but also like a thematic vowel or a class marker (*ciruela* refers to the class of fruits and *ciruelo* to the class of trees).

⁴¹ Some Spanish compounds also use the plural with a particular influence on the semantics of the word as in *diente de ajo* 'teeth + garlic, garlic glove', *dientes de ajo* 'teeth + garlic, big teeth' or *aguanieve* 'water + snow, melt-water' and *aguanieves* 'water + snow, bird'. There are some cases where both the

inflectional marks within the compound (*cualesquiera* ‘which + to want, anybody’, *gentilishombres* ‘gentile + man, knight’, *hijosdalgo* ‘son + something, noble’, *buenamente* ‘lit. good way’). This suggests that the distinction between inflection and derivation is not always clear⁴².

Initially, lexicalism did not pay attention to compounding and inflection because the former was relegated to derivation in the lexicon whereas the latter operated at a morpho-phonological only. Halle’s model (1973) states that the lexicon is a set of derivational and inflectional morphemes with the same pattern of behavior⁴³ which, according to the Lexical Integrity Hypothesis and the Atom Condition (Di Sciullo & Williams 1987), always apply previously to the lexicon and afterwards to syntax. However, this theory fails to draw a clear distinction between new words (created by means of word formation processes) and the elements that form the paradigm of a particular word, which can be regarded as a direct consequence of the fact that both inflection and derivation have the same status.

Later on, Allen (1978) and Aronoff (1979) proposed a theoretical model based on words –not on morphemes as in Halle’s model–, which enables this theory to treat compounding explicitly (leaving derivation aside) and approach inflection as a syntactic component. Based on Siegel’s Class Affixation (Siegel 1974), Allen (1978) proposes a three-leveled schema that does not analyze inflection explicitly. The output of a higher level cannot be used as input by a lower level. According to this theory, level 1 affixes are constrained by morpheme boundaries and can trigger changes on the word stress. Level 2 affixes are constrained by word boundaries but do not affect the word stress pattern. Compounding is the third level in morphological representation.

In the 80’s, Anderson (1982) showed that inflection is an independent component (separated from derivation) approachable from the syntax. Thus, “Inflectional morphology is what is relevant to the syntax” (Anderson 1982: 587). This author proposes that inflection adjusts the words of the lexicon to the particular syntactic restrictions, which means it observes the phonological rules at a post-syntactic level. Two of the most relevant premises in many studies on morphological description have been based on this assumption: first, inflection is always peripheral to derivation and 2, derivation applies always before inflection⁴⁴.

Later on, the notion of autonomy in inflection became less and less relevant because both inflection and derivation operate with affixes, though they differ in the order – assuming Siegel and Allen’s premises–. This suggests that morphological processes are concatenants, i.e., all word constituents are added to the word not only following a rigid order but also by means of a cyclic process. According to Kiparsky (1982), inflectional rules tend to apply after derivational rules (including compounding) and

plural and singular forms of the compound have the same meaning: *cabello de ángel* ‘hair + angel, jam’ and *cabellos de ángel* ‘hair + angel, jam’ (Buenafuentes 2010).

⁴² Appreciative suffixation in Spanish shows the difficulty in distinguishing derivation and inflection processes. Traditionally, appreciative suffixation has been considered a derivative mechanism because of the fact that it does express lexical meaning, it does not create paradigms and it is not important syntactically, though it has some inflection features: it is the most peripheral derivational affix (*desperta-dor-cito* ‘little alarm clock’), it does not impose its grammatical category (*casa_N* ‘house’ → *casita_N* ‘little house’) and it shows allomorphy (*cas-ita*, *piern-ecita* ‘little leg’, *amor-cito* ‘little love’).

⁴³ In fact, assuming the Strong Lexicalist Hypothesis, Lieber (1980) and Williams (1981) consider that since derivational and inflectional affixes have the same status, they both can fulfill the head position in complex words. Notice that Selkirk (1982) denies this property when dealing with inflectional affixes.

⁴⁴ These two assumptions can be reduced to one, because the first is a consequence of the second one.

each of the above mentioned levels are constrained by particular phonological rules that apply cyclically in the following derivational level⁴⁵.

The literature on the topic has reported many counterexamples to this model where some compounds show inflected forms within themselves, for instance *mothers-in-law*, *animals research*, *parks commissioner*, to name but a few. In order to properly account for these examples, Level ordering hypothesis supporters have put forth the notion of recursivity. According to this, under some specific conditions, complex words can be subjected to all three levels of morphological representation again and again. It should be noted that there are some semantic constrains such as the abstractness of the non-head⁴⁶ or the heterogeneity of the head –which allows to create new complex words with the same head and different non-heads–. Only compounds showing these two conditions, i.e., heterogeneous head and abstract non-head (*admissions department*⁴⁷, for example) can be subjected to all the stages of the level ordering mechanism over and over, which means they accept inflection marks within the compound. (Alegre & Gordon 1996; Sneed 2002).

The level ordering hypothesis⁴⁸ illustrates word formation processes and the structure of complex words. Here, inflection is the last level in complex word structures, which makes plausible to consider morphology not only as a unitary but also as an autonomous component.

An alternative point of view has been proposed by Booij (1996), who shows how inflection can provide information to both derivational and compounding processes. Other theories, however, consider inflection as a peripheral process without impact on the rest of mechanisms. Booij's model proposes two types of inflection: the inherent inflection (which precedes derivational processes and does not have syntactic relevance)⁴⁹ and the contextual inflection, which depends on syntax. This distinction suggests that inherent inflection belongs to the lexical component whereas contextual inflection is to be approached from a post-lexical perspective. For instance, tense, case or gender in nouns are inherent inflection features whereas gender in adjectives or person in verbs are contextual inflection features. Number in nouns is an inherent inflection whereas in adjectives it is a contextual inflection feature. Since both inherent and derivation inflection are very similar processes.

Based on this distinction between inherent-contextual inflections, Booij (1996) points out that the expression of contextual inflections is peripheral and precedes inherent inflections (following Greenberg's universal 38 regarding case and number). That model makes easier to explain how inflection works within complex words because these cases would always react to inherent –not contextual– inflection. Therefore, contextual inflection is only visible in the last node of the word, which means it is accessible to the syntax. By contrast, inherent inflection may appear before

⁴⁵ The notion of morphophonology, based on the notion of cyclicity and the level ordering hypothesis appears in Aronoff (1976).

⁴⁶ Sneed (2002: 625) defines abstractness as “something not easily imaginable, such as a process (*admissions*), an action (*assists*), a thing (*benefits*), or something that is otherwise complex (*dissertations*) is abstract; something easily imaginable, and simple conceptually, such as *pencils* or *flowers*, is concrete”.

⁴⁷ This example is from Sneed (2002).

⁴⁸ Level ordering models are usually differentiated by the type of rules applied (morphological or phonological) or the differences in level ordering.

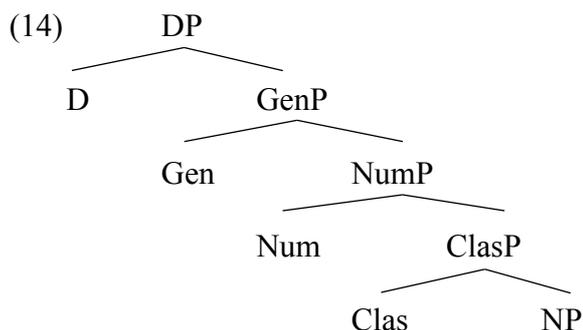
⁴⁹ Booij argues that plural nouns in Dutch form inputs for composition and derivation (for example, [held-en]verering ‘heroes celebration’, [held-en]-dom ‘heroism’). Booij (1996) shows more examples of this type of inflection.

the derivational process because their features do not percolate to the last node –only semantic information is provided–.

Let us now consider the compound *guardabosques* to illustrate this point. As can be observed, this compound has an internal plural mark and it is possible to use it with the singular (*el guardabosques*). This plural mark is an inherent inflection affix that gives semantic information (in this case ‘group or collectivity’). At a syntactic level, though, it is possible to pluralize the compound, but Spanish phonetic rules (*guardabosques* ends in *-s*, which means it is not impossible to add another plural *-s* or other inflection affix) makes necessary to use a determiner (*los guardabosques*). So, contextual inflections trigger changes at a syntactic level.

This model could be related to Fabregas & Pérez’s ideas (Fábregas & Pérez 2010) about gender in Spanish, though it is actually a syntax-based theory since it assumes that lexical features such as gender derive from the syntax. However, this model could also be applied to number in Spanish.

Fabregas & Pérez’s theory claims that gender is located inside the DP and, also, that it has two different projections: the ClasifierP, which encodes the intrinsic gender value in nouns –thus, semantically specified– and the GenderP, which determines the NP referential features –and is placed in a higher position inside the DP hierarchy–. Taking this model and considering plural features, we propose that the functional structure of a compound have a limit, i.e., compounds structure includes the ClasifierP and NumberP, whereas the GenderP do not. Thus the lower projection would have a lexical interpretation in traditional sense:



As can be seen, this distinction is closely related to the already mentioned distinction between inherent and contextual inflection. In this sense, it can be stated that it is possible to find an intrinsic as well as a referential number inflection in nouns, the latter being the one traditionally attached to number inflection. Number inflection usually affects the whole NP, which makes noun-DP agreement necessary. However, there are some irregularities⁵⁰ in compounding such as *el guardabosques* or *el relaciones públicas*.

In order to explain these cases, it is necessary to consider that number inflection is not really a grammatical property because of its two projections: it is projected from an independent NP node (SNum) and it can also be a projection within the very same DP that provides intensity to the noun without referential meaning –located right under quantifiers and determiners–. This is precisely what explains cases such as *el guardabosques* o *el relaciones públicas*, both compounds that show an intrinsic plural but still are singular for the syntax. Thus the maximum projection in compounds is

⁵⁰ There are similar asymmetries in NP which are produced externally as in *Hoy su santidad está cansado*.

NumberP, so that the Number is interpreted inside compound and doesn't percolate upwards. Then the compound structure in *guardabosques* is [Num [N ø [V guarda [Num-s [Clas -e [bosqu]]]]]], where the external Number gives singular, and internal Number provides verbal argument.

It should be noted that the intrinsic plural in *guardabosques* does not have a literal interpretation in the quantitative sense because it conveys the idea of intensification, so that the corresponding interpretation is that of a 'group or collectivity'. Thus, *guardabosques* does not mean that the person who fulfils this job takes care of many forests (quantitative interpretation). The actual meaning conveyed in the compound is that a *guardabosques* makes this action on a regular basis⁵¹. In this case, the intrinsic plural is not referential because it is a generalization of the noun.

In short, in order to properly account for these cases of morphological variation, this paper proposes a mixed theoretical model based on the level ordering hypothesis and that distinguishes between the two types of inflection (inherent and contextual inflection) which, at the same time, belong to different levels of the morphological structure. This proposal places inherent inflection in level 1 and contextual inflection in level 3. This schema, adapted from Gordon (1985)⁵², structures as follows:

Level 1 — Properties: derivational, irregular, semantically idiosyncratic, host deforming, stress shift, vowel reduction, **inherent inflection**. Example: *botas, la cabeza*

Level 2 — Properties: Derivational (including compounds), non-deforming, (more) semantically predictable, productive. Examples: *limpiabotas, cabeza cuadrada*

Level 3 — Properties: Regular inflections (**contextual inflection**), non-deforming, semantically predictable. Examples: *Los limpiabotas / el limpiabotas; el cabeza cuadrada*

This model accounts for the compounds that have an internal inflection mark without syntactic relevance such as in *sordomuda* or *limpiabotas*. These inflection marks are inherent, which means they belong to above mentioned level 1. Consequently, they are inaccessible from the syntax.

5. Conclusions

This piece of research has proved how variational morphology is closely related to the syntactic component, particularly in the case of inflection in compound words. Compounding and inflection have been approached by using different morphology theories and taking into account their relations with syntax component.

One of the parallelisms between compound and syntactic structures is the notion of head, i.e., an element that percolates its features to the whole morphologic or syntactic construction. However, the data presented in this paper (*casas cuarteles, relojes despertadores*) shows that the head of the compound is not the most important element in the inflection of the complex word, which makes necessary to rely on other features. In fact, the analysis of some the examples (*palabras claves, camisas grises perla, perros policías*) suggest that inflection in compounds depends on the speaker and the way they interpret structures, i.e., by using a morphological or a syntactic process (NGLE 2009: §11.2g). This is why it is necessary to relativize the relevance of compound heads, as Bauer (1978) and Ralli & Andreou (2012) claim.

⁵¹ This is why most of the compounds with this structure refer to jobs or instruments. They make reference to generic activities usually performed on a regular basis.

⁵² Gordon's proposal applies to English, but this model of level ordering can also be applied to Spanish.

As has been extensively shown, inflection is one of the most discussed issues in the literature. This paper stresses the idea that inflection holds obvious implications for both the syntax and some lexical units such as compound words. This is why this paper proposes a theoretical model where inflection is located inside the morphological component and to which syntax has full access (Anderson 1982).

Therefore, based on Booij's types of inflection (Booij 1996), it is possible to link inflection to both morphology and syntax: whereas inherent inflection is part of the lexicon, context inflection belongs to the syntax. Taking into account the level ordering hypothesis (Gordon 1985), it is possible to explain some cases of variational morphology in the inflection of compounds with no impact on the syntax such as internal inflection marks. In this case, both gender (*sordomudo*, *cabeza cuadrada*) and number (*lavaplatos*) are to be considered inherent inflection marks because they belong to the lexical sphere, i.e., inside the compound.

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