Iberia

Restrictions in the semantic interpretation of English and Spanish compounds

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Abstract

In this paper we claim that the differences between the semantic interpretation of English and Spanish compounds with identical categories (e.g., noun + noun) are determined by their syntactic structure. Assuming the already well-known division between structural semantics (the meaning provided by the syntactic structure) and conceptual semantics (the idiosyncratic meaning with which the construction is stored in the lexicon), we will try to demonstrate that the most productive patterns of compounding in both languages display a systematic contrast: The English constructions (e.g., *paperboard*, *red-haired* or *dishwasher*) have less structural complexity than the Spanish ones (e.g., *papel cartón*, *pelirrojo* or *lavaplatos*). As a result, the number of conceptual meanings that each member of the three compound patterns can receive in the English language is considerably greater than in the Spanish language. This correlation between structures and conceptual meaning will be tested with noun-noun compounds, adjective-noun compounds and, finally, with noun-verb compounds. The differences found in all of them are triggered by the kind of relational structure that links the lexical units inside the compounds.

Keywords: compound, morphology, semantics, word structure

1 Introduction[1]

A compound is traditionally characterized as the merger of two or more lexemes/words (Matthews 1991, Bauer 2003, Lieber & Stekauer 2009: 4). Compounds are, therefore, distinguished from affixed words, where a single lexeme or conceptual unit can be identified. This definition shows that semantics plays a crucial role in identifying compounds. Taking for granted that compounds contain two lexemes, the bibliography focuses on characterizing the way in which these units are combined to create a new conceptual unit whose meaning is largely related

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explicitly to its constituents. The predictability of the meaning of *lavaplatos* 'dish-washer' contrasts with the lack of transparency of *matasuegras*, lit. kill+mother-in-law, 'party blower'.[2]

It is clear, however, that we cannot identify compounds following semantic criteria exclusively. New compounds are incorporated in different semantic fields, as any simple word is (professions such as *limpiabotas*, 'shoe cleaner'; instruments such as *abrecartas*, 'paper knife'; animals such as *pez espada*, 'swordfish', etc.). They can refer to extralinguistic reality metaphorically or metonymically (*soplagaitas*, lit. blow+bagpipes, 'fool'), as simple words do: *banco* (de peces) 'fishbank' or *mano* (de cartas) 'hand of cards'. The compositionality of compounds, or the possibility of discovering some aspects of their meaning as a whole through their parts, justifies treating them differently to a simple word.

It is largely correct to characterize a compound as the unit containing two or more words, yet this definition presents some unsolved problems. Firstly, it is naive to think that it is possible to discover the meaning of transparent words like *pelirrojo* 'red-haired' only through the sum of *pelo* 'hair' and *rojo* 'red', without considering the kind of meaning the structure provides. This fact has been noticed and supported by several empirical studies on compound processing (Gagné & Spalding 2006).

The cognitivist branch known as *Construction Grammar* (Goldberg 1995) stresses the importance of constructional meaning. The interpretation of compound words is considered to be made analogically (Yoon 2014) through a series of lexical schemes named *templates*. Our proposal shares the constructivist interest in structures, although it does so from a syntactic point of view: syntactic-like structures, and not lexical-stored schemes copied analogically, restrict the potential meanings of words.

In English, at least, compounds are the kind of object favoring theories provided with a rich conceptual system and their own conceptual combinatory principles. They favor cognitivist models such as the *Parallel Tripartite Structure* (of Jackendoff 2009) or lexicalist models such as the *Generative Lexicon* (Pustejovsky 1991).

For Jackendoff, the interpretation of *refrigerator car* as 'a car that contains a refrigerator' or 'a car that functions as a refrigerator' must be specified in the lexicon (2009: 180). The author proposes a list of semantic *functions* or relationships, some of which are attested in Spanish too (1).

[2]In this paper examples that are not English compounds belong to the Spanish language. When the Spanish examples do not appear translated on the right, they have a similar meaning to the English examples below in the same block.

(1) a. *pez globo*
fish globe

'globefish'

b. *ciudad dormitorio*
town dormitory

'dormitory town'

c. *actriz estrella*
actress star

'famous actress'

d. *papel cartón*
paper cardboard

'paperboard'

e. *actor director*
actor director

'actor and director'

All the exemplified functions, however, can be reduced to just one, which we name *identifying*. We can check in (2) that every single compound can be paraphrased in the Spanish sentential syntax with a single functional category, *como*; a unit able to spell out the identifying relationship.

(2) a. *Ese pez es redondo* ***como*** *un globo.*

'That fish is round **like** a globe.'

b. *Esa ciudad se usa* ***como*** *dormitorio.*

'That city is used **as** a dormitory.'

c. *Esa actriz es brillante* ***como*** *una estrella.*

'That actress is **as** brilliant **as** a star.'

d. *Ese papel es rugoso* ***como*** *el cartón.*

'That paper is coarse **like** cardboard.'

e. *Ese actor trabaja también* ***como*** *director.*

'That actor also works **as** a director.'

In contrast, it is difficult to find noun-noun compounds in Spanish for the other functions Jackendoff proposed (3):

(3) a. *vóley playa*
volley beach

'beach volleyball'

b. *zarza mora*
blackberry blackberry

'blackberry'

c. * *baño mañana*
bath morning

'morning bath'

d. * *herida bala*
wound bullet

'bullet wound'

e. * *cavidad nariz*
cavity nose

'nose cavity'

The locative function (3a, 3b) is mainly attested in English borrowings and ancient words. The temporal in (3c), the causative in (3d), or the constitutive in (3e) require, in Spanish syntax, the presence of functional explicit material, such as the preposition *de* 'of', as in *herida de* bala. But *herida de bala* is a phrase, not a compound.

We can check in (4) that none of the constructions in (3) are paraphrased with identifying categories in the sentential syntax. Are these differences between English and Spanish suggesting that word formation (compound formation) is conceptually richer in English than in Spanish? We do not hold this opinion, but Jackendoff's approach cannot be applied to Spanish.

(4) a. # *El fútbol se juega* ***como*** *en la playa.*

'The football is played **like** at the beach.'

b. # *El baño es frío* ***como*** *la mañana.*

'The bath is cold **like** the morning.'

c. #*La herida es* ***como*** *una bala.*

'The wound is **like** a bullet.'

d. #*La cavidad es* ***como*** *una nariz.*

'The cavity is **like** a nose.'

In *Generative Lexicon* theory each lexical entry is totally structured with informational levels (lexical structure, event structure, argument structure and *Qualia* structure). The entry contains a wide range of meanings that are restricted later when the entries are combined. The relevant information is related to the constitution, shape, function or source of the linguistic element. As the four *Qualia* are available in Spanish compounds (5), this model could be deemed the correct one for explaining the facts; however, it predicts that the availability of relationships should be the same in Spanish and English, contrary to (3).

(5) a. *Constitutive* in *papel* ***cartón*** 'paperboard'

b. *Formal* in *pez* ***espada*** 'swordfish'

c. *Functional* in *vagón* ***restaurante*** 'restaurant car'

d. *Origin* in *bebé* ***probeta*** 'test-tube baby'

There are some additional restrictions. In English, any kind of noun (abstract noun, count noun) can be interpreted as an event modifier (6a), but an event modification reading is only available in Spanish when the nouns denote events (6b).

(6) a. ***chain*** *smoker* / **fumador* ***cadena***; ***butterfly*** *swimmer* / **nadador* ***mariposa***

b. *visita* ***sorpresa*** 'surprise visit'; *noticia* ***bomba*** 'hot news'

Fábregas (2015) argues against these previous approaches with multi-specification of meanings in the lexicon. These approaches predict that the greater the structural complexity of a word, the higher the potential readings it has. The author observes that locative readings in derived words with the suffix *-dor* are excluded when the suffix dominates the more complex structures: words like (7a) never denote a place when there is a *causative* head in the structure, in contrast with the 'simpler' structures in (7b), where there is no causative head and, therefore, the words can denote places.

(7) a. *pac**ifica**dor,* *simpl**ifica**dor, fertil**iza**dor*
'peace-**maker**', 'simpl**ify**ing', 'fertil**izer**'

b. *parador, tocador,* *mirador*
'inn', 'dresser', 'lookout'

Our proposal offers empirical evidence in a similar direction. We will show that the structural complexity of Spanish compounds, which is greater than in English compounds, imposes stronger restrictions on conceptualization. We will analyze the most productive Spanish compounds: the noun-noun (N+N) type of *pez globo* 'globefish', the noun-adjective (N+Adj) type of *cuellilargo* 'long-necked' and the verb-noun (V+N) type of *lavaplatos* 'dishwasher'. The working hypothesis is that the different kinds of semantic restrictions that we can find in these Spanish compounds are related to the complexity of their structures. The alleged complexity is accompanied by explicit phonological spell-out for the *pelirrojo* and *lavaplatos* types.

In section 2 we will show the way in which a relational head restricts the semantic interpretation in N+N Spanish compounds, as Delfitto et al. (2008) suggest. The Spanish (null) relational head is different from the spelled-out *Vowel Markers* highlighted in (8), because only the Spanish relational head forces an identifying reading (9). The meaning of compounds in (8) is rather free: *herb*, *music*, and *Islam* are understood as themes, but *Europe* means place in *Eurotúnel*.

(8) a. *herb**í**voro,* *music**o**terapia*
'herbivorous', 'music therapy'

b. *islam**o**fobia,* *Eur**o**túnel*
'Islamophobia', 'Eurotunnel'

Additionally, the Spanish (null) relational *identifying* head only appears in compounds where the heads (highlighted) appear in the left-hand position (9), in contrast with the right-headed examples in (8).

(9) a. ***pez*** *globo*
fish globe

'globefish'

b. ***ciudad*** *dormitorio*
town dormitory

'dormitory town'

c. ***actriz*** *estrella*
star actress

'famous actress'

In section 3 we will explore the semantic restrictions in Spanish adjective-headed compounds (10a). The internal nouns in the Spanish pattern mandatorily establish an inalienable[3] possession relationship with their external subject (*niño* and *toro* in the examples below) that is not the case in the English examples (10b). We will relate this restriction in possessive interpretation with the presence of a functional head spelled out by the vowel *i*.

(10) a. *niño* ***peli****rrojo,* *toro* ***asti****fino*
boy haired red bull horned

'red-haired boy', 'thin-horned bull'

b. *tax-free,* *stone-cold*
*impuestilibre, *piedrifrío

The structure of *pelirrojo* compounds is different (larger) from the structure of typical English attributive compounds such as *bad-tempered* or *kind-hearted*. That structure does coexist in Spanish with *pelirrojo*, as shown in (11). However, Spanish compounds with a *bad-tempered* structure do not mandatorily codify inalienable relationships, as expected.

(11) *efectos sobre****dimension****ados, profesor* *mal****humor****ado*
effects above dimensioned, teacher

'over-dimensioned effects', 'bad-tempered teacher'

Finally, in section 4 we will explore the semantic restrictions imposed on the noun complements in *lavaplatos* compounds. In contrast with synthetic compounds in English (in short, those whose head is a derived verb) (12a), whose noun can be interpreted as an agent, patient or instrument of the predicate, the interpretation of Spanish complements is restricted to the semantic role of *theme*, their interpretation as an agent, a patient or an absolutely prohibited instrument (12b).

(12) a. ***expert****-tested,* ***self****-denying,* ***hand****made*

b. **probado-expertos, *niega-propio, *hecho-mano*

[3] Briefly, *inalienable* stands for body part/body possession relationships mainly throughout this paper.

According to our hypothesis, this restriction will be due to the presence of a little *v* causative node, along with the *V* node, in the verbal projection of *lavaplatos*. Little *v* determines the invariably transitive reading of the Spanish compound. On the contrary, in English, the verbal stem only projects *V*. For that reason, the semantic interpretation of its complements will be accessed later and it will not only depend on the verb itself, but also on the affixes with which the verb merges (*-er*, *-ed* or *-ing*).

The appearance of the vowel *e* in verbs of the Spanish third conjugation such as *cumplir* 'fulfill' demonstrates that these compounds do not contain a bare stem form (13a). In English, we do not have morphological evidence suggesting that the verbal stems in compounds are different from those appearing in derived words (13b). We consider the spell-out of a form like *cumple* 'fulfills' as proof of the larger amount of structure identified by the Spanish verb in (13a), in comparison with the English form *drive* in (13b).

(13) a. *cumpl**i**r* 'fulfill' and *cumpl**i**do* 'compliment' but *cumple**a**ños* 'birthday'

b. *driver* or *car driver*; *opener* or *can opener*

Spanish data clearly indicate that semantic multi-specification models are unable to filter the huge amount of non-attested readings, whereas a syntactically restrictive model captures this fact and can also explain the interpretative freedom wherever it exists (e.g., English). This work assumes the late-insertion hypothesis (Halle & Marantz 1993) and the syntax-lexicon interface principles of nanosyntax (Fábregas 2016). We refer to these works because we will not stress theoretical aspects in this paper.

2 Spanish noun-noun compounds

2.1 N+N left-headed compounds

Most specialists on N+N English compounds agree that they display a high promiscuity of meanings. From a transformationalist model (Levi 1978) the meaning of each compound is obtained by deleting one of the seven predicates exemplified in (14). The availability of *deletable* predicates in Spanish would seem to be severely restricted, however. Levi's analysis can only predict the meaning of Spanish compounds like *niño prodigio* (14e) because the other predicates are not needed in this language.

(14) a. Deleted *Cause* in *battle fatigue* (**fatiga batalla*)

b. Deleted *Have* in *apple cake* (**pastel manzana*)

c. Deleted *Make* in *silk worm* (**gusano seda*)

d. Deleted *Use* in *stem engine* (**motor electricidad*)

e. Deleted *Be* in *child prodigy* or *niño prodigio*

f. Deleted *In* in *field mouse* (**ratón campo*)

g. Deleted *For* in *bird sanctuary* (**santuario pájaro*)

In a non-transformationalist model (Downing 1977) the semantic interpretation of English compounds is contextually resolved. In (15–17) we have listed the acceptable interpretations, according to the author. Although the readings in (15) are productively attested in Spanish, we can again notice that those in (16) are infrequent[4] and those in (17) are never attested as compounds. The most part of the context-sensitive meanings proposed for Downing are never selected by Spanish speakers.

(15) a. *Half-half* in *giraffe cow* and in *perro lobo* 'wolfdog'

b. *Comparison* in *pumpkin bus* and in *perro salchicha* 'sausage dog'

c. *Occupation* in *coffee man* and in *hombre anuncio* 'advert man'

(16) a. *Part-whole* in *duck foot* and in *balompié* 'football'

b. *Source* in *vulture shit* and in *bebé probeta* 'test-tube baby'

c. *Composition* in *stone furniture* and in *papel (de) piedra* 'stone paper'

d. *Place* in *Oregon meal* and in *jamón (de) York* 'boiled ham'

e. *Time* in *summer dust* and in *precios (de) Primavera* 'spring prices'

(17) a. *Purpose* in *hedge hatchet* (**fundas gafas*)

b. *Product* in *honey glands* (**glándulas miel*)

c. *User* in *flea wheel* (**protector mosquito*)

Downing's contextual model correctly predicts the existence of *deictic compounds* in English (e.g., the famous *apple-juice seat*). She collects deictic interpretations for newly created compounds such as *pumpkin bus* (18a). In Spanish, however, the deictic interpretation of a compound is impossible. The natural and *first-to-come* interpretation for this kind of neologism is that of (18b), which is the mainstream identificative one.

[4]These compounds are typically the result of an elided preposition or English borrowing. A compound such as *pez espada* 'swordfish' would be included by the author in the part-whole class, but we consider it to be perfectly acceptable in the comparison class.

(18) a. *pumpkin bus* 'the bus with a pumpkin painted on it'

b. *autobús calabaza* 'pumpkin-like bus'
'the bus with a pumpkin painted on it'

There are even more compromising restrictions for Levy and Downing's (multi-specification) models, restrictions that clearly favor a more restrictive approach. These are related to the availability of event-denoting nouns, as shown in (19) and (20).

The English compounds in (19a) are headed by an event-denoting noun whose modifier can be understood as its patient (*the door is knocked*) or agent (*the horse races*). The same compounds are impossible in Spanish (19b).

(19) a. *door knock*, *heart massage*, *horse race*

b. **golpe puerta*, **masaje corazón*, **carrera caballos*

The English compounds in (20a) contain a noun (*butterfly*) modifying a deverbal noun (*swimmer*) and the scope of the modification is the already nominalized verb *swim*. Spanish syntax tolerates event modification of the same kind (20b), but, crucially, it forbids it in compounds. In Spanish compounds, only the individual denoted by the whole nominalization can be modified, as *nadador* in (20c), not the underlying verb *nadar*. As we anticipated in the introduction, event modifying nouns are only possible when the modifiers are predicates, such as *estrella* and *sorpresa* in (20d, 20e).

(20) a. *butterfly swimmer* and *butterfly swimming*

b. *buen cocinero* 'good chef' or *acosador laboral* 'work bully'

c. *nadador mariposa* *'who swims in the butterfly style'

d. *cocinero estrella* 'star chef' but **cocinar estrella* 'to cook very well'

e. *visita sorpresa* 'surprise 'but **visitar sorpresa* 'to visit by surprise'

Additionally, the contrast between (20a) and (20d, 20e) shows that the event-denoting modifications in English compounds are related to existing verb phrases. The Spanish ones are not.

Summing up, in this section we have shown that the semantic interpretation of compounds cannot be analyzed as the result of contextual adaptation or function-deletion. We need a model where we can obtain the widest amount of semantic interpretations, as in English N+N compounds, but also some more restricted counterparts, as in the Spanish ones.

2.2 Structure and semantic conditioning

All the constructions in section 2.1 contain a noun acting as the modifier of another noun. This construction is traditionally known in Spanish as *aposición* (apposition). Appositions constitute a heterogeneous group in which only the *pez globo* 'globefish' or *actriz estrella* 'star actress' types are our focus.

Compounds like *actriz estrella* stand out from the other Spanish phrasal compounds because of the transparent nature of the semantics of its head *actriz*.[5] The non-predictable meaning is found in the modifier position, as in *pájaro carpintero* 'woodpecker', but it is dependent on the head: there is nothing metaphoric regarding *carpintero* in *futbolista carpintero* 'carpenter and footballer'. Benczes (2005) observes the same fact regarding constructions like *helicopter father* or *sandwich generation.*

As we expect, *padre helicóptero* and *generación Sandwich* mean the same in English and in Spanish because the relational head provided with identifying value is common for both languages, since it is the only relational head available for N+N left-headed compounds in Spanish, such as *actriz estrella.*

Summing up, *actriz estrella* compounds possess three meaningful constituents: two nouns and the functional head that intervenes when they merge. A conceptual unit is constructed over this *three-membered* structure, not merely the result of the accommodation of the conceptual meaning of the nouns. The conceptual unit can survive independently of the structure that built it up, as some historical cases evidence: *emperador* 'swordfish' preserves the conceptual meaning of an old-fashioned compound: *pez emperador.*[6] The same happens in *esmeralda* 'emerald', old *piedra esmeralda.*[7] The data simply point out the existence of two kinds of linguistic meaning, the structural meaning and the conceptual one. This partition is today assumed in many morphological theories (Lieber 2004).

We still need to propose the kind of structure that will capture the semantic restrictions in Spanish constructions, because, as we have said before, only the identifying interpretation is available.

Delfitto et al. (2008) offer a solution that considers the requisites a syntactic structure must fulfill to be linearized at the phonetic component. For these authors, the assembly of two members of the same category (e.g., two nouns) causes a symmetry in every language that must be destroyed via movement of one of the constituents. The differences between languages (e.g., Spanish and English)

[5] This fact establishes a sharp contrast between N+N compounds and N+P+N compounds like *espada de Damocles*, lit. the sword of Damocles, 'dangerous business', or N+A compounds like *piel roja*, lit. skin red, 'red skin'.

[6] Outside the compound, it is hard to think of a context in which a noun like *emperor* would end up metaphorically denoting a fish.

[7] These cases are widely attested in Moyna's (2011) corpus.

regarding N+N compounds are predicted to be the consequence of differences in the level of syntactic representation where the symmetry break is produced.

Germanic languages like English are said to break the symmetry sooner than Romance languages like Spanish. This difference can be supported by empirical data: the breaking point in Germanic languages is optionally spelled out with a compound marker (21), whereas the breaking point in Romance languages is optionally spelled out with a preposition (22):

(21) Dutch: *boek**en** kast* 'bookcase'

(22) *cuello (de) cisne,* *precios (de) primavera,* *ciudad (de) Zaragoza*
'gooseneck sweater', 'spring prices', 'the city of Zaragoza'

The authors explain the different symmetry-breaking points as follows: In Germanic languages, the nouns possess declension classes, which determine their gender, whereas in Romance languages the nouns only possess word markers, which are said to be unable to determine their gender. Consequently, the locus of assignment of gender has important syntactic and phonological consequences: In Germanic languages it is possible to break the symmetry at the noun level, because nouns already possess a feature (gender) licensing the movement of a noun. In Romance languages we have to wait a little longer because, at the noun level, we cannot find a gender feature able to legitimize the movement and break the symmetry.

The differences regarding the point of movement also explain the semantic differences between languages in that proposal. We do not support the gender-based movement explanation because it presents both theoretical and empirical difficulties.

The first is that the exceptions to the correlation between the masculine gender and a vowel marker like *o* in Spanish are so little that they can be counted, as a famous Spanish idiom says, *con los dedos de una mano*, lit. with the fingers of one hand (hand means *mano* and this word is an exception because it is feminine with a vowel marker *o*). The second is that compounds with Germanic-like properties (such as *bocacalle* 'side street') have been documented in Spanish for centuries and are now productively formed. The existence of these compounds, which will be analyzed in section 2.3, makes it difficult to accept that the different levels for spelling out a compound are parametrizable between linguistic families.

There is a simpler solution that is perfectly compatible with the essentials of the proposal. The appearance of a prepositional-like node in Spanish is only possible in compounds where both nouns qualify as phonological words, namely constructions where both nouns are provided with a primary stress and can inflect

gender and number (23).[8] We assume that a prepositional-like relational node is always inserted in a more complex structure than a compound marker. This would explain the predictions made in the previous section.

The larger complexity of the Spanish structure has phonological consequences. The Spanish compound consists of two (phonological word) nouns and the head is linearized to the left, as happens in any Spanish noun phrase with a complement like *jugador de fútbol* 'football player'.

(23) *entrenadores jugadores, Reyes Magos, actrices estrellas*
coaches players kings wizards actresses stars

'coaches and players', 'wise men', 'famous actresses'

As we said before, there are N+N compounds in Spanish with English-like properties: the head is linearized to the right, there is a single main stress and they contain a vowel marker (24). The structure of these compounds is simpler than (23): one of the nouns in these compounds is not a phonological word in Spanish because the internal noun has no gender-interpretable vowel marker (24a) and cannot inflect number (24b). We predict that this kind of noun does not legitimize the appearance of a prepositional-like functional node.

(24) a. *music**o**terapia, bols**i**libro*
'music therapy', 'pocketbook'

b. **tele**s**basura, *video**s**aficionados*
'televisions' junk', 'fans of videos'

Summing up, there are two structures for both English and Spanish N+N compounds. In one, the relational head is a compound marker, the non-head does not qualify as a phonological word (it is not stressed) and the head is on the right. This is the less complex structure and, therefore, its meaning is not restricted to the identifying interpretation. In the other, the relational head is a preposition-like category, the head does qualify as a phonological word (it is stressed) and the head is on the left. This is the more complex structure and, therefore, its meaning is restricted to the identifying interpretation.

Having said that, the structure we assume for Spanish constructions of the *pez globo* 'globefish' type is (25). The semantic restrictions are related to the presence of a functional head, named *identification* (*Id*), because it contains specific semantics (it forces its complement *globo* to be interpreted as the object the head

[8] A potential problem for our proposal is that the modifier in these compounds rarely appears in the plural.

noun *pez* resembles). This head is prepositional in two senses: its complement is a phonological word and, configurationally, it selects two arguments, Noun Phrases (NP) or Determiner Phrases (DP), one as a complement and the other as a specifier.

(25)

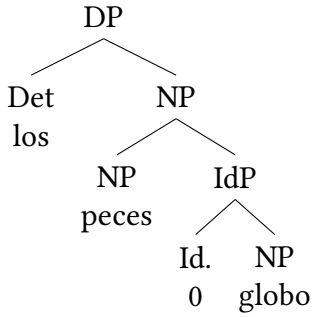

Figure 1. The projection of a Spanish N+N compound (*pez globo*). It contains the relational node IdP introducing two arguments. The one on the left can be expanded as a DP.

We do not consider the semantics of *Id* to be the same as the semantics of one Spanish preposition. This would make us think that the deep structure of *pez globo* is 'fish *like* a globe'. To think like that will lead us back to the old transformationalist analysis. It is true that a few constructions like *jamón (de) York* seem to have been created because of the deletion of a preposition. However, compounds created by preposition deletion do not always accept the identifying interpretation (*York* indicates the source of the ham; it does not express any resemblance with ham). They should not receive the structure in (25). We think it is safer to assume that the relational head in (25) cannot be spelled out and that it is preferable to explain the context in which phonetic material is not introduced, as Fábregas (2005) did.

The structure of (25) captures a little part of the *Functional Sequence* of noun modifiers and complements. It shows the zone occupied by restrictive modifiers, according to the typical cartographic approaches (Cinque 2014).[9] We think English and Spanish languages differ because the expression of causal or temporal relationships between nouns in the latter mandatorily requires the projection and spelling out of prepositions, resulting in the projection of phrases significantly different from (25). It seems that the portion of functional structure that non-heads in English compounds can identify is considerably higher (a *Superset*) than the one occupied by Spanish modifiers in (25). It would be interesting to develop the cartography further in future to capture that fact.

[9] [DeterminerP… [NumberP… [[AdjP Reduced Clause] … [AdjP … NP]]]]] (Cinque 2014: 2).

2.3 N+N right-headed compounds

In Spanish, the *pez globo* structure coexists with the compounding types influenced by English and Classical languages.[10] It is unusual to find any comments on their individual particularities in the bibliography (they are often treated together as right-headed N+N compounds in the same sections). In this brief section, we will focus on the semantic differences between English-influenced and neoclassical compounds. Additionally, we will add several restrictions differentiating the behavior of right-headed Spanish compounds from that of English compounds.

Making compounds in Spanish constitutes a strongly restricted process in general terms (not only for left-headed compounds such as *actriz estrella*, but also for the others).

Firstly, it is difficult to find complex modifiers in a Spanish compound. The examples highlighted in (26b) represent the most typical cases. Similar constructions exist in English (26a), although that language has a much more varied typology of complex modifiers (26c). The compounds in (26b) typically belong to the neoclassical compounding pattern, which is equally productive in both languages (26d). The compounds in (26a) and (26c), however, are typical instances of English (not neoclassical) compounding.

We would like to hypothesize that the Spanish language cannot borrow complex modifiers from English compounding patterns, although it can borrow them from the classic pattern (even through English). The prohibition should be related to the amount of structure (syntactic or phonological) that the modifier position allows in these languages.[11]

(26) a. ***$4-million*** *project*, ***twelve-year-old*** *boy*

b. *vehículo* ***todoterreno***, *coche* ***biplaza***
vehicle all terrain car two-seat

‘all-terrain vehicle’, ‘two-seater’

c. *last-minute call, big-box store*
**llamada minuto último,* **almacenamiento caja grande*

d. *covalent, preposition, subspecies, ultrasound*
covalente, preposición, subespecie, ultrasonido

[10] As Fábregas (2005: 262) notices, right-headed N+N compounds in Spanish such as *publirreportaje* do not behave exactly like English compounds: they are not recursive and their constituents cannot be coordinated (*publi and tele reportaje) or modified (*publitelereportaje).

[11] *Todo, bi, sub* or *ultra* in the Spanish examples are (unstressed) prefixes and not phonological words like *last* or *big* in the English ones.

Secondly neither neoclassical compounds nor Spanish compounds allow a postposed particle modifying a noun head, although English does (27a). It is easy to notice the influence of English on Spanish constructions with postposed particles in (27b).

(27) a. *hanger-on, passers-by, makers-up*

b. *Coca-Cola sin, gasolina súper*
Coke without gasoline super

'Coke Zero', 'premium gasoline'

In the previous examples of (26d), the neoclassical compounds, but not the English-influenced ones, contain modifiers provided with grammatical meaning making it difficult to distinguish between compounding and prefixation. Buenafuentes (2007) treats these differences as the consequence of grammaticalization and lexicalization processes. Broadly speaking, the semantic differences between *tele-* in *teledirigido* 'remote-controlled' and *tele-* in *telebasura* 'junk TV' are explained through the grammaticalization of the older meaning of *tele* 'remote' in the neoclassical structure and the lexicalization of *tele-* with the new meaning (TV) in the English-influenced one (Buenafuentes de la Mata 2007: 48).

The *source* and *target* meanings of the referred processes now coexist in Spanish and are interchangeable. As such, a *teledirigido* not only denotes the kind of objects that can be remote-controlled, but also, in examples like *debate teledirigido,* a kind of TV debate. In the same way, *telebasura,* which denotes low-quality programs, in *servicio de telebasura* can name a kind of garbage collection service. These polysemies of constructive kind are not uncommon in compound words.

Although we will not delve into the historical source of meanings, we believe that the origin of meanings is not useful enough to characterize their synchronic and coexistent distribution. We need to access the category signature of *tele* as an adverb or noun to predict the meaning of the compounds above, in other words, we need the syntactic structure to restrict the two possible interpretations.

Regarding the semantic interpretation of N+N English-influenced compounds, we would like to make some final theoretical notes. The cartographic models allow a great deal of syntactic refinement, which would make it possible to reflect contrasts like these in (28). Compounds with modifiers like *Euro* do not show any formal distinction specifying the kind of noun modification they perform. However, we have found semantic differences inside *Euro* compounds that probably cannot be entirely explained resorting to the extralinguistic context or the conceptual specifications of each word.

(28) a. *Eurozona, Eurogrupo, Euromillón*
'Eurozone', 'Eurogroup', 'Euromillion'

b. *Europarlamento, EuroDisney, Eurotúnel*
'European parliament', 'Euro Disney', 'Eurotunnel'

(the same *Euro* as in *Eurasian* or *Eurafrican*)

c. *Euroescéptico, Euroconector, Eurocomunista*
'Eurosceptic', 'Euroconnex', 'Eurocommunist'

The *Euro* in (28a) is understood as a proper name. In phrasal syntax, this *Euro* would modify its head in constructions such as 'millions of Euros'. The *Euro* in (28b) is not understood as a proper name, but as a relational one. In phrasal syntax, it will modify its head in constructions like *European Union*.

In (28a) the denotation of words like *Eurozona* accesses the strict proper noun interpretation and, therefore, the *Eurozone* has no political representatives from the UK as the country does not use the Euro. In contrast, words like *Europarlamento* in (28b) access the wider relational interpretation: the *European parliament* includes British representation because the UK is a member of the *European Union*. To capture this difference, we need to access the relational *Euro* in the latter and not the proper name. We suggest that the meaning contrasts between modifiers in (28a) and (28b) rely on the position of attachment of the modifier *Euro*.

The *Euro* in (28b) also differs from the others in (28a) or (28c) because it is the only one qualified to appear in coordination contexts. The restriction is not trivial: Why is it not possible to coordinate the other *Euros*? Can we reflect on this knowledge in the conceptual meaning of *Euro* or restrict the distribution of these *Euros* pragmatically? We do not think so.

Finally, the *Euro* in (28c) is understood as a kind of adjunct that is more external than the previously seen modifiers. There are subtle differences in meaning between the members of (28b) and (28c), because the latter *Euro* does not necessarily express that something 'belongs to Europe', in contrast with the first one. Consequently, there are Eurosceptic people in Turkey and Eurocommunism in Russia, but there is no European Parliament in Asia or Eurotunnel in America.

2.4 Interim summary

Throughout this quite long section, we have shown a wide range of data to support the hypothesis that English and Spanish compounds are strikingly different regarding aspects such as their semantic complexity, their phonological spell-out and the availability of modifiers. We offer a summary of these differences in (29). We believe that so many heterogeneous dissimilarities can only be handled from the syntactic component. In the next (and much shorter) sections, we will

add empirical evidence coming from other compounding patterns to support this idea.

(29)

	English compounds	**Spanish right-headed compounds (English-influenced)**	**Spanish right-headed compounds (neoclassical)**	**Spanish left-headed compounds**
Non-identifying relationships	Yes *summer dust*	Yes *publicesta*	Yes *dermoterapia*	No
Deictic interpretation	Yes *pumpkin bus*	No	No	No
Argument modifiers	Yes *horse race*	Yes *radioyente*	Yes *jurisprudencia*	No
Event noun modifiers	Yes *chain smoker*	No	No	No
Complex modifiers	Yes *last-minute call*	No	No	No* *chaleco antibalas*
Particle modifiers	Yes *passers-by*	No	No	No* *Coca-Cola sin*

Table 1. Summary of the differentiating properties of noun-noun compounding patterns.

*Despite being left-headed, contains neoclassical or English-borrowed elements.

3 Attributive compounds

In the previous section we have revealed the strict restrictions characterizing the semantics of N+N compounds in Spanish. Regarding attributive compounds, *pelirrojo* does not look any different in its semantics from its counterpart *red-haired*: both words denote the same kind of individual via the same lexemes. There are morphological differences between them, however. In the inner position

of the English compound we find a typical word of this language, *red*. In contrast, in the same position we find in Spanish a form such as *peli*, which it is not a Spanish word. In English's external position, there appears a suffix *-ed*, which transforms the construction into an adjective. In Spanish, however, the external position is occupied by non-derived adjectives, such as *rojo*.

In this section we argue that, despite their conceptual resemblance, *red-haired* and *pelirrojo* spell out different structures. We propose that *pelirrojo* stands out from the other attributive compounds, both in Spanish and English, because it mandatorily codifies inalienable possession relationships.

A detailed presentation on the semantics of inalienability would exceed the aims of this paper. Briefly, inalienable possession relationships, according to Langacker (1999) constitute a specialization on possessive constructions because they require a point of reference to identify the possessee. Consequently, the denotation of certain kinds of nouns, typically parts of the body or kinship objects, implies the existence of their possessor; broadly speaking, a nose implies the existence of an animate being, a nephew the existence of his uncle/aunt, and so on. The existence of a car, on the contrary, does not imply the existence of its owner. This means the possession relationship between a car and an owner is not inalienable.

In Spanish, there are different kinds of compounds headed by adjectives. We refer to them as *attributive compounds*. The first distinction to be made is between compounds headed by simple adjectives (30) and compounds headed by derived adjectives of participial (31) or non-participial (32) origin. The compounds in (30a) exemplify the main topic: the inalienable Spanish constructions, whereas we refer to the non-inalienable examples of (30b) as neoclassical compounds.

(30) a. ***peli****rrojo* 'red-haired', ***mani****largo*, lit. long-handed, 'thief'
b. ***punti****forme* 'tip-shaped', ***canceri****forme* 'canceriform'

(31) ***mani****obrado* 'maneuvered', ***manu****facturado* 'handmade'
radio*guiado* 'radio-guided', ***drogo****dependiente* 'drug addict'

(32) *videoaficionado* 'video fan', *hidroeléctrico* 'hydroelectric'[12]

[12]Constructions in (32) can be grouped together with (31). They include terms of scientific register such as *hidroeléctrico* 'hydroelectric' (a back-formation of hydroelectricity). It is usual to find instruments and manners (not themes) in an inner position and to characterize the internal element as a non-nominal adjunct, as in *guantes **di**eléctricos* (gloves that protect hands from electric shocks).

Next we enumerate the similarities and differences between these compounds, focusing on the particularities of (30a). (30a) shares with (30b) or (31) the closing vowel *i*. Consequently, *mani* appears both in (30a) and (31). However, in (31), but not in (30), we can find different closing vowels like *o* or *u*.

The nouns in (30) can only be interpreted semantically as themes, whereas those in (31) can display other semantic roles, e.g., the instrument role: *made by hand*, *guided by radio*.

The inner nouns in (30) share a closing vowel *i* and a theme interpretation, but only the compounds in (30b) are similar to (31, 32) regarding an important property: the noun in (30b) can be replaced by other categories (non-nominal modifiers), as shown in (33). (30a) cannot: it is the compound that only tolerates the presence of a noun in an inner position.

(33) ***canceri****forme* 'canceriform' → ***uni****forme* 'uniform'
drogo*dependiente* 'drug dependent' → ***inter****dependiente* 'interdependent'

Summing up, although all the examples in (30–32) contain a noun in an inner position, only (31a) forbids the presence of other categories. This observation has been unnoticed by previous works, but it constitutes a structural restriction that is relevant enough because of its semantic and morphological consequences. Regarding the latter, in a Spanish attributive compound, whenever we find a non-nominal category in an inner position, the head must be derived (34):

(34) *quince****añero*** 'fifteen-year-old', *tri****dimensional*** 'three-dimensional'

The Spanish constructions in (34), but not those in (30–32), parallel the typical attributive compounds in English (35). The modifier is in an inner position and the head is also derived.

(35) left-**handed**, kind-**hearted**, well-**intentioned**

We must keep in mind that the English attributive constructions in (35) also coexist in English with a *pelirrojo*-like construction, in other words constructions with a noun in an inner position headed by a simple adjective (36a). But we should notice that these particular compounds are never attested in the Spanish *pelirrojo* type (see the ill-formed glosses below). Strikingly, they are acceptable in the *canceriforme* pattern (36b):

(36) a. ***air*** *sick*, ***tree****-free*
**airienfermo*, **arborilibre*

b. ***aeri****forme*, ***arbori****forme*

The conclusions from (30–36) are as follows: both English and Spanish construct attributive compounds following two structural patterns, the modifier-head and the complement-head. The modifier-head pattern only differs between languages because of its productivity. In contrast, the complement-head pattern differs structurally between languages, and this fact leads to semantic differences: some compounds are necessarily inalienable, others are not. The modifier-head structure is exemplified in (37a); the complement-head one, in (37b):

(37) a. [mal humor]ado]]; [kind heart]ed]]

b. [cuelli] largo]]; [canceri] forme]]; [sea] sick]]

In (37a) the nouns *humor* and *heart* are modified before merging with the affixes *-ado* and *-ed* and are then recategorized as adjectives. We refer to this as the modifier-head structure. In (37b) the nouns *cuelli, cancer* and *sea* complement the adjectives *largo, forme* and *sick*, with the head as an adjective. We refer to this as the complement-head structure.

Regarding the semantics of the patterns, *kind-hearted* in (37a) exemplifies a prototypical case in which the noun (*heart*) maintains an inalienable possession relationship with the subject of the attribution. We should not forget, however, that (37a) does not *impose* inalienability either in Spanish or in English. We can attribute the property of being red-carpeted to a floor, or the property of being *sietemesino* (lit. seven-month-ed, 'born two months early') to a newborn, but we do not necessarily understand that there is an inalienable relationship between a carpet and a floor or a baby and its gestation time.

The most relevant semantic contrast between these languages occurs in complement-head structures (38). We remember that English (or neoclassical compounds) allow any kind of noun in an inner position. The glosses show that the parallel constructions in Spanish are ill-formed.

(38) *color blind, air sick, tax-free, stone-cold*
**coloriciego, *aerienfermo, *impuestilibre, *piedrifrío*

We can quickly check in (39) that Spanish's restrictions can in no way be related to a hypothetical lack of productivity (García-Lozano 1974).

(39) **wing**: ***ali****caído*, ***ali****quebrado*
beard: ***barbi****cano*, ***barbi****lampiño*
mouth: ***boqui****ancho*, ***boqui****fruncido*
sourcil: ***ceji****junto*
neck: ***cuelli****corto*, ***cuelli****largo*
horn: ***corni****apretado*, ***corni****gacho*,

skirt: ***faldi****corto*
hand: ***mani****largo*, ***mani****rroto*
eye: ***oji****alegre*, ***oji****negro*
leg: ***pati****cojo*, ***pati****hendido*
chest: ***pechi****blanco*, ***pechi****rrojo*
hair: ***peli****agudo*, ***peli****negro*
peak: ***piqui****tuerto*
tail: ***rabi****corto*, ***rabi****largo*
face: ***rostri****torcido*

The list in (39) is only a short example. The boldface nouns denote body parts of humans or animals, occasionally kinship terms (e.g., chica *faldicorta* 'short-skirted lady'). The following question arises: How can we limit the appearance in the compound to these such semantically-specific nouns? Why are nouns like color, air, tax or stone prohibited in *pelirrojo* compounds and not in the other attributive compounds?

A possible solution is to list every noun in (39) in the lexicon and to consider that the new words are formed analogically over preexisting words. This solution cannot explain why neologisms such as *ombliguiverde* 'green-naveled' or *rodillijunto* 'with joined knees' now appear in some varieties of Spanish, such as Colombian Spanish (Ponce de León 2015). The reason why it is difficult to accept the analogical explanation is that the nouns *rodilla* and *ombligo* were previously unattested in the pattern of (39) and break the default phonological pattern: *ombligo* and *rodilla* cannot be analogous to many previous words, because they are three-syllabled.

Another possibility is to think that each noun traditionally considered as an inalienable possession noun (IPN) constitutes a special lexical entry (e.g., the *hair* entry contains information predicting participation in *pelirrojo* compounds). This solution cannot explain why inalienable possession nouns vary between languages and display different behavior. Words like *son* or *hair* are presumably included in the lexicon of a lot of languages, those codifying them as inalienable possession terms and those that do not.

The contrasts we offer in (40) favor a structural approach to the distinction between alienable and inalienable possession. They allow us to observe a clear connection between the behavior of phrasal syntax and word syntax in the languages we are analyzing.

Some authors (Guéron 1983) have linked the mandatorily inalienable interpretation in Romance constructions of (40a) to the appearance of the definite article. In these constructions, the possession relationship between the subjects/pronouns and the highlighted definite phrase is mandatorily inalienable. That does not happen in (40b), where the inalienable interpretation is optional; finally,

the inalienable interpretation is impossible in the English examples of (40c).

We have noticed that the same nouns treated as mandatorily inalienable in (40a) are also mandatorily inalienable in the compounds of (39). In a surprisingly coherent way, there are no mandatorily inalienable terms in the English examples of (40c) and, therefore, there are no attributive compounds in this language mandatorily codifying inalienable relationships.

(40) a. *Juan se cortó las **venas**. Pluto se perseguía el **rabo**. María se manchó la **falda**.*
'John cut his veins.' 'Pluto went after its tail.' 'Mary dirtied her skirt.'

b. *Juan se llevó al sobrino.* *María se trajo el coche.*
'John took his/other people's nephew.' 'Mary brought her/other people's car.'

c. **He cut the veins (his veins). *Pluto went after the tail (its tail). *Mary dirtied the skirt (her skirt).*

In (41) nouns like *venas*, *rabo* and *falda* are not mandatorily inalienable in all the constructions. We expect the inalienable interpretation to be obligatory in certain syntactic constructions of each language, but not in all of them. In other words, we predict that it is possible to find both inalienable structures, like *pelirrojo*, and non-inalienable ones, like *sietemesino*, in Spanish.

(41) a. *Me da mucho asco comer esos fideos que parecen **venas**. (#my veins)*

'I hate eating that pasta that looks like **veins**.'

b. *El torero finalizó la temporada ganando tres orejas y un **rabo**. (#his tail)*

'The bullfighter ended up winning three ears and a **tail**.'

c. *Otra vez se ponen de moda las **faldas** escocesas. (*Scottish's skirts)*

'Kilt-like **skirts** are fashionable again.'

Having said that, we claim that *color blind, canceriforme* and *pelirrojo* spell out different complement-head structures, and the Spanish one is the most complex. The larger complexity of *pelirrojo* causes the more restricted nature of its meaning, as was the case of N+N left-headed compounds in the previous section. The structures of complement-head compounds are represented in (42). They support the general hypothesis of this work: once again, the more complex the structure is, the more restricted the possible meanings are.

(42)

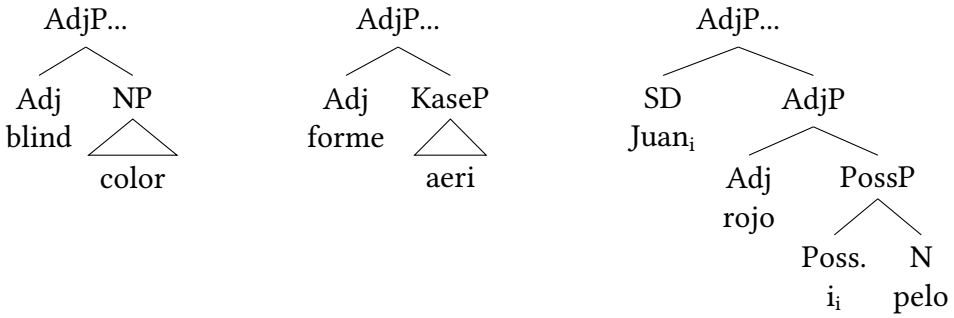

Figure 2. Projection of N+Adj English compounds (*color blind*), neoclassical compounds (*canceriforme*) and Spanish compounds (*pelirrojo*). In the latter case, the structure also includes the subject *Juan*, because the relational category possession (poss.) which introduces *pelo* is the only one coindexed with its subject, thus restricting the interpretation of their relationship.

We propose that *color* in *color blind* is a noun phrase. It has the typical structure of N+N compounds, such as *heart massage*, because the semantic interpretation of the complement *color* is quite free.

We propose that *canceri* in *canceriforme* is also a noun phrase, although, in this case, the old case-marker vowel *i* causes the semantic interpretation of *cancer* to be less free than the English *color*; *forme* acts as a transitive predicate which forces the noun to be interpreted as a theme.

Finally, the *peli* in *pelirrojo* is structurally like a prepositional phrase. The vowel *i* is a relational morpheme (synchronically active, as Gil-Laforga 2014 demonstrates) mediating the relationship between the head *rojo* and its complement *pelo*. The semantic interpretation of *pelo* is mandatorily inalienable in *pelirrojo*. We blame the relational head spelled out as *i* for that. We represent the inalienable possession relationship between the noun inside the compound and the subject outside it by co-indexing them. We name the relational node *possession* (poss.) to characterize its semantic contribution.

Summing up, throughout this section we have analyzed different kinds of compounds headed by adjectives. As we did for noun-noun compounds in section 2, we have tested their distributional, semantic and morphological characteristics, trying to demonstrate that more exhaustive and refined analyses of compound characteristics are welcome to classify them properly. We have demonstrated that two kinds of grammatical relationships, the modifier-head of *red-haired* and the complement-head of *pelirrojo*, can easily be identified in both English and Spanish. The Spanish construction, however, is semantically restricted to the expression of inalienable constructions. As the structure of *pelirrojo* is the most complex among them, its behavior contributes to proving the general hypothesis of this paper.

We have defended that the relational prepositional-like node spelled out as *i* is responsible for restricting the semantic interpretation of *pelirrojo* compounds to inalienable relationships. In the previous section, we also blamed a prepositional-like head for the semantic restriction of *pez globo* compounds to identify relationships. We would like to point out that, although the spell-out of the relational morpheme *i* is optional for *pelirrojo* compounds in the majority of Romance languages, e.g., Catalan (Padrosa 2010), the relational head was not spelled out in *pez globo* compounds either. It should be clear that, in our approach, while the spell-out of a relational head proves its existence, the absence of spell-out does not prove its absence.

In the next section on verbal compounds, we focus on the role of spell-out to reveal structural differences between compounds.

4 Compounds with a verbal head

The aim of this section is to demonstrate that the semantic restrictions displayed by compounds like *lavaplatos* 'dishwasher' are determined by their structure.

In the first place, the noun appearing as the non-head in the Spanish verbal compounds can only be interpreted as an argument (provided with a themed semantic role). The noun complement cannot receive a locative, temporal, agentive or instrument role. In (43–46) we illustrate the meaning contrasts in Spanish and English verbal compounds; all the adjunct interpretations are attested in English, but none of them is in Spanish (see the glosses below the English examples).

(43) Nouns as agents:
expert-*tested*, ***self***-*denying*
**pruebaexpertos*, **niegapropio*
robamaridos 'woman who steals other women's husbands' (husband as theme)
*'woman stolen by the other women's husbands' (husband as agent)

(44) Nouns as places [13]
church-goer, *home-brewed*
**acudeiglesias*, **cocinacasa*

[13] It is possible to find a place denotation when the complement of the verb constitutes an incremental theme, in other words, the event of passing finishes when every street has been passed by, as in *pasacalles*, lit. 'pass+streets'.

(45) Nouns as times:
Sunday *driver*
conduce*Domingos***
*Canta***mañanas** 'boaster' (morning as theme)
*'morning singer' (morning as time)

(46) Nouns as instruments:
hand*written*
**escritomano*
*Escribe***manos** 'Pen which writes in hand's skin'. (hands as theme)
*'Pen in which hands write'. (hands as instrument)

Lieber (1983) already notices that compounds with a verb in an inner position or 'First Stem Argument Taking', such as *pickpocket*, only allow an argument interpretation of *pocket*. In that sense, they differ from compounds with the verb in an external position (*caretaker*), which are usually known as synthetic compounds (they possess a deverbal head), because synthetic compounds allow both argument and non-argument interpretation in the non-head position.

Additionally, Lieber predicts that structural differences give rise to two kinds of synthetic compounds: In the first kind, the noun receives an adjunct interpretation and a verb *stem* such as *test*, *brew* or *write* has been previously suffixed (*tested*, *brewed*, *writing*). In the second kind, the noun receives an argument interpretation and the suffixation process takes place afterwards. Romance compounds, such as *robamaridos* 'husband thief', *pasacalles* 'parade' and *cantamañanas* 'boaster', can only project as the latter, because there is no suffix interrupting the direct *merge* between verb and noun.

(47)

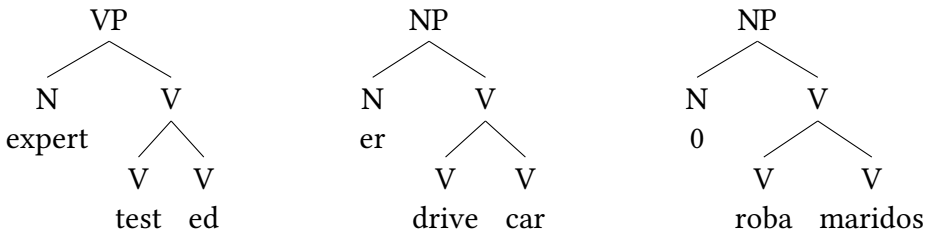

Figure 3. We have simplified the kind of structure offered by Lieber (1983: 269) and adapted it to the Spanish language. The figures show that the verbal Spanish compounds (*robamaridos*) only project like *car driver* and never like *expert-tested*. This explains the ill-formed Spanish examples in (43–46).

Secondly, English allows the productive appearance of non-nominal adjuncts and even of complex modifiers (48a). In Spanish, however, there are only a few unproductive exceptional cases (48b).

(48) a. ***odd**-sounding name*, ***ill**-educated person*
*nombre suenararo, *persona educadamal

b. *manda**más*** 'big boss', *cata**lejo*** 'telescope'

Lieber's work offers an explanation for the compulsory argument interpretation of nouns in the *lavaplatos* structure. Her explanation is based on the hardly reliable criterion of a head position. Lieber links the mandatory selection of arguments to the complement position of the verbal stem *lava*. In this section we will argue that it is not the position *lava* occupies but its appearance in a more complex structure than *wash* that is the key to explaining the absence of the adjunct semantic reading.

Unlike Lieber, subsequent approaches to the Romance compound make it difficult to explain the restriction of the adjuncts. These approaches consider *lavaplatos* to be a synthetic compound whose affix has no phonological spell-out. The zero affix nominalizes the verbal *stem* [canta$_V$-0$_N$ mañanas] or the whole structure [cantamañanas-0 $_N$].

In Spanish there are examples, like those in (49), supporting the null affix idea. The constructions in (49), however, are hardly productive.[14] We cannot even identify a coherent set of suffixes to characterize the value of the null affix: *-ia* and *-ista* derive significantly different kinds of words.

(49) *paracaid**ista**, portavoc**ía***
stops fallist carries voicery

'parachute', 'office of spokesperson'

Traditionally, the null affix approaches attribute to the null affix the semantics of the English suffix *-er*. The affix is in charge of *absorbing* the semantic role of the external argument (Varela & Feliú 2003).

The absorption of the external argument role would explain why *cuchillo* 'knife' in (50a) cannot receive the instrument role in *afilacuchillos,* as *afila,* which is supposed to mean 'sharpener', already absorbs the (external) instrument role. The same explanation is suitable for explaining why *sanos* 'safe' is not the agent in (50b) (the agent has been absorbed by the null-affixed *mata* 'killer') or why

[14]They might be derived phrases such as *librecambrista* 'free trader' or *altoaragonés* 'person who lives in the north of Aragon'.

olas 'waves' is not the location in (50c) (the location has been absorbed by *rompe* 'breaker').

(50) a. *afilacuchillos*: 'knife-sharpener' (knife as theme)
*'knife-like sharpener' (knife as instrument)

b. *matasanos*: 'doctor who kills healthy people' (healthy people as theme)
*'doctor who kills with the help of the healthy people' (healthy people as agents)

c. *rompeolas*: 'place where the waves break'(waves as theme)
*'place which breaks in the waves' (waves as place)

The absorption theory has some problems with unexpected ill-formations, however. **Conducedomingos* 'Sunday Driver' is not attested in Spanish. As no compound ever absorbs a time external argument, the construction should be well-formed. The same is applicable to **acudeiglesias* 'church-goer': as no compound ever absorbs a goal external argument, this compound should be acceptable.

Similarly, the absorption theory cannot explain why an agent cannot be understood when the external argument means an instrument in the noun complement position (51).

(51) *matasuegras* *'tool with which mothers-in-law kill their relatives' (mothers-in-law as agents)

Summing up, we can safely conclude that the mandatory argument interpretation of the noun complement in Spanish compounds is completely unrelated to the semantic denotation of the absorbed external argument. The prohibition of adjuncts should be handled differently.

The reason why *rompe* in *rompeolas* was identified as 'breaker' in previous approaches is understandable: compounds like *cuentakilómetros* 'speedometer' and phrases like *contador de la luz* 'meter box' have a similar denotation. Despite that correspondence, it should have been taken into consideration that the external argument in phrases like *contador de la luz* holds a much wider semantic range than in compounds like *cuentakilómetros.*

Firstly, the external arguments which are spelled out by the affix *-dor* can receive an experiencer semantic role (52a). English synthetic compounds, which are suffixed with *-er*, can also denote experiencers (52b). Spanish compounds, however, cannot receive an experiencer role, as the glosses reveal. It seems to be clear that the possibility to denote experiencers is tied to the presence of an affix. As the Spanish compound does not have one, it cannot do so.

(52) a. *vividor* 'scrounger', *oidor* 'judge'
**vivevidas*, **oyejuicios*

b. *radio hater*, *tv viewer*
**odiarradios*, **veteles*

Secondly, English compounds tolerate either intransitive or unaccusative verbs without changes in their usual meaning (53a). The appearance of unaccusative verbs, such as *crecer* 'grow', *arder* 'burn' or *esbarizar* 'slip' in Spanish compounds, however, requires semantic changes to arrive at a causative interpretation because the true unaccusative reading is not allowed in the compounds of (53b). An old causative meaning can be found in a now unaccusative verb, such as *arder* 'burn'.

(53) a. *ice melter*, *Earth warming*
**derritehielo*, **calientaTierra*

b. *crece**pelo***, ***arde**viejas*, ***esbariza**culos*
grow+hair burn+old women slip+buttocks
'hair restorer', 'gorse', 'toboggan'

Our explanation of the contrasts of (52, 53), and of the ones in (50, 51), is as follows. Synthetic compounds in English and derived words with *-dor* in Spanish are made up of a non-inflected (non-finite) verb form. The affixes in both constructions take (absorb) the semantics of a characterizing subject. The most acceptable interpretation of that subject (as an agent, place, instrument, experiencer, etc.) is selected pragmatically or conceptually.

Compounds in Spanish, however, are made up of an inflected form of the verb, a form which spells out by itself (without the contribution of affixes) the functional structure corresponding to an agentive or causative projection (little *v*). Consequently, non-agentive or non-causative verbs are prohibited (54a). Experiencer subjects can appear in the compounds, but only if they are provided with a causative structure (54b).

(54) a. **observateles*, **dependedrogas*
'telespectator', 'drug addict'

b. *crecepelo* 'it makes your hair grow'
esbarizaculos 'it makes your buttocks slip'

We have proposed that the verbal form in the English compounds is a non-finite one, compared with the *present-inflected* one in Spanish compounds. This would explain why the aspectual interpretation in *lavaplatos* compounds can only

be active and not progressive: to obtain a compound meaning that is the same as *dishwashing*, in Spanish we would need an infinitive form (*el lavar los platos*). But, as we are going to demonstrate next, the verb form in *lavaplatos* is not an infinitive form.

It is relatively easy to find evidence for the non-infinitive nature of the verbs inside the Spanish compounds: *i* is the infinitive vowel in the third conjugation of Spanish verbs, but in Spanish compounds the vowel appearing with verbs of the third conjugation is *e*, not *i* (55a). Consequently, it makes sense to find pairs like those in (55b) in English, but not in Spanish, because active and progressive constructions derive from the same verb form only in the former.

(55) a. *cubr**i**r*, *cubridor*, but *cubr**e**tetera* 'tea cosy'
*cumpl**i**r*, *cumpl**i**do*, but *cumpl**e**años* 'birthday'

b. *dishwashing/dishwasher*

The table in (56) summarizes all the differential properties that have been observed throughout this chapter. They are significant enough to demonstrate that the consideration of the Spanish compound as the zero-derived version of the English one is totally wrong. Additionally, the revealed contrasts seem to support the overall hypothesis of this paper: we have hypothesized that the verb form in *lavaplatos* spells out a more complex structure than the verb forms in *lavadora* or *dishwasher*; consequently, the number of possible conceptual meanings available for the Spanish compounds is truly small in comparison with their English counterparts. We will develop the structural analysis below the table.

(56)

	English compounds	**Spanish compounds**
Adjunct interpretation for complements	Yes *home-brewed*	No
Non-nominal modifiers	Yes *odd-sounding (name)*	No* *mandamás*
Experiencer interpretation for subjects	Yes *radio heater*	No
Unaccusative meaning for verbs	Yes *Earth warming*	No
Progressive meaning	Yes *Dishwashing*	No

Table 2. Summary of the differential properties of verbal compounding patterns.

*These examples are unproductive and perhaps lexicalized phrases.

The structure for the Romance compounds is offered in (57). The structure contains a *V* node, which selects the inner noun as its complement and assigns the semantic role of theme to it. It also contains a little *v* node, which selects a null or absorbed subject and assigns the agentive/causative role to it. This last node restricts the possible denotations of the compounds as agents, instruments or causes (never experiencers or patients). The figure also represents the nominalization process through internal merge or *remerge*.

(57)

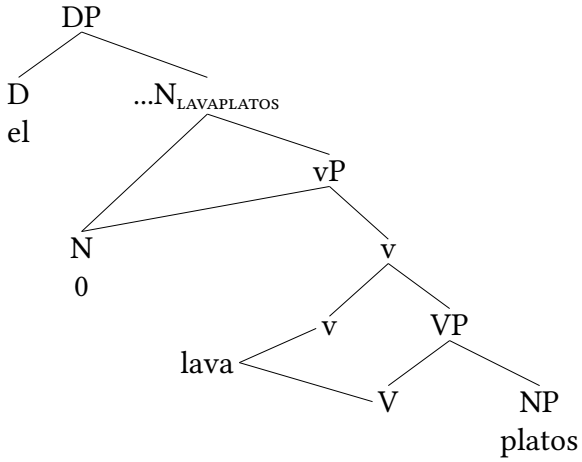

Figure 4. Projection of a verbal compound in Spanish. There are two verbal nodes. V can be identified by a lexical unit provided with a theme vowel (*lava***a**). It usually takes a number phrase (*platos*) as its argument. Little *v* can be identified only by verbs with agentive or causative subjects (*lava*), which restricts the possible conceptual meaning of the compound.

All the English examples analyzed in this section contain a verbal *stem* that identifies the *V* node. This allows the argument interpretation of a noun such as *taxi* in *taxi driver*. Nevertheless, the identification of the little *v* node is linked to the introduction of the affix and, therefore, the active, passive or progressive nature of *v* relies on the selection of the affixes (*-er*, *-ed* or *-ing*). Our prediction is similar to Lieber's: the argument interpretation (*taxi driver*), which is established at the V level, coexists with the adjunct interpretation (*butterfly swimmer*), which is established above the V level, at the affix level. As this last kind of nominalization does not exist in Spanish verbal compounds, the ill-formedness of **nadador mariposa* (which we presented in section 2) is now predicted.

Finally, our observations lead us to the conclusion that there are compounds headed by a verb in English (e.g., *odd-sounding name*) that qualify as *root compounds* from the point of view of their semantic interpretations. We do not consider the distinction between root and synthetic compounds to be superfluous (in

fact, the difference between verbal and non-verbal headed compounds is quite noticeable in Spanish). We consider that *root* and *synthetic* name different ways of assembling the constituents of a compound.

We would like to finish this section by reviewing some of Borer's (2013') conclusions regarding the argument structure of synthetic compounds. The author offers convincing empirical evidence to prove that the nouns inside compounds, such as *car driver* or *car driving*, lack the characteristic properties of the true participants of events. This is not the case of nouns inside nominalizations, such as a *salt crystallization* or *bank referral.* Her opinion is that the semantic interpretation of nouns inside compounds depends on semantic functions introduced by affixes like *-er* or *-ing* (Borer 2013: 599). For her, the conceptualization of agents or patients does not imply the existence of a true syntactic event, because it is only a semantic implicature (Borer 2013: 610). Borer concludes that 'there is little reason to differentiate syn-compounds from root compounds (...) Syn-compounds, just like root compounds exhibit no evidence for functional syntactic complexity of any sort' (Borer 2013: 622).

In Spanish compounds we cannot dissociate the thematic role assignment from argument structure, although it is also true that nouns inside compounds lack the properties of true event arguments in Borer's sense. Compounds of the *lavaplatos* kind always belong to the group of *R* or *referential* nominalizations. These compounds exceptionally denote events such as *pasacalles* 'parade', and even in that case they fail each and every one of the proofs in *eventivity tests.* Borer's predictions prove to be correct regarding the fact that, in the absence of a nominalizing affix like *-ción,* we cannot find event properties in a morphological construction.

However, against her predictions, we do not find an affix in Spanish compounds that can determine the thematic interpretation of the nouns inside them; despite this fact, we invariably obtain the phenomenon known as *transitivity effect,* which she links explicitly to the presence of affixes like *–er.* We try to avoid this problem by suggesting that *lavaplatos* compounds, and not the *taxi driver* type, contain event structure (a causative little *v*). The structure loses its event properties later in the nominalization process, which invariably results in R-nominalizations.

As little *v* is a phase-head for Borer, the complement of little *v*—the *VP* in (57)—is predicted to be the domain of semantic idiosyncrasies, as happens in many cases, e.g., *matasuegras* 'party blower'. However, phase theory predicts that the meaning of the specifier of little *v* is interpreted compositionally, and, in fact always is (the meaning of the specifiers of compounds is roughly '*X who/which...* VP'). *Lavaplatos* can denote an individual in charge of cleaning dishes or a product used for that purpose. An ambiguity of this kind does not reveal a non-compositional or non-predictable character of the specifier's meaning, but the fact that X specific value is resolved non-grammatically/pragmatically.

5 Conclusions

In this work, we have shown a considerable amount of data to support or rule out several previous assumptions concerning the construction of meanings in general and the interpretation of compounds in particular. The analyzed data support a distinction between structural and conceptual meaning, as well as the late-insertion hypothesis; in other words, we believe that our observations favor the neoconstructionist models. These allow us to explain the structurally restricted and highly documented variation between English and Spanish compounds, locating it in the syntax-lexicon interface and not earlier. If the meanings of the compounds were already specified in the lexicon of each language, and if they were obtained because of the mere combination of conceptual units, we would not have been able to obtain such a great deal of *systematizable* variation.

The data also seem to favor models maintaining that morphological constructions follow the same principles and are formed with the same rules as syntactic ones. We have proposed that compound constituents do not merge directly as lexical units, but are merged through functional categories of a very specific kind: relational categories. We have linked the smaller number of semantic readings available in compounds to the larger structural complexity of their functional structure. And we have shown that this correlation can be tested by comparing every kind of productive Spanish compound with its English correlate.

A deeper analysis of each compound structure and a larger token of languages will be required to test this hypothesis in forthcoming studies.

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