



## Rising possessors in Spanish<sup>1</sup>

Antonio Fábregas

antonio.fabregas@uit.no

*Universitetet i Tromsø*

**Abstract.** In this paper we propose that some nominal structures involve rising of a possessive pronoun from a lower, defective nominal domain to a structure headed by a noun with which they do not hold any direct semantic relation. The conditions under which this operation can take place are explored. It can only happen when the lower domain is severely impoverished; it is introduced by a weak preposition that does not define a phase and when the PP is selected by the head noun as its complement.

**Key words:** possessives, raising, inalienable possession, phases, Spanish

**Resumen:** Este trabajo propone que algunas estructuras nominales tienen instancias de ascenso de un pronombre posesivo desde un dominio nominal defectivo hasta una estructura más alta, encabezada por un nombre con el que no guarda relación semántica. Esto puede suceder solo cuando se cumplen ciertos requisitos sintácticos, entre ellos que el dominio nominal bajo sea radicalmente defectivo y esté introducido por una preposición débil, incapaz de definir una fase, que el sustantivo más alto toma como argumento interno.

**Palabras clave:** posesivos, ascenso, posesión inalienable, fases, español

**Resumo.** Neste artigo propomos que algumas estruturas nominais envolvem a subida de um pronome possessivo de um domínio nominal defectivo mais baixo para uma estrutura encabezada por um nome com o qual não possuem qualquer relação semântica directa. As condições sob as quais esta operação pode tomar lugar são exploradas: apenas ocorre quando um domínio mais baixo é severamente empobrecido, é introduzido por uma preposição fraca que não define a fase e quando o SP é seleccionado pelo núcleo nominal como seu complemento.

**Palavras-chave:** possessivos, subida, posse inalienável, fases, Espanhol

### 1. All categories are created equal: rising in verbal and nominal structures

If we consider the history of generative grammar since the late fifties to the present days, one possible way to interpret it is that the focus has moved progressively from specific categories to general operations. Initially, there were rewriting rules that treated each grammatical category and each construction separately (Chomsky 1957). Later on, these operations were generalized to

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classes of features (Chomsky 1965), and with the introduction of the Government & Binding program and the development of more abstract non construction-specific principles (Chomsky 1981), the focus moved to general operations that applied to given classes of heads (e.g., lexical vs. functional), independently of its category label or the construction where they are inserted. In the Minimalist Program (Chomsky 1995), the focus is on the operations (merge, agree) that are possible inside a structure, independently of category specifications and the lexical vs. functional distinction. The immediate consequence of this view is that there is no a priori reason to expect the operations performed on verbal structures to be any different from those performed on nominal structures. This paper tries to contribute to this view showing that an operation strongly associated to the verbal domain in the literature, rising, is also attested inside the nominal domain, strengthening thus the proposal that the category label is irrelevant for the operations that a structure undergoes.

Empirically, we will discuss the following contrast.

- (1)
- a. el color de sus ojos  
the colour of her eyes
  - b. su color de ojos  
her colour of eyes
  - c. \*su color de los ojos  
her colour of the eyes

The phrase in (1a) is unsurprising: we have a head noun with a definite determiner which takes a PP complement (as we will argue; cf. §3.4); this PP complement carries a possessive, which determines the person whose eyes we are talking about. (1b) is more surprising; here the possessive appears in the head noun, despite the fact that it is interpreted as the possessor of the noun embedded under the PP complement. We are not talking about the colour that belongs to her, but about the eyes that belong to her. (1c) shows that as soon as the noun embedded under the PP carries a determiner, the displaced structure becomes ungrammatical.

This structure is mentioned in §18.71 of the *Nueva Gramática de la Lengua Española*.<sup>2</sup> The empirical goal of this paper is to expand the description of the

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<sup>2</sup> Notice, however, that in this section of the NGRAE at least two constructions with different empirical properties are addressed together. Among the differences between the pattern illustrated in (1) and a construction like *mi número de teléfono* ‘my phone number’ we find the following:

- i. In *mi número de teléfono* the PP can be substituted by a relational adjective (*mi número telefónico*)
- ii. In *mi número de teléfono* the lower noun does not hold an inalienable



phenomenon, considering as many factors as possible. This is done in §2. This paper has, in addition to this, a two-fold theoretical goal. The first one is to study this phenomenon from the perspective of phase theory, as a way of providing evidence for the phase nature of DPs; this, being our most theoretical goal, is left for the final section of the paper (§4). Secondly, we want to motivate the empirical properties of the construction inside a tree-structure that treats the lower noun introduced by the preposition as a functionally-defective PP complement of the higher noun. We will relate this nominal construction to the well-known raising pattern illustrated in (2), as we will address more technical aspects of the phenomenon.

- (2)
- a. Parece que los pájaros están cantando.  
Seems that the birds are singing 'It seems that the birds are singing'
  - b. Los pájaros parecen estar cantando.  
The birds seem to be singing 'The birds seem to be singing'
  - c. \*Los pájaros parecen que están cantando.  
The birds seem that are singing.

There are some obvious similarities between (1) and (2). In (2b), as in (1b), there is a constituent that is interpreted associated to the dependent of the word it agrees with: despite the fact that *los pájaros* agrees with *parecen*, it is interpreted as part of the predicate subordinated to this verb. In (2c), as in (1c), a formal property of the constituent that depends on the head makes the construction ungrammatical: the presence of strong inflection on the subordinate clause.

In this paper, we will argue that the correct analysis of the contrast in (1) is essentially the same as in (2): to treat the rising element (here the possessor) as a constituent that originates in a lower domain, where it holds an argument-

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possession relation with the possessor.

- iii. In *mi número de teléfono* the PP can be eliminated, and the possessive is interpretable without that PP as a modifier of the noun without change in meaning (*mi número*); in contrast, in *mi color de ojos* ('my colour of eyes'), removing the PP changes the meaning of the construction, showing that the possessive establishes the semantic relation with the noun contained inside the PP. Something like *mi color* must be interpreted as the colour that the speaker has, as a whole, in the body, or some colour which is somehow directly related with the speaker.
- iv. *Mi número de teléfono* allows, at least marginally, a determiner in the lower domain and prepositions other than *de* 'of': *mi número (habitual) para todos los teléfonos que poseo* 'my (usual) number for all the phones that I own'

This paper will not analyze the *mi número de teléfono* construction.



predicate relation. Movement is possible to the extent that the constituent establishes a formal relationship with a higher head that dominates it, provided that minimality and the limits of syntactic phases are met. There are some differences with respect to the nature (and compulsory nature) of the movement undergone by this constituent, but the situations where movement is blocked and the conditions under which it is possible are basically identical.

## 2. Dissecting the construction

We will first empirically motivate the contention that these structures hold a parallelism with verbal rising constructions describing the properties that they show with respect to the nature of the head noun, the nature of the embedded noun, the relation between the possessive and the lower noun and the nature of the PP that introduces it.

### 2.1. The head noun

One first reason to treat these as constructions involving raising is that only some of the head nouns give rise to the contrast between (1a) and (1b). Below, we contrast (3) with (4).

- (3) a. el estado de su salud  
the state of his health  
b. su estado de salud  
his state of health
- (4) a. el secreto de sus ojos  
the secreto of her eyes  
b. \*su secreto de ojos  
her secret of eyes

The first question is, therefore, to determine the class of nouns that can take part in this type of construction and to motivate that they can be considered semantically special. The generalization seems to be that only those nouns, morphologically derived or not, that denote the different properties of individuals can appear in this construction. In (5), we exemplify (only with the structure in (1b) and (3b), as (1a) and (3a) is any noun allowed) these nouns for the classes of size, length, height, depth, temperature, wetness, weight and width, which are all considered scalar properties (that is, properties whose internal semantic structure contains different ordered values). In fine-grained proposals that decompose the adjectival domain into a rich number of heads, these adjectives tend to be high or middle (Scott 1998).

- (5) a. su tamaño de semilla                      e. su ancho de hombros  
its size of seed                                      her width of shoulders  
'the size of its seed'                                      'the width of her shoulders'



- |  |  |
|--|--|
| b. su longitud de brazos<br>her length of arms<br>'the length of her arms'   | f. su calidez de aliento<br>her warmth of breath<br>'the warmth of her breath' |
| c. su altura de tono<br>its height of tone<br>'the height of its tone'       | g. su pesadez de piernas<br>her heaviness of legs'                             |
| d. su profundidad de corte<br>their depth of cut<br>'the depth of their cut' | h. su sequedad de boca<br>her dryness of mouth<br>'the dryness of her mouth'   |

Other nouns can appear in the same construction when they denote properties similar to these and not physical objects.

- (6) su {talla / número} de zapato  
her size / number of shoe 'the size of her shoe'

Nouns related to non scalar properties, like colour, shape, smell and feel, can also appear in the same construction; the adjectives corresponding to these notions are merged quite low in the syntactic structure (Scott, *op.cit*) (7).<sup>3</sup>

- |   |   |
|---|---|
| (7) a. su color de ojos<br>her colour of eyes     | d. su curvatura de piernas<br>her curvature of legs |
| b. su redondez de fruto<br>its roundness of fruit | e. su contorno de muslo<br>her contour of thigh     |
| c. su textura de piel<br>its texture of skin      | f. su olor de pies<br>her smell of feet             |

Again, nouns referring to the same properties or others similar to them (smell, for instance) can appear in the construction.

- |   |   |
|---|---|
| (8) a. su corte de cara<br>her cut of face<br>'the shape of her face' | b. su arco de cejas<br>her arch of eyebrows<br>'the arch of her eyebrows' |
|---|---|

More conceptually, underspecified nouns are also allowed (9). By conceptually underspecified we mean nouns that denote hyperonyms of

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<sup>3</sup>Some property-denoting nouns normally do not take part in the structure due to independent reasons. Those that express properties that apply equally to all the parts of an individual cannot take part because of pragmatic reasons: *su juventud de rostro* 'her youth of face', is not acceptable in the literal meaning because the face of a person would be just as old as any other part of her. Only in a figurative meaning ('the young expression of her face') (does it become) acceptable. The noun *estatura* 'stature' does not allow the construction because it applies to the whole height of a human being, not of one of his parts, and lacks the necessary possessor even in the absence of rising (contrast *la estatura de Juan* 'the stature of Juan' with *\*la estatura de sus piernas* 'the stature of his legs'). Notice that nouns that denote dimensions (not properties) cannot take part in the construction; for example, *peso* 'weight' (vs. *pesadez*, 'heaviness'). Contrast (5i) with *\*su peso de piernas* 'her weight of legs'. This contrast follows if only nouns denoting properties can take PPs as complements.



different classes of properties (such as states, expressions, structures, systems, etc.) without referring to any specific physical dimension or quality.

- (9)
- |  |  |
|--|--|
| <p>a. su estado de cuenta<br/>her state of account<br/>'the state of her account'</p> <p>b. su expresión de cara<br/>her expression of face</p> <p>c. su calidad de vida<br/>her quality of life</p> | <p>d. su constitución de cuerpo<br/>her constitution of body</p> <p>e. su estructura de rima<br/>its structure of rhyme</p> <p>f. su sistema de vida<br/>her system of life</p> <p>g. su movimiento de brazos<br/>her movement of arms</p> |
|--|--|

Some nouns impose further restrictions on the class of nouns that can be introduced by the PP in this construction. It is compulsory that the lower noun is an event noun (Grimshaw 1990) when the higher noun denotes one of these three separate conceptual notions: time, place or speed.

- (10)
- |   |  |
|---|--|
| <p>a. su área de distribución<br/>their area of distribution</p> <p>b. su lugar de origen<br/>his place of origin</p> <p>c. su velocidad de crecimiento<br/>its speed of growth</p> | <p>d. su fecha de llegada<br/>her date of arrival</p> <p>e. su mes de publicación<br/>its month of publication</p> |
|---|--|

In all these cases, the semantic generalizations that we have described do not always seem to be instantiated by a syntactic feature. The notions denoted by the nouns that allow for the construction might form a natural class from the perspective of conceptual semantics, but not necessarily from the perspective of the morphosyntactic features that underlie these nouns. It is very implausible that notions of speed, time and place, which require an event noun, be subsumed by one single feature in the syntax of the structure. In contrast, from a conceptual perspective, it makes sense to say that only events can take place at particular moments and places, and thus, only they can happen at some speed.

This situation, where the generalization is based on conceptual information but not on syntactic features, is reminiscent of semantic selection. Indeed, the set of nouns that can act as the complement of a verb, like 'to eat', form a natural class in terms of their conceptual semantics (they are different kinds of food), but it seems unlikely that we want to endow our syntax with a feature [food] that these verbs have to check.

As we will see in §3, this similarity is part of our analysis. Our proposal is precisely that the construction is only possible when the PP is the complement of the higher noun; only in a head-complement configuration, can



the noun semantically select the PP and is the possessor able to escape from the PP.

To finish this section, we point out a further contrast that shows that the predication between the higher noun and the lower noun is a necessary but not sufficient condition for the construction to be possible. Only when the property denoted by the higher noun is at the individual-level, can the construction be instantiated. This is shown by the ungrammaticality of (11a), and by the contrast between (11b) and (11c).

- (11) a. \*su desnudez de piernas  
his nakedness of legs  
b. \*su frialdad de pies  
his coldness of feet  
c. su frialdad de espíritu  
his coldness of soul

A property that in Spanish must be stage-level, like that expressed by *desnudo*, 'naked', cannot take part in the construction (11a). An adjective like *frío*, 'cold', can be interpreted as both individual and stage-level: when referring to feet, the natural interpretation is stage-level (11b); however, when referring to souls, the natural interpretation is individual-level (11c). Indeed, Spanish would use the stage-level copula *estar* in the sentential expression of (11b), but the individual-level *ser* in (11c). Thus, it seems that the predication is restricted only to individual-level cases.

## 2.2. The impoverished structure of the lower nominal constituent

Just as in the case of subject rising, the possibility of having possessive rising depends on the lower constituent having a severely impoverished functional structure. The rising construction is blocked by the presence of the definite article (as seen in 1c), quantifiers (12), numerals (13) or adjectives, pre-nominal or postnominal (14).

- (12) a. la redondez de sus muchos frutos  
the roundness of its many fruits  
b. \*su redondez de muchos frutos  
its roundness of many fruits  
(13) a. el color de sus dos ojos  
the colour of her two eyes  
b. \*su color de dos ojos  
her colour of two eyes  
(14) a. el color de sus grandes ojos  
the colour of her big eyes  
b. su color de (\*grandes) ojos (\*grandes)  
her colour of (big) eyes (big)



In the higher domain, these modifiers are allowed.

- (15)
- a. su mucha velocidad de vuelo  
its much speed of flight 'the considerable speed of its flight'
  - b. sus dos lugares de nacimiento  
her two places of birth
  - c. su intenso color de ojos  
her intense colour of eyes

At this point, perhaps one would like to say that the absence of functional material between the head noun and the possessor is due to the fact that the construction is a morphological compound. However, this option can be quickly shown to be wrong. The first unexpected property, if the construction was a compound, is the fact that each one of the members can inflect separately. The phrasal compound in (16a) is contrasted with the structure under study (16b). The lower noun can show independent number inflection in (16b): that is to say, the lower noun can appear, depending on the semantics, both in the singular and in the plural forms, with complete independence of the number shown by the higher noun. Despite the pragmatic infelicity of (16b) when the noun 'eye' appears in singular (which is saved if the woman we are talking about is one-eyed) the lower noun can appear in singular or plural. In phrasal compounds, in contrast, the lower noun is fossilized in a particular number value (as shown in 16a, where the lower noun is fixed in singular number).

- (16)
- a. su(s) ojo(s) de buey(\*es)  
her(pl) eye(s) of ox(\*en), 'her portholes'
  - b. su(s) color(es) de ojo(s)  
her(pl) colour(s) of eye(s)

Number inflection, placed in NumberP (Ritter 1991) is the only functional head that can appear in the lower nominal constituent, but this difference is enough to show that these constructions are not compounds.

Secondly, phrasal compounds are listed in the lexicon due to two properties. The first one is that they have an unpredictable meaning that does not correspond to the combination of its parts. This is obviously the case in *ojo de buey* 'porthole', but there is no need to list any of the members of this construction, because their meaning is compositionally predictable from the meaning of its parts. The second reason to list a phrasal compound is that, due to its lexicalized status, the elements that compose it cannot be productively replaced by other items. In its meaning, the noun *buey*, 'ox', in *ojo de buey* cannot be replaced by anything else. In contrast, consider a sample of the nouns that can appear as possible members of the construction *su talla de* 'her size of'; notice that we have chosen, on purpose, a head noun that is already





semantically restricted to sizes of clothes and body parts separately covered by clothes in order to strengthen our point.

- (17)
- |  |   |
|--|---|
| a. su talla de sostén<br>her size of bra             | e. su talla de anillo<br>her size of ring                 |
| b. su talla de pechos<br>her size of breasts         | f. su talla de guantes<br>her size of gloves              |
| c. su talla de zapatos<br>her size of shoes          | g. su talla de collar<br>its size of collar (w.r.t. pets) |
| d. su talla de calzoncillos<br>her size of underwear | h. su talla de pantalones<br>his size of trousers         |

Thirdly, compounds (even those that are phrasal) famously do not allow internal adjectival modification (an instantiation of the No-Phrase Constraint, Botha 1983). If we take a *bona fide* phrasal compound like (18a), it does not allow an internal adjective. However, these structures do (18b).

- (18)
- |  |
|--|
| a. luna de miel ~ luna (*preciosa) de miel<br>moon of honey ~ moon (beautiful) of honey<br>'honeymoon' |
| b. su talla (desmesurada) de pantalones<br>her size (inordinate) of trousers                           |

We conclude, thus, that these constructions do not behave like compounds, as they allow for independent inflection of each one of its constituents and are not lexicalized. The analysis of the construction will be purely syntactic.

### 2.3. The relation between the lower noun and the possessive

In rising structures, the constituent in the lower domain must assign a theta role to the displaced subject. Thus, we expect that the relation between the possessive and the lower noun also counts for the construction to be grammatical and, furthermore, that it can be assimilated in some wide sense to 'theta marking'. Indeed, this seems to be the case; the construction is only possible when the possessor and the lower noun are related through inalienable possession or a syntactically instantiated argument-predicate relation, meaning that the low noun must hold a syntactically specified relation with another entity in order to be semantically interpreted. Contrast the following pairs:

- (19)
- |   |
|---|
| a. su color de ojos<br>her colour of eyes   |
| a'. *su color de coche<br>her colour of car |
| b. su ancho de cara<br>her width of face    |



- b'. \*su ancho de pasillo  
her width of corridor

Nouns can be ordered, according to their conceptual meaning, in a Silverstein-like hierarchy of markedness. Highest in this hierarchy, and thus more expected to appear in this construction, are nouns denoting body parts, like *eye* or *head*. They are followed by objects of the personal sphere of the individual, abstract (*salud* 'health') or concrete (*zapato* 'shoe'). In this second class, only those objects that individuals wear and carry around with them can appear in the construction (that is, coats, shoes and gloves are in, but houses, cars and computers are not, no matter how tightly related to an individual they might be). Typologically, more marked inalienable possession nouns occupying a lower position in the hierarchy, are kinship terms and, thus, are disallowed.

- (20) a. el tamaño de su novia  
the size of her girlfriend
- b. \*su tamaño de novia  
her size of girlfriend

Given this, for this phenomenon, the nouns seem to be ordered in the following (world-knowledge) hierarchy, from less marked to more marked. Our hierarchy of inalienable possession nouns is very close to the one proposed by Kockelman (2007) for his study on Q'eqchi'-Mayan.<sup>4</sup> We represent in small caps the nouns that appear in the construction.

- (21) BODY PARTS AND PARTS OF OBJECTS < (PORTABLE) PERSONAL OBJECTS < (non portable)  
personal objects < kinship terms

The second group of nouns that can appear in the construction are complex event nouns, which are deverbal nominalizations coming from verbs and assigning a theta role to their possessor. As events do not have color, shape or size (which are object properties) these nouns appear only with the head nouns that identify the place, date or speed of an action. Then again, as objects do not have a time extension, these object nouns are ungrammatical as complements of *date* and similar nouns. Contrast (22a) and (22b).

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<sup>4</sup> Establishing a universal hierarchy of inalienable possession nouns is a complex issue and the literature reflects it in the form of several hierarchies proposed for different phenomena and languages. See Nichols (1988), Siewierska (2004) for a hierarchy based on agreement patterns with kinship terms at the top of the scale. See Croft (1988) and Rijkhoff (2004) for another hierarchy, with kinship above clothing items. This might suggest that, unlike animacy or definiteness hierarchies, inalienable possession is more heavily dependent on world knowledge and specific cultural differences.



- (22) a. su fecha de entrega  
its date of delivery  
b. \*su fecha de cabeza  
her date of head

Thus, when the lower noun assigns a theta role to the possessor, the structure is grammatical. However, this is not the case when the lower noun does not assign this. Consequently, object nominalizations (provided they do not establish the inalienable possession relation mentioned) cannot take part in the structure. If the construction is a physical object, the construction is ungrammatical as seen in (23).

- (23) \*su alto de construcción  
its height of construction

We conclude, thus, that for the construction to be possible, the possessive must hold some compulsory semantic relation to the lower noun, be it an argument or an inalienable possessor.

#### 2.4. The preposition

A final property of the construction is that the only preposition that can appear in these cases is the dummy preposition *de* 'of'. Other prepositions are possible inside noun phrases in Spanish, but not in the possessive rising construction:

- (24) a. el color para sus ojos  
the colour for her eyes  
b. \*su color para ojos

At this point, we believe, we have reviewed the major properties of this construction and we are in a position to propose a syntactic structure that accounts for them all. This will be the topic of the next section, where we will argue in favour of a head-complement configuration for the PPs that accompany property nouns and a specifier-head one for the other PPs. We will show how all the properties of the construction follow from this structure.

#### 2.5. Person marking in the possessive

In order to offer a whole paradigm, the examples in (25) show that the possessives can appear with the high noun in all person and number combinations of the paradigm. Person, therefore, does not seem to be a factor in the description of the phenomenon.

- (25) a. mi tamaño de manos  
my size of hands  
b. tu color de ojos  
your.sg. colour of eyes



- c. nuestro lugar de nacimiento  
our place of birth
- d. vuestra fecha de boda  
your.pl. date of wedding

Independent restrictions make it marked or simply ungrammatical for many speakers to have possessive pronouns marked for 1<sup>st</sup> or 2<sup>nd</sup> person in a post-nominal position when there is a definite determiner in the higher functional structure.<sup>5</sup>

- (26)
- a. el libro suyo  
the book hers/his/theirs 'her/his/their book'
  - b. ??el libro mío  
the book mine
  - c. ??el libro tuyo  
the book yours.sg.
  - d. ??el libro nuestro  
the book ours
  - e. ??el libro vuestro  
the book yours.pl.

However, provided that the possessive agrees with the higher noun and given the strongly contrastive contexts mentioned in footnote 5, possessives of all person and numbers can appear post-nominally:

- (27)
- a. el color de ojos tuyo  
the colour of eyes yours.sg.
  - b. el color de ojos mío  
the colour of eyes mine
  - c. el color de ojos vuestro  
the colour of eyes yours.pl.
  - d. el color de ojos nuestro  
the colour of eyes ours

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<sup>5</sup> Picallo & Rigau (1999: 991) consider grammatical examples similar to (26b-e), including *la ventana nuestra* 'the window ours' and *el reciente éxito tuyo* 'the recent success yours'. In these cases the post-nominal possessive seems to 1) be strongly focalized, 2) carry a contrastive interpretation and 3) give an exhaustive reading ('it is OUR window, not YOURS'; 'it is YOUR success, and nobody else is a part of it'). Speakers that generally reject the pattern in (26b-e) marginally allow the sequences mentioned by Picallo & Rigau with this strong interpretation, suggesting that the overt movement of the possessor to a specifier in the higher temporal sequence can be blocked by the informational structure. We will go back to this issue in §4.2, when we address the issue of what the trigger for movement is.



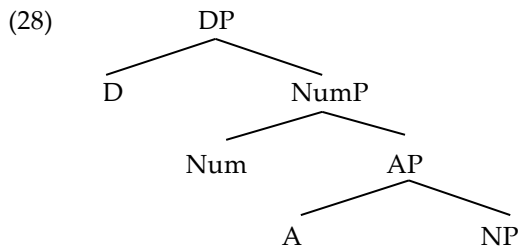
## 2.6. Taking stock

The goal of this section is mainly empirical. The next section will address these empirical properties from an analytic perspective and will try to derive all these empirical properties from a common syntactic structure. For expository convenience, we summarize here the list of empirical properties identified in the section.

- i. Only nouns belonging to some particular conceptual classes can select PPs out of which a possessor can move to the higher domain. We have argued that these conceptual classes are relevant because between the higher noun and the PP there must be a semantic-selection relation.
- ii. The PP must be the weak preposition *de*, 'of', where 'weak' means 'without specified semantics'.
- iii. For the possessor to move to the higher domain, the noun embedded under the PP cannot appear with determiners, quantifiers, adjectival modifiers or any other functional projections, with the sole exception of number marking.
- iv. For the possessor to move to the higher domain, it must be either the inalienable possessor of the lower noun or an argument of a complex event noun, that is, of a noun that has true argument structure.
- v. Only individual-level properties are allowed by the construction; the higher noun must denote a property which is interpreted as directly predicated from the individual denoted by the lower noun.

## 3. Analyzing the construction

As our background, we assume the sequence of functional heads proposed by Cinque (2005). In this proposal, the noun is the lower constituent (NP) and the determiner is the higher one (DP). Between the noun and the determiner there are two areas, a higher one to introduce the elements related to quantification (NumP; quantifiers, numerals and number) and a lower one that hosts different kinds of attributive modifiers that combine with the noun predicate (AP; adjectives, reduced relative clauses and prepositional modifiers). A whole nominal domain would look like (28); a caveat is in order: in Cinque's model, and in any cartographic model, these labels represent areas where different heads belonging to the same family can appear, rather than single positions inside the structure.



Let us define a road-map for this analytic section. The points that we will argue for in our analysis are the following:

- i. The possessor must find a determiner in its syntactic domain (its phase) to check a [uD] feature. This is a compulsory property of possessors in the languages under consideration (§3.1.).
- ii. In some cases, an NP embedded under a PP has an impoverished functional structure, with the result that DP (and QP, and AP, etc.) are missing; in such cases, the possessor cannot be licensed inside the projection defined by the noun that introduces it (§3.2.).
- iii. If there is no DP under the PP where the possessor is embedded, it must find one over the NP that selects the preposition.
- iv. Satisfying (iii) implies that the PP cannot form its own syntactic phase. This requisite excludes two construals: one in which the P head is strong and defines a phase and one in which the PP is a specifier of another category. Therefore, the P must be weak and selected by the NP as its complement for the possessor to establish this relationship. We argue that PPs can combine with NPs in two ways: 1) as complements selected by them and 2) as specifiers introduced by designated FPs. Only the first option is available for this construction (§3.3.).
- v. Given that the noun embedded under the PP has an impoverished functional structure, it cannot project its own FPs to introduce modifiers. Thus, the possessor cannot be base-merged in a modifier projection. It must be introduced as the specifier of nP, with the result that it has to be interpreted as an argument of the noun. From here it follows that any possessor introduced in an impoverished structure must be interpreted as inalienable or as an argument of a complex event noun (§3.6).
- vi. Movement is orthogonal to checking [uD]. In the construction, the possessor must always agree with the determiner that it finds, but can remain in the lower domain (post nominally) or in the higher domain (pre-nominally). The difference is driven by information structure requirements (§3.7).

### 3.1. The possessive pronoun must find a D in its structure

Let us start with a crucial property of possessives. We assume the (relatively) uncontroversial proposal that the possessive requires the presence of a determiner head in the structure (cf., among many others, Abney 1987, Kempchinsky 1992). This need can be formalized by endowing the possessor with an uninterpretable categorical feature [uD] in the lexicon. This feature must be checked by a determiner head. When a relevant projection inside the DP is present (cf. §3.5.), the possessive can rise to it, where, in the particular case of Spanish, it prevents the definite article to spell out; (given some form of the Generalized Doubly Filled Comp filter; Koopman 1997). This is provisionally represented in (29), which provides the reader, for expository convenience, with a simplified structure (see §3.5 for a full-fledged proposal about movement in this construction).

Movement is not compulsory, because the possessor can remain in situ and check its [uD] feature without movement, in which case the determiner head must be filled by another item (30). We will refine the landing site for the movement operation in §3.5, when we consider also data from Portuguese.

(29) [DP [SU<sub>i</sub>]<sub>uD</sub> D<sup>0</sup> [NumP [coche<sub>j</sub>] [XP t<sub>i</sub>X<sup>0</sup> [NP t<sub>j</sub>]]]]

(30) [DP el [NumP [coche<sub>j</sub>] [XP [suyo]<sub>uD</sub> X<sup>0</sup> [NP t<sub>j</sub>]]]]

We will address the status of XP in §4, when we discuss the requisite of inalienable possession.

The possessive must be able to have a determiner phrase with which it can check its [uD]; in the absence of this head, the sequence is ungrammatical, as shown in (31).

- (31) a. \*coche suyo  
b. \*color de ojos suyos

### 3.2. The internal structure of the PP

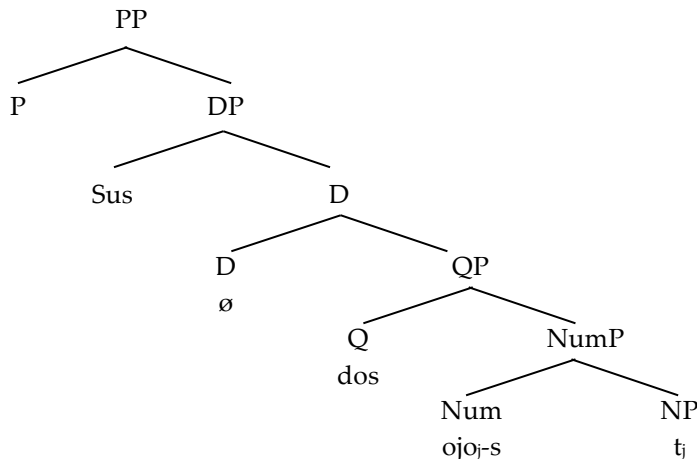
Let us now consider the internal structure of the PP modifier in the two cases under consideration: *el color de sus ojos* vs. *su color de ojos*. Remember that in the first case the lower NP can be accompanied by adjectives, quantifiers and determiners, but not in the second case. We propose that this is obtained if in the first construction (*el color de sus ojos*) the lower NP is expanded into a whole functional sequence, as in (30). In contrast, in *su color de ojos*, the nominal constituent contained inside the PP is functionally reduced, and lacks determiners, adjectives and quantifiers; only the NP and number inflection<sup>6</sup> can be contained here (32).

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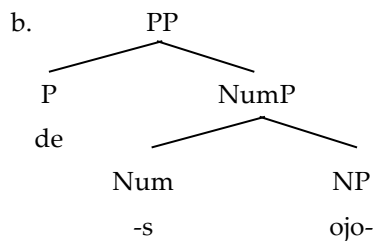
<sup>6</sup>One possibility to simplify the analysis, preventing any kind of functional material external to the noun area (including NumP) from appearing between P and



(32) la forma [de sus dos ojos]



(33) a. su forma [de (\*los) (\*dos) ojos]



Given the reduced functional structure in (33), the determiner, the quantifier and the adjective are impossible because the noun lacks the projections where they can be introduced as heads or specifiers. There are simply no FPs to introduce the modifiers or D or Q heads to introduce the other elements.<sup>7</sup>

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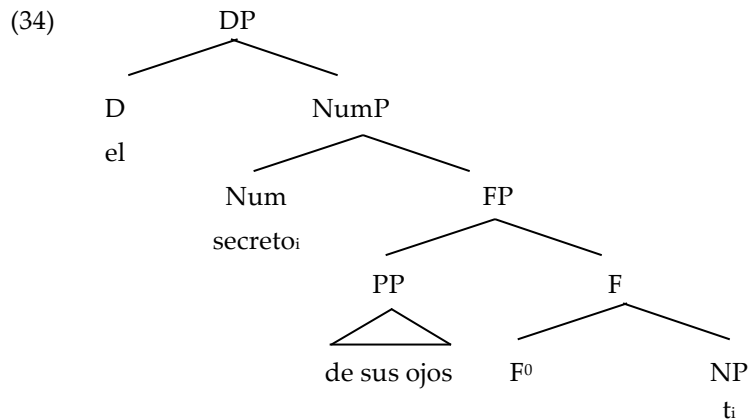
NP, would be to follow Borer (2005) in her proposal that the *-s* that marks the plural is not introduced as Number morphology, but as a low Divisor head, belonging to the noun area, which determines that the head noun is count. It would be tempting to treat the Spanish plural marker as a manifestation of the Classifier. In that case, the situation would be that only the material that belongs to the NP area is present in the impoverished structure of the PP, while all the functional heads belonging to the AP, NumP and DP must be absent. We will not adopt, though, this proposal. The reason is that, when the functional structure is impoverished, if the possessor remains in situ the noun must precede it; this suggests that the lower noun needs an NP external position as a landing site. The exceptional nature of number inflection, though, might be related to the fact that it is grammaticalized as a morphological property of the head noun, and not as an independent complex constituent.

<sup>7</sup> The impoverishment of the lower NP area is accompanied by semantic effects. Compare the two phrases in (i). In the first one, with rising and an impoverished lower nominal domain, the interpretation must be one of characteristic property, that is, the colour of the shoes that she typically wears and can characterize her physical appearance. In the second, with a complete set of functional projections in the lower



### 3.3. The position of the PP

Given this background, let us consider now the position occupied by the whole PP relative to the higher noun. We propose that this is the structure of a noun phrase such as *el secreto de sus ojos* ‘the secreto of her eyes’ (unused functional projections removed for convenience). The PP is introduced as the specifier of a modifier-introducing head, belonging to the adjective domain.<sup>8</sup>



The main noun *secreto* projects a whole functional sequence that includes a determiner, number information and a functional position to host the PP as a specifier. We assume that, in the post-syntactic component, the head noun *secreto* which always moves to Num<sup>0</sup> in Spanish is linearized before the PP, giving, as a result, the order D-N-PP. In contrast, the structure that we propose for a phrase like *el color de sus ojos* ‘the color of her eyes’, with a head noun that expresses a property of the noun introduced by the preposition, is the one in (35).

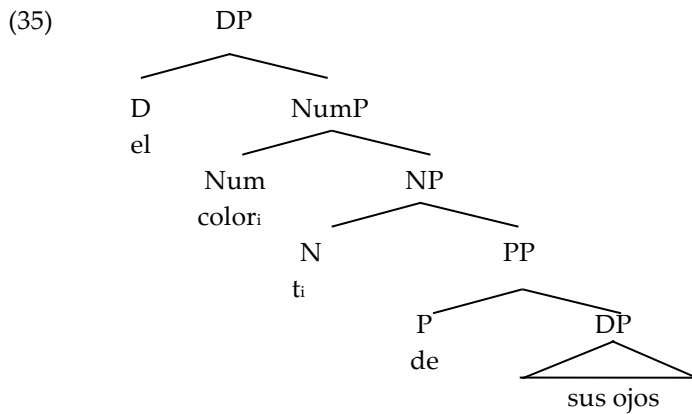
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domain, however, the characteristic interpretation is not necessary: it can be the colour of whatever shoes she happens to wear at a moment.

- a. su color de zapatos  
her colour of shoes
- b. el color de sus zapatos  
the colour of her shoes

This difference follows from the absence of a DP in the lower domain. As there is no pair of specific shoes that are being referred to in (ia), the noun has to be interpreted as the kind of shoes that are owned by her, not as a determined pair of shoes that she owns. The kind interpretation of the lower NP is what triggers the characteristic property reading.

<sup>8</sup> As for the features that define the head F<sup>0</sup>, see Cinque (1993, 1995, 2010). This head must host a specifier (so it can be inferred that it has a relational nature) and at LF it performs a function composition relating the specifier to the complement. Given Cinque (2010: 27), the exact characterization of the head in (24) is the one that performs indirect modification, as the modifier hosted in its specifier is restrictive, intersective and in principle allows for both stage-level and individual-level interpretations. See also Cinque (1999) for the series of FP in the verbal domain; specially chapter 3.



In contrast with the previous structure, here the PP is not introduced as a specifier of a functional category, but as a complement of the property-denoting head noun. This difference captures the fact that nouns like *color* take the PP as an argument, not as a facultative modifier introduced by a projection of the adjectival domain.

We will see that the main syntactic differences of the structure follow from the distinction between a PP introduced as a specifier and a PP introduced as a complement. The first one is that only those nouns that select for an argument can take part in this construction. We have seen that this is highly restricted to a few nouns (§2.1.), sometimes with idiosyncratic differences (as for example the fact that nouns denoting age and temperature cannot take these complements). All the other nouns lack this capacity and in those cases the prepositional modifiers have to be introduced as non selected constituents, as specifiers of one of the functional projections that dominate the noun phrase. A crucial difference follows from this base structure: the possessors that are inside specifiers remain trapped there and cannot be extracted. Hence, they are unable to take part in the construction.

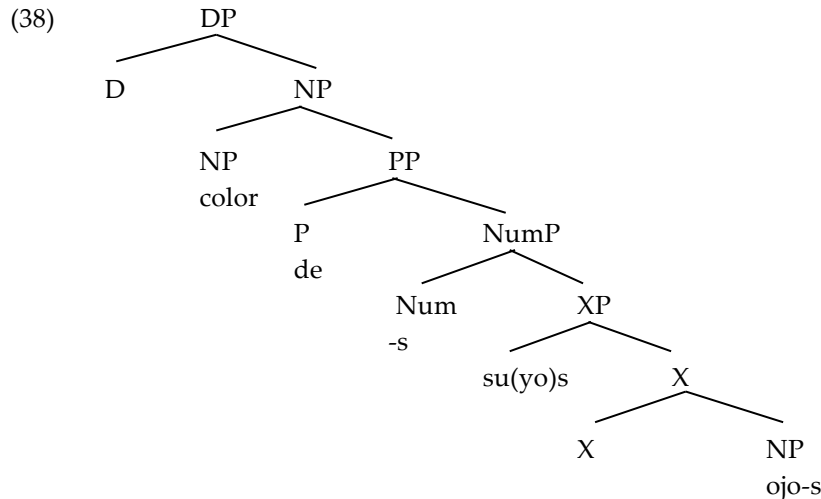
### 3.4. Explaining the contrast

Consider now how our proposal explains the contrasts between (36) and (37). In the first pair of examples (36), possessive rising is impossible no matter what the internal structure of the PP is. In the triplet of (37), rising is only possible when functional material is lacking between the noun and the preposition (thus, in 37b, but not in 37c).

- (36) a. el secreto de sus ojos  
the secret of her eyes
- b. \*su secreto de ojos / \*el secreto de ojos suyos  
her secret of eyes / the secret of eyes hers
- (37) a. el color de sus ojos  
the colour of her eyes

- b. su color de ojos / el color de ojos suyos  
her colour of eyes
- c. \*su color de los ojos  
her colour of the eyes

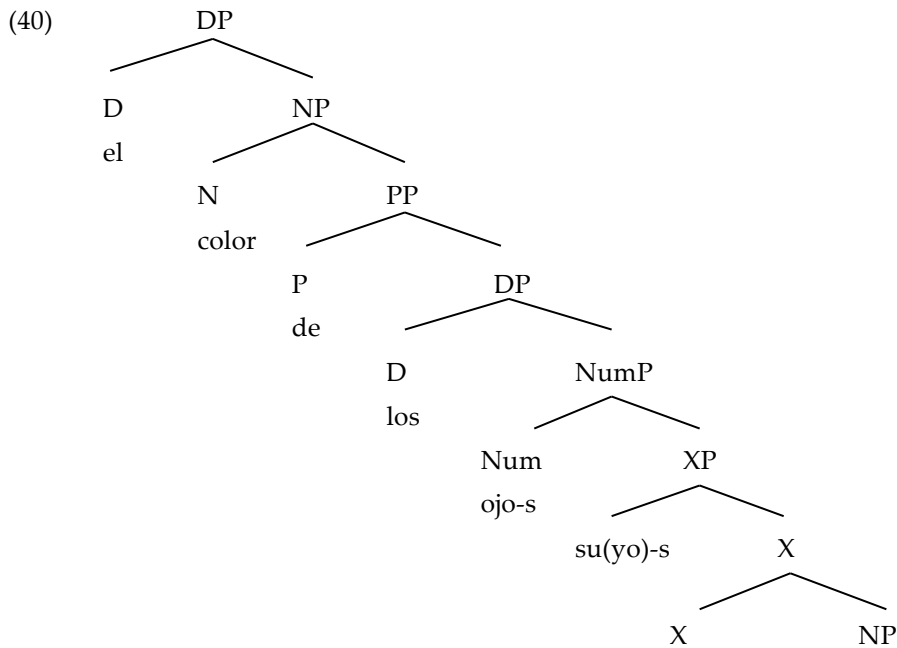
The grammatical and ungrammatical constructions can be explained by an interaction of the need of the possessive to check [uD] with the closest D head and the position occupied by the PP with respect to the head noun. Consider first what happens in the grammatical construction in (37b), *su color de ojos*. (38) represents this structure:



The noun with which the possessive establishes a relation is contained inside a functionally defective structure, without a DP phrase of its own. However, the PP is introduced as a complement of the head N *color*, which is dominated by a full functional sequence (simplified here for expository convenience). Given that the possessive is in the syntactic domain of the D, it can establish an agreement relationship with this element. As a result, this gives rise to the sequence in (39a) if the possessive rises to spec DP and to (39b) if it remains in situ and checks its features in the distance. Notice that we assume that the noun is always materialized in Num<sup>0</sup> by head movement, triggering the order in which it precedes the base position of the possessive pronoun.

- (39) a. [<sub>DP</sub> [<sub>SU</sub>]<sub>i</sub> D<sup>0</sup> [<sub>NP</sub> color [<sub>PP</sub> de [<sub>NumP</sub> ojo<sub>j</sub>-s [<sub>XP</sub> [<sub>t<sub>i</sub></sub>] X<sup>0</sup> [<sub>NP</sub> t<sub>j</sub>]]]]]]]]  
 b. [<sub>DP</sub> el [<sub>NP</sub> color [<sub>PP</sub> de [<sub>NumP</sub> ojo<sub>j</sub>-s [<sub>XP</sub> [suyo] X<sup>0</sup> [<sub>NP</sub> t<sub>j</sub>]]]]]]]]

Consider now what happens in case the lower NP is dominated by a whole functional sequence. In this situation, given standard assumptions about economy and locality, the possessive must check its features with the lower DP, which is hierarchically closer to it (40, where, again, only the relevant heads are represented).



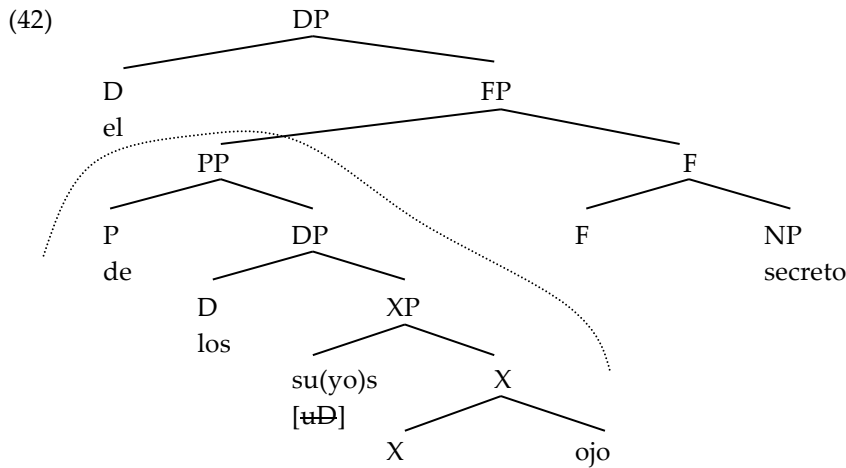
Here, if the possessive moves to the spec of the lower DP, we obtain (41a); if it remains in situ we get (41b). (41c) is reminiscent of super-raising when the possessor moves up the structure; (41d), also ungrammatical, is a violation of Relativized Minimality without movement: the long-distance dependency known as agreement is performed with a higher head (*color*) when there is a perfectly acceptable lower candidate (*ojos*) that could perform the same agreement.

- (41)
- a. *el color de sus ojos*  
the colour of her eyes
  - b. *el color de los ojos suyos*  
the colour of the eyes hers.pl
  - c. \**su color de los ojos*  
her colour of the eyes
  - d. \**el color de los ojos suyo*  
the colour of the eyes hers.sg

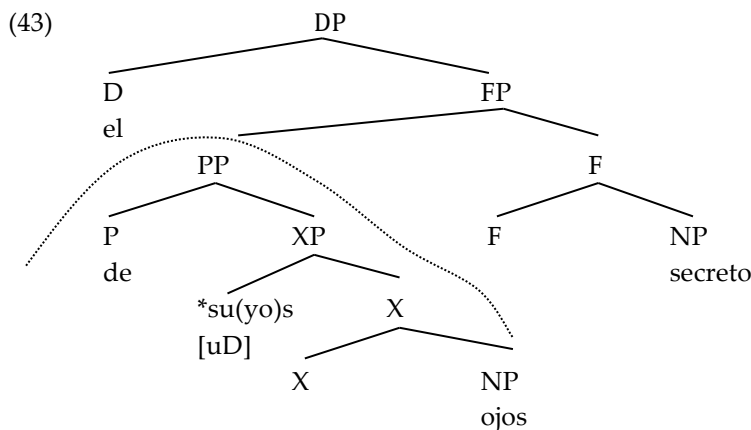
Finally, we consider what happens when the PP is a specifier of a functional projection, as in *el secreto de sus ojos* ('the secret of her eyes'). Given the Condition on Extraction Domains (Huang 1982), an element cannot be extracted or enter into a formal relationship with an element from outside the specifier where it is embedded. More recently, Uriagereka's Multiple Spell Out approach (Uriagereka 1999) analyses this as an instance of syntactic phase defined, as such, at the point in which the complex specifier is merged as one single unit with the spine of the tree.

If the possessive is inside a specifier, it will not be able to check its [uD] feature with an external DP; only when there is an internal DP can the possessive

satisfy its features. In the case in (36a), this does not produce a problem, because there is a DP inside the specifier PP (42). The discontinuous line marks the phase where the possessive can check its features.



The ungrammaticality of the two examples in (36b) is due to the absence of a DP internal to the PP specifier, so the possessive has not satisfied the [uD] inside and, being embedded in a specifier, it cannot establish checking relations with external elements or undergo movement.



Consider now the differences with rising in the verbal domain. The crucial difference is that the landing site of movement in a rising verb is spec: TP, a position that in English (and probably also in Spanish) has to be filled, compulsorily, by a constituent. In contrast, the landing site of movement in a rising possessor is spec: DP, a position which both in English and Spanish does not need to be filled by an element. The immediate consequence is that in a language with overt expletive pronouns, like English, when the constituent agrees with T but does not move to its specifier, such pronouns have to be inserted in the structure (giving rise to well know contrasts, such as *There seems to be a man in the room* vs. *A man seems to be in the room*). The use of expletives, however, is not necessary in our construction (by Minimalist assumptions, impossible), as the position of spec, DP, does not need to be projected.



### 3.5. Refining movement: its trigger and its landing site

As we have seen (§3.3. and §3.4) the possessor must find a D head in its domain, but agreement with it can be performed *in situ*, without movement. As the examples in (44) remind us, the possessor can surface in the absolute final position of the DP phase (44a) or in front of the first noun (44b).

- (44) a. el color de ojos suyo  
the colour of eyes hers.sg.  
b. su color de ojos  
her colour of eyes

This contrast brings up two immediate questions: 1) what is the trigger of this movement? and 2) what is the specific position where the possessor moves? In answering these two questions we will explicitly address one difference between the rising possessor and subject-raising.

The difference between (44a) and (44b) has to do with the informational structure of the sentence. Being in absolute final position of the sentence, the possessor in (44a) is interpreted as contrastive focus (Cinque 1993, Zubizarreta 1998). This can be shown easily by the sentence in (45).

- (45) Me gusta el color de ojos suyo, no el tuyo  
Me.dat likes the colour of eyes hers, not the yours  
'I like HER colour of eyes, not yours'

In contrast, the possessor in (44b) is interpreted as the (non-contrastive) topic. The referent of the possessor must have been previously activated in the precedent discourse, with the result that it rejects contrastive utterances (46).

- (46) #Me gusta su color de ojos, no el tuyo  
Me.dat likes her colour of eyes, not the yours  
'#I like her colour of eyes, not yours'

This suggests that movement, when it does take place, is triggered by information structure requirements; but to which position exactly? The Spanish data, where the possessor is not compatible with the definite article, are not very informative. In contrast, however, a language like Portuguese (or Italian) can throw light on this issue. Consider equivalent Portuguese and Italian examples.<sup>9</sup>

- (47) a. a sua cor de olhos (European Portuguese)  
the her colour of eyes  
b. il suo colore di capelli (Standard Italian)  
the her colour of hair

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<sup>9</sup> We are very grateful to an anonymous reviewer for pointing this out to us and for the Portuguese example.



The fact that the possessor follows the determiner shows that it does not move to the higher position inside the D structure.

Our proposal is the following: if we treat the determiner domain above nouns as being parallel to the complementizer domain above verbs, we expect D to be decomposed in a number of designated positions, just like C has been (Rizzi 1997). We can treat the definite determiner as the nominal equivalent of ForceP. To the same extent that ForceP defines the illocutionary force of the sentence and allows to connect the utterance to the context and to the intentions of speakers, the higher determiner provides speakers with information about referentiality, definiteness, and even specificity, etc. In Rizzi's model, there is a topic position (TopP) immediately below ForceP. We can assume that this position has an equivalent in the nominal domain and that the possessor moves there on the surface.

(48) [DP a [TopP [sua]<sub>i</sub> Top0...[NP cor [PP ...ti...]]]]

Consequently, our proposal is in line with the analyses that have proposed focus and topic positions internal to the DP (cf. Bernstein 1997, Haegeman 2004, Aboh 2004).

The difference between Italian / Portuguese, on one side, and Spanish, on the other, is that the latter does not allow the possessive and the definite article to coexist. We provisionally suggest that this is a morpho-phonological effect. The possessor in Spanish can be spelled out with the higher DP, in a case of cumulative exponence (Stump 1998) that uses a single lexeme to materialize several sets of features. In contrast, the spell out requisites of the possessor in Italian and Portuguese would not allow this.

As far as we can tell, there is no reason for movement of the possessor to TopP to have intermediate landing sites. Remember, for our proposal it is crucial that the determiner and the possessor are inside the same Phase, so no edge position is necessary for any extraction.

At this point we are in a position to explain one difference with respect to subject-raising. In subject-raising, the landing site of the subject is a functional projection necessary for the structure of the clause. In contrast, not all utterances must have a topic, so this position is not compulsory. From here, it follows a difference that certainly readers have already thought of: in subject-raising contexts, when the embedded subject remains in situ, an expletive has to be introduced in the position where it would have landed (49). By contrast, in the construction that we are studying, there is no evidence of an expletive in the landing position (50, from English). In the absence of evidence for a silent expletive, we will assume the expletive is not present. This is explained if the position targeted by subject-raising is compulsory projected, but not the one



targeted by the rising possessor, which will be projected or not depending on the intended information structure.

(49) It seems that John is sad.

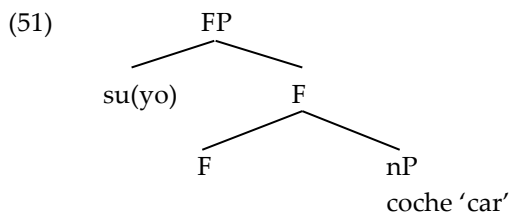
(50) the date of his birth

Given these differences we have refrained from using the term ‘possessor-raising’ in this paper, as it would suggest some compulsory attraction of the possessor by a needy higher head which always must satisfy some requirement.

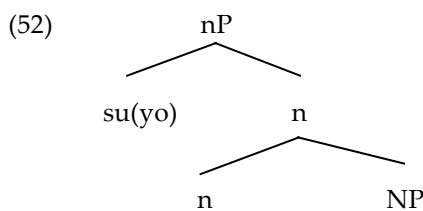
### 3.6. Inalienable possession

We have seen that the construction is restricted to cases where the possessive either is an argument of a complex event noun or establishes an inalienable possession relation with the low noun, but we have not explained why. In this section we will argue that this restriction follows from the fact that the functional sequence of the lower noun is severely impoverished.

Our proposal is that, given that the AP area of the lower noun must be absent from the structure, the modifier position where non argumental possessors can be introduced is not available. As only the projections inside the noun area and NumberP survive, the only available position that can be occupied by the possessor here is the specifier of the nominal head nP, where it must be interpreted as an argument of the noun. (51) represents the structure of a construction with a non argumental possessor. Here the possessor is introduced as a non compulsory modifier of the noun *coche*, ‘car’.



The problem is that FP cannot appear in the construction under study, because the lower structure is impoverished. Thus, the possessor has to be introduced in a projection belonging to the nominal domain. We propose that the projection is nP, the higher of the noun area heads which introduces the index of identity of the noun (Baker 2003; see Radford 2000 for the same proposal about argumental positions) (52).





In this position, the constituent must be interpreted as an argument of the noun. Therefore, only nouns that contain arguments, like complex event nominals, will be able to host that kind of constituent in the specifier of nP.

Consider now inalienable possessors. Our proposal is that inalienable possessors are interpreted as pseudo-arguments of the head noun, much in the way that the possessors can be interpreted as arguments of a derived noun (see also Vergnaud & Zubizarreta 1992 regarding French). Nouns that take inalienable possessors can be grouped into semantic classes, as we have seen. What they all have in common is that in order to have a complete meaning, they must be interpreted in relation to some other entity (the possessor), of which they are part or, alternatively, of whose personal sphere they are part. We suggest that the position to introduce inalienable possessors is spec nP. Only some nouns, those specified in the lexicon as being inalienable possession nouns, can assign an interpretation to an argument introduced in this position.<sup>10</sup>

From this perspective, then, the requisite on inalienable possession is imposed by the fact that the modifier introducing projections (belonging to the AP area) is unavailable, and only the projection that hosts the arguments of complex event nouns and the pseudo-arguments of inalienable possession nouns, nP, is available here.

The question remains as to why English and Spanish contrast with respect to this construction. When the possessor is the argument of a complex event noun (pair 53), English and Spanish equally accept the construction; however, with inalienable possession, they differ: Spanish allows it (54a), English rejects it (54b).

- (53) a. su lugar de nacimiento  
b. her place of birth
- (54) a. su color de ojos  
b. her colour of eyes

The answer can be related to the fact that English does not behave like Spanish or French with respect to inalienable possession nouns. As noticed by Vergnaud & Zubizarreta (1992), English does not allow a token-reading of an inalienable possession noun in dative possessor constructions (cf. the contrast in 55, where 55a is our own example and 55b is Vergnaud & Zubizarreta's 93a).

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<sup>10</sup> The impossibility of hosting expletives in nominalizations follows from the requisite that any constituent merged in spec, nP must be interpreted as an argument of the noun. Notice that pursuing this line of analysis could also explain the absence of ECM structures in nominalizations (contrasts such as *John considered Peter a genius* vs. *\*John's consideration of Peter as a genius*), to the extent that the argument introduced with "of" would have to be interpreted as an argument of consideration, which is at odds with the conceptual semantics of that lexical item.



- (55) a. Los médicos radiografiaron su estómago a todos.  
The doctors them.dat X-rayed the stomach to everybody.
- b. \*The doctors X-rayed their stomach.

In other words, in Spanish (and French), inalienable possession nouns are treated differently by the grammar, but in English they are treated exactly as any other noun. This might mean that Spanish and French codify inalienable possession as a particular grammatical construction, providing the possessor with a different base position, while English leaves the difference entirely to conceptual semantics and introduces them all as modifiers. If that is the case, in English the construction is ungrammatical because the position where the possessors are introduced, FP, is not available in the construction, while in Spanish the grammaticality is possible because inalienable possessors are introduced at a lower level. There are many details that need to be worked out in this suggestion, but we take contrasts such as those in (55) to show at least that English and Spanish treat inalienable possession in a different way.

One immediate prediction of this proposal is that languages where inalienable possession works, like in Spanish, should also have rising possessors of this kind. We have already seen that Portuguese has the construction just like Spanish. *Prima facie*, this prediction is also confirmed in French. Examples have been taken from Google and checked with native speakers (of European French).

- (56) a. Donne [ta date de naissance]  
Give your date of birth
- b. Trouvez la palette de maquillage adaptée à [votre couleur de cheveux]  
Find the make-up palette adapted to your colour of hairs
- c. Comment connaître [ma taille de bague]?  
How to know my size of ring?
- d. Quelle coiffure pour [ma forme de visage]?  
Which hairdo for my shape of face?
- e. inquiétudes sur son [état de santé]  
worries about his state of health

Obviously, a more fine-grained empirical study about French is necessary to determine exactly what range of nouns can take part in the construction. The fact that sometimes a noun is not translatable verbatim from one language to the other might be caused by independent restrictions on the lexical entries of French nouns, differences in the lexical meaning of nouns derived from adjectives or even subtle microparametric differences regarding the way in which noun complements and modifiers are defined in each language. However, the examples in (56b-e) already show that French allows the construction with some nouns in the same way that Spanish does. English

rejects it in those cases, but Spanish allows it: it does not seem unmotivated to claim that French aligns with Spanish in this respect.

Italian also patterns with Spanish, as expected, given the similarities between inalienable possession in the two languages. As before, data have been looked up in Google and then checked with native speakers.

- (57)
- a. I ragazzi come vedono il tuo colore di capelli.  
The boys, how they.see the your colour of hairs.
  - b. la sua velocità di rotazione  
the its speed of rotation
  - c. Cosa dice di me la mia data di nascita  
What says about me the my date of birth
  - d. il nostro stato d'animo in musica  
the our state of-mood in music
  - e. la vostra bellezza non dipende dalla vostra taglia di reggiseno  
the your.pl beauty not depends of-the your.pl. size of bra

### 3.7. Individual-level vs. stage-level

Another restriction that follows from the structure is the one that restricts the construction to individual-level predication (cf. the examples in 11). This follows from the requisite that the PP must be a complement of the higher noun, not a specifier. We contemplate why in the following paragraphs.

One of the intuitions underlying modern analysis of the distinction between *ser* and *estar* in Spanish and the contrast between individual- and stage-level in general is the fact that individual-level predication expresses a direct semantic relation between the predicate and the individual, while in stage-level predication this relation is intermediated by a spatio-temporal variable (Davidson 1967, Kratzer 1995). In other words, stage-level predication is more complex than individual-level predication, as it involves more primitives (Carlson 1977). (58a) is the formula of the individual-level predication 'His soul is cold' according to the formalization proposed by this author; (58b) is the equivalent of the stage-level predication 'His foot is cold', where 's' is the spatio-temporal variable.

- (58)
- a.  $\lambda x[\text{cold}(x)](\text{his soul})$
  - b.  $\exists s\lambda x[R(s,x) \wedge \text{cold}(s)](\text{his soul})$

Crucially for our purposes, the predicate does not take the individual directly, but a spatio-temporal variable that establishes a relation with the individual. This is the individual introduced by the PP in our structure. If direct predication is instantiated as a direct syntactic relation, as we would expect in an isomorphic system, then we expect that whatever denotes the spatio-temporal variable in (58b) will occupy the position that the individual 'his soul'



occupies in (58a) not only in the semantic formula, but also in the syntactic structure associated to it. If the latter is the complement of the noun, then the first must also be its complement.

This implies that the individual ‘his soul’ would not be in the complement position. The semantic structure in (58b) could be captured with the syntactic structure in (59), where the noun takes a relational structure whose complement is the spatio-temporal variable; the PP is related to this variable as its specifier. Evidence that the spatio-temporal variable must be in the complement position comes from the fact that this keeps it in the spine of the tree, available for selection by NP through R, capturing the fact that the property does not establish any direct relation with the individual.

(59) [NP frialdad [RP [PP P<sup>0</sup>de [sus pies]] R<sup>0</sup> s]] coldness of her feet

Not being in a complement position, but in a specifier position, the possessor will be unable to escape from the PP, accounting for the incompatibility of stage-level predication and rising possessors.

### 3.8. A final side note: agreement in the possessive

Notice that, independently of the number and gender specification of the lower noun, in this construction the possessor always agrees with the number and gender information contained in the higher noun. Thus, despite the fact that *ojos* ‘eyes’ is plural, the possessor agrees in singular number with the head noun *color*, with whose determiner it checks its uninterpretable [uD] feature (60).

- (60) a. el color de ojos suy-o  
the.MASC.SG colour of eyes hers-MASC.SG
- b. \*el color de ojos suy-o-s  
the.MASC.SG colour of eyes hers-MASC-PL.

Consider how this follows from the properties of the structure. The possessive is not only specified for an uninterpretable [uD] categorial feature, but also contains uninterpretable phi features in need of agreement. These features include an uninterpretable number feature and an uninterpretable gender feature, the latter not materialized morpho-phonologically in the prenominal position.

(61) Feature endowment of the possessive: [uD, uNum, uGen, Possessive]

In the lower domain, the possessive cannot check all its uninterpretable features; only information about number and gender would be contained inside the PP; the [uD] feature would remain unchecked. However, there is another option: the possessive has the chance to check all its uninterpretable features at the same time when it enters into an agree relation with the higher D. This D, at that point in the derivation, will have agreed in gender and number with the higher noun.

(62) Feature endowment of the determiner: [D, uNum, uGen]

In the example (60a), the form of the determiner *el* is masculine and singular, which are exactly the values that the noun *color* displays in the structure. These are precisely the values copied in the determiner, and further copied by the possessive.

This situation is consistent with Béjar & Rezac's (2009) proposal to explain ergative displacement in Basque and other cross-linguistic phenomena. Their proposal is that, given a probe consisting on a set of uninterpretable phi features and at least two possible goals, the probe will value its features with the goal that is more specified and contains more relevant information, overwriting, if necessary, the values copied from the less informative, but closer, goal.

In this particular case, valuing number and gender with the lower noun is not the option chosen by the possessive because that goal cannot value all three uninterpretable features of the possessor at the same time, D being absent (and notice that number inflection will be contained in a different head from the one that contains gender). As summarized in (63), the possessive would have to enter several separate checking operations, none of which is able to erase all the features at once.

- (63)
- a. *su* [uD, uNum, uGen] values uGen with the N *ojo*
  - b. *su* [uD, uNum, Gen<sub>Masc</sub>] values uNum with Num -s
  - c. *su* [uD, Num<sub>Pl</sub>, Gen<sub>Masc</sub>] values uD with the D *el*

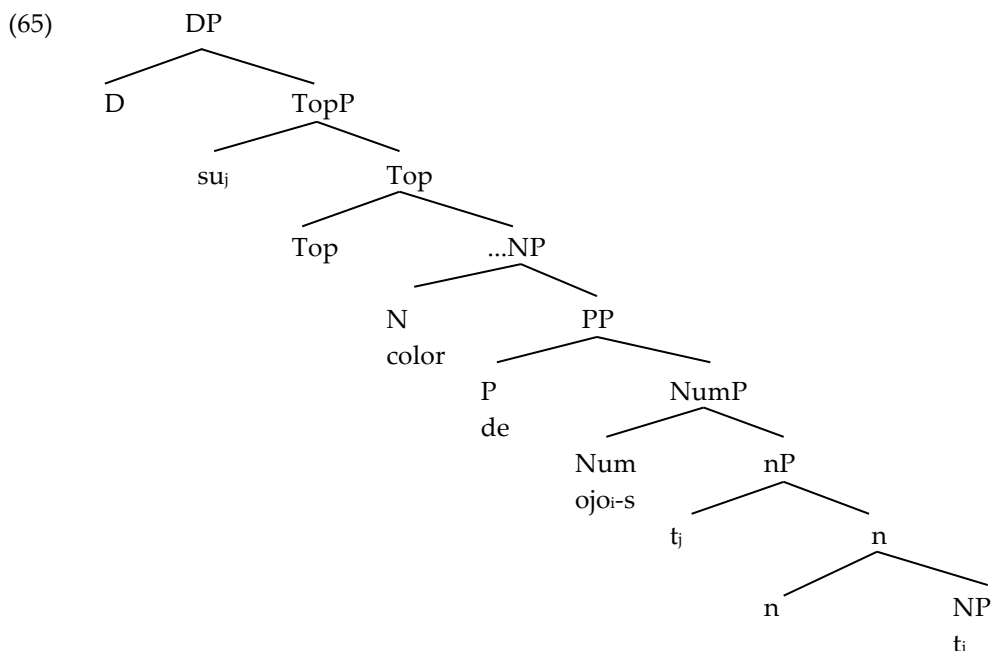
However, the goal in the last step, D, independently contains a value for gender and number, the one copied from the higher nominal domain. Given this more specified single goal, which can value the three uninterpretable features of the possessive, these are the values that are eventually copied. The process is summarized in (64).

- (64)
- a. The determiner is [D, uNum, uGen]
  - b. The determiner agrees with the higher nominal domain, valuing its gender and number features: [D, Num<sub>sg</sub>, Gen<sub>Masc</sub>]
  - c. *su*, which is [uD, uNum, uGen] values all its uninterpretable features simultaneously with D, becoming [D, Num<sub>sg</sub>, Gen<sub>Masc</sub>]

Thus, the possessive agrees with whatever head satisfies its determiner feature, overwriting the values copied from the lower domain.

#### 4. Summary: consequences of the proposal for Phase theory

As a way of summarizing the proposal, we are going to explore its consequences for the theory of phases. Our structure for *su color de ojos*, with rising of the possessor, is the one in (65).



The possessive, that holds an inalienable possession relation with the inner NP, starts as the specifier of its NP and, not finding a DP in the impoverished functional structure introduced by its noun, rises to the higher DP domain, introduced by a noun that selects the PP as its complement. Rising is not compulsory, but agreement with that DP is.

The idea of an impoverished functional domain is clearly linked with Phase theory (Chomsky 2001 and subsequent work). In Phase theory, the definition of a syntactic domain (and thus of a phonological and a semantic one) is dependent on the existence of functional heads that contain sufficient information to perform full feature checking in the constituents contained in its domain. Failure to define a phase follows from two different situations: 1) absence of the relevant head and 2) presence of the head, but in an impoverished version that is unable to perform full feature checking.

Our analysis provides independent evidence that DP can be a phase, in the light of the contrast repeated in (66).

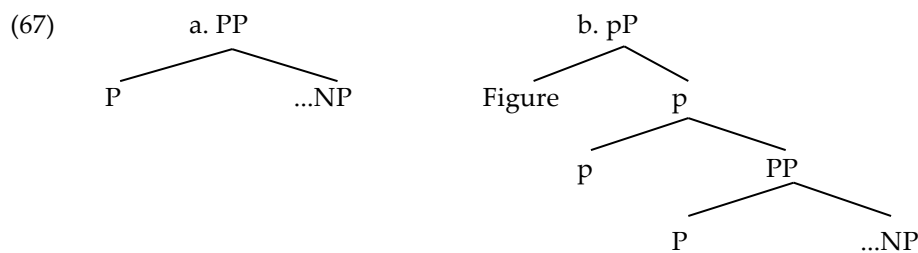
- (66)
- a. su color de ojos  
her colour of eyes
  - b. \*su color de los ojos  
her colour for the eyes

The presence of a DP in the lower domain is enough to satisfy all the formal properties of the possessor and prevents it from abandoning the lower constituent.

Consider now the PP involved in our structure. Our analysis provides evidence that there must be defective P heads that are unable to define phases, much in the way in which some little *v* heads are weak (Chomsky 2000). We

have seen that this preposition is restricted to the dummy marker *de* 'of' in Spanish, and cannot be substituted for any other P. Our proposal is that this dummy preposition is the way in which Spanish spells out a defective prepositional structure which lacks the properties to define a phase.

We can assume, following Svenonius (2007, to appear) that the prepositional domain is quite articulate and minimally contains two heads, pP and PP, the higher of which introduces the figure required by the semantics of a strong preposition and performs case assignment. The lack of pP in the prepositional phrase amounts, simultaneously, to failure in performing feature checking and absence of the strong semantics associated with the preposition. (67a) represents the weak prepositional structure, while (67b) represents the strong version with a pP that provides the structure with the necessary features.



A reflection of the fact that a preposition can perform feature checking and define a phase is that it can assign oblique case to its complement. This, in the case of the first and second person pronouns, in Spanish, involves a different spell out. The following patterns (where we put an indefinite determiner in the head noun, making it possible for the possessor not to rise) show that the dummy preposition *de* cannot assign oblique case to the pronoun. Notice that the problem cannot be the presence of person features in the pronoun; when the pronoun is expressed as a possessive (68c), the sequence is perfectly grammatical.

- (68)
- a. \*un amigo de mí  
a friend of me.obl
  - b. \*un amigo de ti  
a friend of you.obl
  - c. un amigo {mío / tuyo}  
a friend {mine / yours}

As the dummy preposition *de* does not define a phase *per se*, when this constituent is introduced as the complement of another noun, the possessive can escape this constituent and establish relations with other heads in the structure. Consequently, the second contribution of our study to the theory of phases is that prepositions, *per se*, do not define phases in all cases.

There are several aspects that our article has not addressed in detail and, due to space restriction, we have not been able to develop. The main issue has



been, which we have left outside here, an in-detail comparison of Spanish with other languages, including English, to determine how this structure is instantiated in other grammars and what causes the ungrammaticality of the structure in languages like English. Despite the suggestions made in §4, this problem is still open. Another question that we had to leave open is whether the same operations involved here, and the same functional impoverishment of an argument of the head, can be used to analyze the well-known adjectival construction in (69):

- (69) Juan (es) ancho de hombros  
 Juan (is) wide of shoulders

The noun introduced by the PP (compulsorily *de*) is also functionally reduced and disallows all kinds of modifiers, quantifiers and determiners with the sole exception of the plural marker. The subject of the structure, Juan, must hold an inalienable possession relation with the lower noun here also. It would be tempting to extend our analysis to these cases, proposing that the subject starts as an inalienable possessor of the lower noun and is attracted by the adjectival projection to fulfill the subject function. However, this proposal would have to be developed in detail. This extension will be left for further research.

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**Antonio Fábregas**

antonio.fabregas@uit.no

Universitetet i Tromsø