

# **THE DEFINITION OF THE GRAMMATICAL CATEGORY IN A SYNTACTICALLY ORIENTED MORPHOLOGY: THE CASE OF NOUNS AND ADJECTIVES**

DEPARTAMENTO DE LINGÜÍSTICA  
PROGRAMA DE DOCTORADO EN LINGÜÍSTICA TEÓRICA Y SUS  
APLICACIONES  
INSTITUTO UNIVERSITARIO DE INVESTIGACIÓN ORTEGA Y GASSET  
UNIVERSIDAD AUTÓNOMA DE MADRID

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MADRID, SEPTEMBER 2005



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## <ABBREVIATIONS

√: Root  
[Def]: feature that expresses a definite relationship  
[F]: Interpretable feature  
[Gen]: gender feature  
[iF]: Interpretable feature  
[Num]: number feature  
[uF] : uninterpretable feature  
A: adjective  
a: Little a  
acc: accusative case  
AGR: agreement morpheme  
App: Appreciative morphemes  
APPL: Applicative Morpheme  
AS: Argument structure  
ASP: Aspectual morpheme  
Attr: Attribution Feature  
C: Complementiser  
CED: Condition on Extraction Domains  
CI: Conceptual-Intentional System  
Cl: Clitic  
Cop: copulative head  
CS: construct state  
D: Determiner  
DEF: definite noun phrase  
DES: desinence  
DIM : diminutive  
DM: Distributed Morphology  
dual: Dual number  
EA: External Argument  
EC: Extension Condition  
ECP: Empty Category Principle  
Ev: Event feature  
F: Functional category  
FEM: feminine  
FG: free genitive  
G&B: Government and binding  
G: Degree feature  
gen: genitive case  
Gen: Genitive Head  
HP: Head which defines a Phase  
i phi : interpretable nominal features  
IMPF: Imperfective  
LA: Lexical Array  
LCS: Lexico-conceptual structure  
LE: linking element  
LF : logical form  
LIH: Lexical Integrity Hypothesis  
loc: locative case

LRS: Lexical relational structure.  
 LV: linking vowel  
 masc.: Masculine  
 MC: minimal clause  
 MLD: Morphological Local Domain  
 MM: Morphological Merger  
 M<sup>o</sup>: Morphological exponence position  
 MP: Mirror Principle  
 n: Little n  
 N: noun  
 N: Numeration  
 Neg: Negative Phrase  
 neut: neuter gender  
 NL: Narrow Lexicon  
 nom: nominative case  
 NS: narrow syntax  
 p.c.: personal communication  
 Part: particle  
 PASS: Passive voice morpheme  
 PAST: Past tense morpheme  
 PDP: predicative determiner phrase  
 PF: Phonetic Form  
 PIC: Phase Impenetrability Condition  
 pl: plural  
 POT: Potential  
 Pred: predicative head  
 Pref: Prefix  
 PRES: Present tense morpheme  
 PROG: Progressive aspect morpheme  
 R.A.M.: Relational adjective marker  
 R: Relational head used in the structure of adjectives  
 Ref: Index of Identity Feature  
 SDP: strong determiner phrase  
 sg: singular  
 SM: Sensoro-Motor system  
 STA: stative aspect morpheme  
 SUP: superlative morpheme  
 SX: Syntactic phrase  
 T: Tense  
 t: Trace  
 ThV: Theme vowel  
 U phi : uninterpretable nominal features  
 v: Little v  
 V: verb  
 VI: Vocabulary Item  
 X<sup>o</sup>: Syntactic head  
 ı: inherent definiteness feature  
 ρ: feature that expresses a relationship  
 ω: phonological word



This dissertation is about grammatical categories, and tries to contribute to the long-standing debate about the relationship between morphology and syntax. More in particular, this dissertation addresses the possibility that the internal structure of a word is syntactic. The relevant question is whether syntax is previous to morphology or it is the other way around and morphology determines the syntactic behaviour of a constituent. We have selected the question of the definition of the grammatical category of a constituent because we believe that it is a problem that can be used to make a decision between these two possibilities. We will support the view that syntax determines crucial morphological characteristics of words, among them its grammatical category.

In chapter one, we contrast two theories that hold opposite views with respect to the relationship between syntax and morphology. Lexicalism proposes that morphological properties are previous to syntax, and the word displays them in the course of the syntactic derivation; Distributed Morphology, in contrast, proposes that a word is constructed in syntax and what we can call ‘morphology’ is, in a strict sense, a set of post-syntactic operations that map the syntactic structure into a set of positions of exponence where Vocabulary Items can be inserted. We support the second theory and we revise some evidence that backs it up. Chapter one concludes with a detailed account of the architecture of the Distributed Morphology framework.

Chapter two introduces the debate about the nature of grammatical categories. The first section is a historical review of the different theories about the nature of grammatical categories; we have tried to offer a complete account of the different semantic and formal perspectives. We concentrate on formal perspectives and, in particular, on configurational theories, that claim that each grammatical category has a different syntactic structure. In the second part of the chapter, we consider nouns and adjectives and we make explicit our assumptions about the functional projections they combine with in syntax, and about their semantic characteristics. We leave aside, because of their great complexity, pronominal adjectives. The third part of the chapter is an account of conversion where we argue that the characteristics of this phenomenon constitute evidence in favour of Distributed Morphology and its view of grammatical categories. We argue that the categorisation of a word is a syntactic phenomenon that is restricted by the semantics of the Vocabulary Items involved in the structure, and we claim that conversion illustrates this situation. After a detailed description of conversion and a review of the previous analyses, we argue that there are structural semantic factors make it possible that an item that usually manifests itself as an adjective is projected as a noun; in particular, we will relate conversion from adjectives to nouns with comparative quantifiers –in a sense wide enough to include negation and habitual aspect in deverbal adjectives-. We also note that some conceptual semantic factors are used to categorise some items as adjectives and as nouns.

The proposal that grammatical categories are defined syntactically encounters contrary evidence in those cases of words that manifest themselves as a certain category, but whose syntactic behaviour is characteristic of a different category. Given that our dissertation deals with nouns and adjectives, there are two conceivable counterexamples to our proposal: adjectives that behave as nouns and nouns that behave as adjectives. Chapters three and four, respectively, deal with each one of these counterexamples.

Chapter three discusses adjectives that behave like nouns, that is, relational adjectives. We argue that a transposition analysis is not enough to account for the

characteristics of these elements, and we will argue that syntax can explain them. Our proposal is that relational adjectives are actually nominal projections that lack the formal features that they need to play the role of arguments of a predicate; the adjectival morpheme has the function of providing the noun with these features. We propose that the relational adjective moves to the specifier position of a head that assigns genitive case; this configuration is interpreted as theta-role assignment. Our analysis introduces a new account of Kayne's restriction about DP's, relational adjectives and the theta-roles that they can exhibit. As in the analysis that we propose for relational adjectives two different relational heads appear, we conclude chapter three with a discussion of the nature of the syntactic relational heads that play a role in Spanish. In an appendix to this chapter we study the case of Upper Sorbian, whose relational adjectives have very intriguing characteristics, which are relevant for the questions discussed in this dissertation.

Chapter four addresses the question of nouns that behave like adjectives because they act as predicates. Here, we select only a particular case of predicative nouns: classificative appositions. We leave aside the case of predicative nouns combined with the verb *ser*, 'to be', because in these cases it may be the case that the overt structure – the copulative verb- is turning the noun into a predicate. In our analysis of classificative appositions we make a distinction between three types of structure. The first type, predicative appositions, is analysed as a structure where there is a relational predicative head that is usually phonologically empty. We explain the properties of these appositions through the analysis of the functional projections that combine with them. The second type, kind appositions, is analysed as a constituent housed in one of the phrases that dominate a noun in the syntax. The third type of appositions is the structure that proper names and surnames form in the syntax; these appositions are also analysed as a relational phrase that selects both constituents, even though this relational head has different properties than the relational head involved in predicative appositions. Given that in our analysis of appositions we account syntactically for some structures that have been considered N-N compounds, in the second part of this chapter we give serious thoughts to the question of whether it is possible to consider compounding a syntactic phenomenon. We suggest that compounding is the result of some syntactic projections that lack some particular characteristics, with the result that they have an atypical syntactic behaviour. We propose that there are two main ways to generate a compound: to have a structure that lacks inflectional features and to have a structure that has satisfied each one of its syntactic operations, in such a way that it becomes syntactically inert. We propose that Spanish A-A compounds illustrate the first case, whereas N-A compounds are an instance of the second situation. In an appendix of this chapter, we study the case of right-headed N-N compounds in Germanic languages, and we point out some of the properties that separate them from similar Spanish formations.

Chapter five addresses some of the consequences that we expect from our proposal, if it is correct. In the first place, we consider the consequences that our theory has for the Lexical Integrity Hypothesis. The prediction is that, if syntax generates words, syntax has access to the internal structure of words, or, at least, to a part of it, against what the Lexical Integrity Hypothesis claims. We argue that this prediction is verified with the study of several phenomena that involve Spanish prefixes, including some cases where there is evidence that the prefix undergoes covert movement in LF. Secondly, another prediction is that the set formed by the word and the category that assigns a grammatical category to it should have a special status in morphology. We propose that this prediction is also correct, because the first functional head that categorises a word defines a Morphological Local Domain, which is a closed domain

where phonological and semantic operations are performed in the absence of the information that is outside. We illustrate this with the analysis of two classes of Spanish parasynthetic verbs, of the adjective's degree and the noun's number morphology, and with appreciative morphemes. Then, we contrast our theory to that of Arad's (2003) in order to emphasise the differences between the two proposals; one of these differences is crucial, and is discussed in the following section: the behaviour of the functional projections that appear in a word after it has been categorised. To conclude this chapter, we make some points about the structure of the Encyclopaedia.

Finally, chapter six collects the conclusions and presents new questions that come to light as a result of the proposals that we have developed in this dissertation.

Esta tesis trata sobre categorías gramaticales, y trata de aportar nuevos puntos de vista al debate, persistente en la bibliografía, acerca de la relación que se establece entre la morfología y la sintaxis, y, de forma más concreta, acerca de la posibilidad de que la estructura interna de palabra tenga naturaleza sintáctica. Las preguntas fundamentales se refieren a la cuestión de si la morfología es previa a la sintaxis o, por el contrario, es la sintaxis la que determina las propiedades morfológicas. En este trasfondo, tomamos el problema de las categorías gramaticales para contrastar ambas posibilidades. La postura que defendemos en la tesis es que la sintaxis determina propiedades morfológicas cruciales, una de las cuales es la categoría gramatical.

En el capítulo primero presentamos dos teorías que se enfrentan precisamente por la distinta perspectiva desde la que conciben la morfología y la sintaxis. El Lexicismo propone que las propiedades morfológicas tienen prioridad sobre la sintaxis y se despliegan durante el curso de la derivación sintáctica; la Morfología Distribuida, por el contrario, propone que la construcción de una palabra es sintaxis y lo que podemos llamar ‘morfología’, en sentido estricto, es una serie de operaciones postsintácticas que adaptan la estructura sintáctica para la inserción de piezas de vocabulario fonológicas. Tomamos partido por la segunda teoría y presentamos algunos argumentos a favor de ella –aunque también reflejamos algunos problemas a los que se debe enfrentar-. El capítulo primero termina con una exposición detallada de cada uno de los componentes de la Morfología Distribuida.

El capítulo segundo presenta el debate entre las dos teorías a partir de la cuestión de las categorías gramaticales. Su primera parte es una revisión histórica, que hemos tratado de hacer lo bastante extensa para reflejar las distintas perspectivas, en la que diferenciamos entre teorías que cimentan la definición categorial sobre la semántica y aquellas que lo hacen sobre los aspectos formales. En esta segunda perspectiva, tomamos partido por las teorías formales configuracionales, que diferencian cada categoría gramatical mediante una configuración sintáctica distinta. En la segunda parte del capítulo, nos centramos en los nombres y en los adjetivos y hacemos explícitas nuestras suposiciones acerca de las proyecciones funcionales con las que se combinan en la sintaxis y sus propiedades semánticas. Nuestra discusión deja al margen, por ser unos elementos de gran complejidad que requieren un estudio independiente, a los adjetivos prenominales de todas clases. La tercera parte de este capítulo es un estudio empírico de la conversión donde argumentamos que el funcionamiento de este fenómeno proporciona argumentos a favor de las teorías formales configuracionales y la Morfología Distribuida. Defendemos que la categorización de una palabra es un fenómeno sintáctico que está restringido por la combinatoria semántica de las piezas implicadas en la estructura, y que la conversión ilustra esta situación. Tras una descripción detallada de las características de la conversión, junto con un estado de la cuestión, argumentamos que hay aspectos estructurales del significado que hacen posible que una pieza que normalmente se proyecta como un adjetivo se comporte como un nombre; concretamente, relacionaremos la conversión de adjetivos a nombres con la cuantificación comparativa –en un sentido donde la negación y el aspecto habitual de ciertos adjetivos deverbales son cuantificadores-. Señalamos también que hay aspectos de semántica conceptual que permiten que ciertas piezas se puedan categorizar como adjetivos y como nombres.

La propuesta de que las categorías se definen sintácticamente encuentra un contraejemplo inmediato en aquellos casos de palabras que exhiben una categoría morfológica, pero tienen comportamiento sintáctico propio de otra categoría. Dado que

nuestra tesis se restringe a los nombres y adjetivos, hay dos potenciales contraejemplos a la propuesta que defendemos: los adjetivos que se comportan como nombres y los nombres que se comportan como adjetivos. Los capítulos tercero y cuarto se dedican, respectivamente, a cada una de estas dos situaciones.

El capítulo tercero se refiere, por tanto, a los adjetivos que se comportan como nombres, es decir, los adjetivos relacionales. Argumentamos que un análisis de transposición no es suficiente para analizar sus propiedades y características, y defendemos, por el contrario, que la sintaxis permite explicar las propiedades de estos adjetivos. Nuestra propuesta es que los adjetivos relacionales son en realidad proyecciones nominales a las que les faltan rasgos formales que permiten que actúen como argumentos de un predicado; el morfema adjetival tiene básicamente la función de facultar al nombre para desempeñar el papel de argumento de un predicado. Proponemos que el adjetivo relacional se desplaza a la posición de especificador de un sintagma que asigna caso genitivo y dicha configuración es interpretada como asignación de papel temático. En el caso de los adjetivos relacionales de tipo clasificativo, proponemos el mismo análisis, con la salvedad de que la estructura está seleccionada por una preposición. Nuestro análisis presenta una nueva perspectiva para la restricción de Kayne sobre los sintagmas determinantes y los adjetivos y su proyección temática. Dado que en el análisis de los adjetivos relacionales intervienen dos núcleos prepositivos diferentes, el capítulo tercero termina con una discusión de la naturaleza de los núcleos relacionales sintácticos que intervienen en español. En un apéndice a este capítulo, estudiamos el caso del alto sorbiano, cuyos adjetivos relacionales tienen propiedades muy llamativas, relevantes para la discusión general de esta tesis.

El capítulo cuarto aborda la cuestión de los nombres que se comportan como adjetivos porque actúan como predicados. Nuevamente, aquí restringimos nuestra discusión a un caso concreto, el de las diversas aposiciones clasificativas del español. Dejamos al margen los predicados nominales con cópula de verbo *ser* o *estar* porque en estos casos existe la posibilidad de que el nombre no sea un predicado, sino que la estructura visible –el verbo copulativo– sea la que faculte al nombre para ser predicado. En nuestro análisis de las aposiciones clasificativas, distinguimos tres clases; la primera, las que son propiamente predicativas, son analizadas como estructuras en las que hay un núcleo relacional predicativo que normalmente está fonológicamente vacío, de tal manera que derivamos las propiedades de estas estructuras a partir de las proyecciones funcionales que se combinan en ella; la segunda, las que llamamos aposiciones de clase, son proyecciones contenidas en uno de los sintagmas que dominan al nombre en la sintaxis; la tercera clase, las estructuras que forman los nombres de pila y los apellidos, son analizadas también como fruto de la proyección de un núcleo relacional, aunque de distinta naturaleza al de las aposiciones predicativas. Dado que en nuestro análisis de las aposiciones tratamos algunas estructuras que se suelen considerar compuestos de dos sustantivos y nosotros proponemos que sus propiedades se derivan de la sintaxis, en la segunda parte del capítulo nos planteamos la cuestión general de si es legítimo considerar a los compuestos entidades creadas al margen de la sintaxis. Nuestra respuesta es que los compuestos son el resultado de ciertas proyecciones sintácticas que carecen de algunas propiedades, por lo que tienen un comportamiento atípico. Establecemos dos fuentes fundamentales para la construcción de compuestos: estructuras que carecen de rasgos de flexión propios y estructuras que contienen constituyentes que satisfacen todas sus propiedades sintácticas y, por tanto, quedan inactivas en este nivel. Proponemos que los compuestos de dos adjetivos del español ilustran la primera situación, mientras que los compuestos de nombre y adjetivo ilustran

la segunda. En un apéndice a este capítulo, analizamos los compuestos de dos sustantivos, con núcleo a la derecha, en las lenguas germánicas, y señalamos las diferencias que establecen con estructuras semejantes del español.

El quinto capítulo se plantea algunas consecuencias que esperamos de ser correcta la propuesta defendida. En primer lugar, analizamos las consecuencias de la teoría para la Hipótesis de la Integridad Léxica: la predicción es que, si la sintaxis construye las palabras, en contra de lo formulado en la Hipótesis, la sintaxis tendrá acceso a la estructura interna de las palabras, o, al menos, a parte de ella. Argumentamos que esto es así con varios fenómenos que implican a prefijos del español, incluyendo algunos casos donde hay pruebas de movimientos encubiertos en la Forma Lógica. En segundo lugar, otra predicción esperable es que la estructura que forma la proyección que asigna categoría a una pieza tenga un estatuto especial. Razonamos que esta predicción también es correcta y que los dominios morfológicos locales, donde se efectúan operaciones fonológicas y de semántica conceptual, están restringidos a la primera proyección que categoriza a un elemento. Ilustramos este fenómeno con el análisis de dos clases de verbos parasintéticos del español, con el análisis de la morfología de grado en los adjetivos y la de número en los nombres, y con la morfología apreciativa. A continuación, comparamos nuestra propuesta con la de Arad (2003) para destacar sus diferencias, una de las cuales resulta crucial y es discutida seguidamente: el comportamiento de las sucesivas proyecciones funcionales que se combinan dentro de una palabra. Para cerrar el capítulo, hacemos algunas precisiones sobre la estructura del componente enciclopédico a la luz de los detalles de nuestra propuesta.

Finalmente, el capítulo sexto recopila las conclusiones de la tesis y plantea algunas nuevas preguntas que surgen de ella, al tiempo que reconoce algunas deficiencias que han ido apareciendo en la investigación.

*La ciencia siempre es una búsqueda, nunca un auténtico descubrimiento; es un viaje, nunca una llegada.*

Karl Popper

*Una velada en la que todos los presentes están completamente de acuerdo es una velada perdida*

Albert Einstein

Se atribuye al filósofo chino Confucio la afirmación de que todo viaje, hasta el más largo, comienza con un solo paso. Lo que no se suele decir es que, si ese primer paso se da en la dirección errónea, a lo más que llega uno es a perderse. Por este motivo fundamental, quiero reconocer con enorme gratitud el apoyo y ayuda que me ha prestado desde mis primeros años como filólogo mi directora, Soledad Varela Ortega, que me permitió explorar caminos que quizá en alguna ocasión fueron diferentes de los que ella hubiera querido que explorara, y al mismo tiempo me asesoró atinadamente para que no me perdiera en ellos y terminara cayendo por un acantilado.

Debo una mención especial al Programa de Doctorado en *Lingüística Teórica y sus Aplicaciones*, del Instituto Universitario de Investigación Ortega y Gasset, y en particular a Violeta Demonte –a la que debo mucho más de lo que puedo reflejar por escrito–, José María Brucart, Esther Torrego, Ignacio Bosque, Miriam Uribe, María Teresa Espinal, Heles Contreras y Eduardo Raposo. Sin la formación recibida en este programa, gracias no sólo a estos profesores, sino a los otros muchos que han ido pasando por él en los últimos años, no hubiera sido capaz de escribir ni una página de esta tesis.

Otra pieza crucial en la elaboración de esta tesis, y sin duda en la formación que he obtenido hasta ahora como investigador, se halla en las dos estancias breves que he realizado, en años consecutivos, en la *Universidad Libre de Amsterdam* con el Prof. Geert Booij y en la que desarrollé con el Prof. Andrew Spencer en la *Universidad de Essex*. Sin su ejemplo, esta tesis sería muy distinta, y, sin duda, mucho peor.

Hay otras personas cuya influencia en el desarrollo de este trabajo deseo reconocer. El capítulo primero se ha beneficiado grandemente de mis conversaciones con Olga Fernández-Soriano, Eulalia Bonet, Juan Romero y Jaume Mateu. Para el capítulo segundo, he de agradecer los consejos de Luis Eguren, Juana Muñoz Licerias y Jesús Pena. El capítulo tercero se benefició enormemente de frecuentes conversaciones con Violeta Demonte, Carlos Piera y Andrew Spencer. Para el capítulo cuarto, obtuve útiles consejos de Sergio Scalise, Juan Romero y Franz Rainer. El capítulo quinto se ha enriquecido por mis charlas con Iggy Roca, Carlos Piera, Olga Fernández-Soriano y Elena Felú.

Quiero agradecer también los comentarios y sugerencias a mis compañeros en los seminarios del Instituto Universitario de Investigación Ortega y Gasset, con especial mención para Isabel Pérez, Norberto Moreno, María Jesús Arche, Augusto Trombetta y Malena Simoni; me he sentido particularmente próximo a otros morfólogos, como Elena Felú y Josefa Martín, con quienes he discutido muchas cuestiones relevantes para mi investigación.

Además de la lingüística, durante estos años también he tenido algo de tiempo para otras cosas. No hubiera sido capaz de acabar esta tesis sin perder por completo toda brizna de cordura de no ser por la ayuda de todo tipo que me han prestado sincrónica y diacrónicamente una serie de personas. Entre ellas, sin que el orden de citación tenga más valor que el de un rasgo no interpretable, están Armando, Laia, Isa, Rodrigo, Marta, Sara, Elena, Maite, Javi, María, Teresa, Diana, Silvia, Helena, Patricia, Chema, Raquel,

Irene, Josefa, Leanne, Begoña, Nacho, Florencio, Cristina, Alejandra, Giulia, Ilaria, Luis, Emiliano, Lourdes, Francesca, Estrella, Jenny, mi hermano y mis padres.

En “El lenguaje analítico de John Wilkins”, Borges cita una ancestral enciclopedia china, tan completa como imaginaria, llamada *Emporio celestial de conocimientos benévolos*, donde los animales son clasificados de la siguiente manera, redundante y ambigua: a) animales pertenecientes al emperador b) embalsamados c) amaestrados d) lechones e) sirenas f) fabulosos g) perros sueltos h) incluidos en esta clasificación i) que se agitan como locos j) innumerables k) dibujados con un pincel finísimo de pelo de camello l) etcétera m) que acaban de romper un jarrón n) que de lejos parecen una mosca. Espero sinceramente no haber caído en esta clase de contradicciones al estudiar en esta tesis las categorías gramaticales, una cuestión que me ha preocupado siempre, porque en ella, a los problemas propios de la investigación lingüística, que son muchos y feroces, se suman los problemas inherentes a los que da lugar toda categorización de entidades en cualquier ámbito de conocimiento.



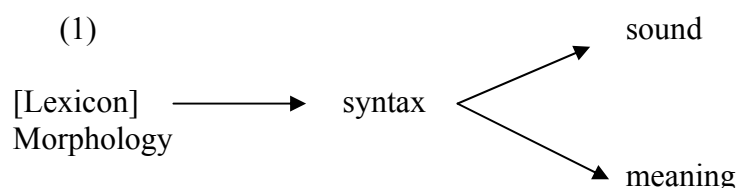
Lexicalist morphology vs. Distributed Morphology.

This dissertation addresses the problem of the status of morphology in the architecture of grammar. We will discuss whether morphology is a generative pre-syntactic component or an interpretative post-syntactic one. More in particular, we will be concerned with the nature of grammatical categories and with the question of whether they are labels of lexical items or can be derived from general syntactic principles. As will become evident in the following chapters, we will argue for a view of morphology which is not a generative component, and for a view of grammatical categories which are defined during the syntactic derivation. We will provide evidence for such views of morphology and grammatical categories and we will address some apparent examples counter to the view that we support.

This chapter will be devoted to reviewing part of the literature which has discussed the status of morphology in the general architecture of grammar. Relevant to our discussion is the controversy between the Lexicalist framework and the Distributed Morphology framework, as each one of them argues for opposed views of morphology. The next section presents the main tenets of each proposal.

### 1.1. For a generative lexicon: Lexicalism.

For Lexicalism, the relation between morphology and syntax is as shown in diagram (1):



An assumption common to every Lexicalist theory is that morphological operations are performed in the Lexicon, a level different from syntax. This level is generative and is responsible for the construction of words. In the Lexicon, there are some components which take part in word formation (Halle 1973): a set of units that are manipulated – morphemes (Bauer 1978, Lieber 1980, Selkirk 1982, Scalise 1984) or words (Aronoff 1976: 7-14, Anderson 1992)-, a set of rules which combine the units, a filter which bans some formations or adds idiosyncratic information to them, and, in so-called Strong Lexicalist Theories, also a dictionary which stores the paradigms that result from the inflection of each word.

The second relevant property of Lexicalist paradigms is that, as the Lexicon is previous to syntax and, in a sense, feeds it, the properties of morphological objects are not determined by syntax; it is proposed, actually, that it is the other way around, and morphology determines syntax, as the syntactic behaviour of a lexical item is a reflection of its morphological information.

It is usually claimed that the theoretical basis of Lexicalism is found in Chomsky (1970). This article appears in a context where there were some proposals of lexical decomposition whose main idea was that words have a level of deep structure from which –through transformational rules and the erasure of lexical material- the appropriate surface structure was generated (cfr. Lees 1960). Chomsky proposes that the

lexicon is opposed to the syntactic transformations, and that this component of grammar must handle the structures that show (at least one of) these three properties:

- (a) Syntactic irregularity: a certain process cannot be applied to every word belonging to a particular category. Lexical processes have to meet several types of restrictions. Some of them at least cannot be related to phonological, semantic or structural characteristics of the components of the word: they are purely morphological restrictions (cfr. Aronoff 1976: 51-55). For example, not every qualificative adjective in Spanish has a quality noun with *-ura*.
- (2) blanco – blanc-ura, hermoso – hermos-ura, loco – locura, rojo - \*rojura, white – white-ness, beautiful-beautiful-ness, crazy-crazy-ness, red – red-ness calvo - \*calvura, seco - \*secura...  
*bald – bald-ness, dry – dry-ness*
- (b) Semantic irregularity: the meaning of the derivative of a certain unit cannot be predicted compositionally from the meaning of the unit and the meaning of the material attached to it. For example, some deverbal nouns with *-al* have a special meaning.
- (3) recitar – recital; *to recite – recital* (which is not simply the event of reciting something, Halle 1973: 4, Scalise 1984: 25)
- (c) Structural differences: some processes change the grammatical category of the unit to which they are applied, while some other processes keep the category constant. A well-known example of this is the contrast between English gerundives and nominalizations: gerundives keep the structure of a sentence -for example, the verb assigns accusative case to the direct object-, but nominalizations have the properties of NP's.
- (4) a. John's destroying the city.  
b. John's destruction *of* the city.

The result of these observations is the so-called Lexicalist Hypothesis: transformations –which are syntactic rules- can account for regular processes, as the addition of number, case, tense, etc. The processes that are subject to exceptions or idiosyncrasies, and can change the category label of a constituent, are the result of rules which operate on the lexicon. Morphology's object of study are the second type of processes. Starting from this idea, there are two variants of the Lexicalist Hypothesis: the strong one, which claims that inflection, which plays a crucial syntactic role, is generated in the lexicon (Halle 1973, Booij 1977, Lieber 1980, Scalise 1984), and the weak one, which considers inflection a syntactic process (Siegel 1974, Aronoff 1976). It is common to these two groups of theories that inflections has a different status from derivation, an idea which had been established before the Lexicalist Hypothesis.

From here it follows necessarily that Word Formation Rules are sensitive to properties of the morphemes or the words implied in a certain process, such as their grammatical category, their semantics and their phonology; however, they are blind to the properties of those elements in the syntax. Morphological structures determine some properties of the syntax, but this is done indirectly. For example, a lexical process changes the category of an element from N to V. Obviously, the syntax of that element

will be different, but this is not due to the morphological rule itself, but to the change of label that the morphological rule has as an effect. At the same time, from here it follows that the syntax is blind to the morphological structure of a word. For example, word internal constituents cannot be displaced (5a), because displacement is a syntactic operation, while sentence internal constituents may be extracted (5b). As is known, in the Government and Binding theory (cfr. Chomsky 1981), the symbol *t* –for *trace*– is used to mark the position from which the constituent is displaced.

- (5) a. reconstitutionalization  $\rightarrow$  \*  $\text{tion}_i$ -reconstitutionaliza- $t_i$   
 b. Peter said he bought the car  $\rightarrow$  What<sub>*i*</sub> did Peter say he bought  $t_i$ ?

In contrast to Lexicalism, there are some other theories that argue, first, that there is no generative Lexicon –and therefore every systematic aspect of word formation processes is performed by the syntax– and, second, that morphological properties are to a great extent determined by the syntax, and not the other way round. Among these theories, we find Baker (1988) and Lieber (1992a), but we will limit ourselves to the model of Distributed Morphology (Halle & Marantz 1993, 1994, Marantz 1997, 2001, Harley & Noyer 1998). Unless it is specifically indicated, all the description from this point on refers to Distributed Morphology only (from now on, DM). The relation between syntax and morphology for DM is shown, very roughly, in the diagram. Details will be provided later.

- (6) syntax  $\rightarrow$  morphology

In DM, there is no generative Lexicon. The Lexicon only exists as a set of three lists which are accessed by the computational system in different moments. The only engine of the grammar is the syntax, and the syntax determines (at least part) of the morphological properties of a word. In the next section we will provide some evidence which supports this view against Lexicalism.

## 1.2. Against a generative lexicon: Distributed Morphology (DM).

First of all, DM argues against a generative Lexicon. Marantz (1997) revises Chomsky (1970), which has been generally considered the starting point of Lexicalism, and argues that Chomsky's reasoning in that paper actually implies that the Lexicon cannot be generative, for otherwise it is not possible to account for the data.

### 1.2.1. The place of word formation processes is syntax.

There is a puzzling contrast between two classes of verbs that display opposed behaviour in their nominal and verbal variants. The verbs of the first class, such as *grow*, can be either transitive or intransitive, but their nominalisations can only be intransitive. In contrast, the verbs of the second class, such as *destroy*, must be transitives, but their nominalisation can be transitive or intransitive.

The relevant data related to the *destroy* class is shown in (7), and the *grow* class is exemplified in (8).

- (7) a. that John destroyed the city.  
 b. \*that the city destroyed  
 c. John's destruction of the city  
 d. the city's destruction  
 e. John's destroying the city.

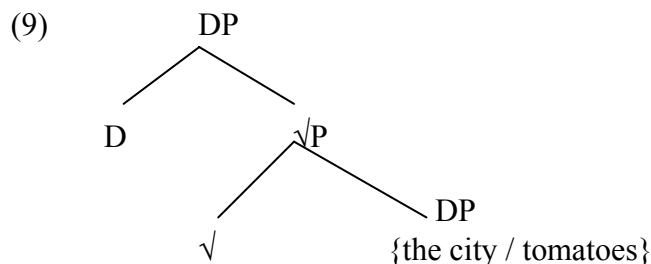
- (8)
- a. that John grows tomatoes.
  - b. that tomatoes grow.
  - c. \*John's growth of tomatoes (caveat: with an agentive reading).
  - d. the tomatoes' growth
  - e. John's growing tomatoes.
  - f. Tomatoes' growing

Let's observe that (7e) and (8f) are examples of gerundives, which in English are structures that share many characteristics with full sentences. These elements allow precisely the same constructions as the verbal counterparts of each root, causative with *destroy* and inchoative with *grow*.

Marantz' explanation for this data starts with the proposal that it is necessary to consider the roots separately from the grammatical category of the construction: in each set of examples, the root is the same, but the category changes. Marantz' proposal is that the category changes depending on a certain functional projection that is merged with the root. We will discuss this carefully at the appropriate moment, but now we will take this as an assumption to follow the argument.

Secondly, there is a semantic difference between the roots from the class of *grow* and those from the class of *destroy*. Roots such as  $\sqrt{\text{DESTROY}}$  denote a change of state which cannot be internally caused; roots such as  $\sqrt{\text{GROW}}$  denote an internally caused change of state (cfr. Levin & Rapaport 1995).

The categorial instantiation of the root depends on the functional category merged with it in syntax. In the nominal version, that category is the determiner, D (9)<sup>1</sup>.

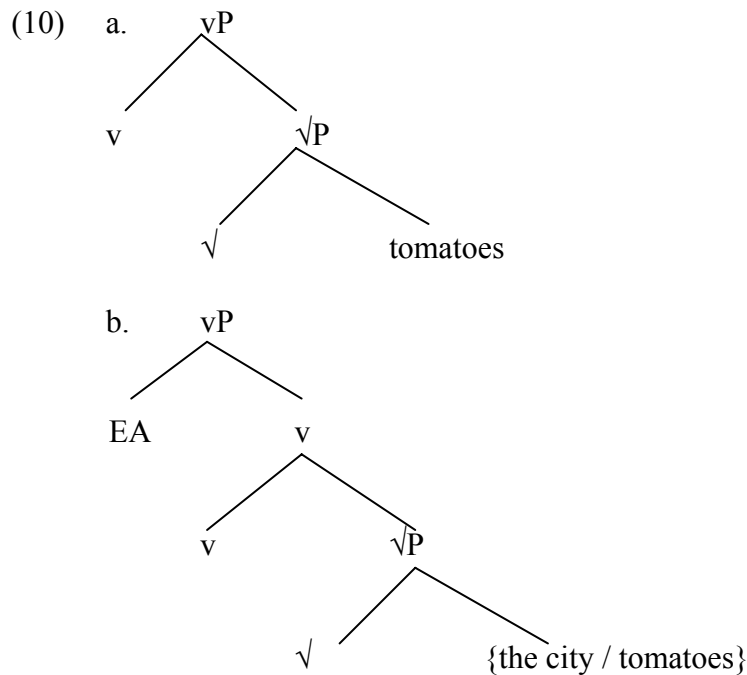


This gives 'the city's destruction' and 'the growth of tomatoes', both of them grammatical. The internal argument is selected by the root, but note that there is no syntactic position for the agent.

The external argument can be merged as a genitive, but there is no syntactic position that licenses its interpretation as an agent –for, as we will discuss later, in the verbal phrase agents must be projected as the specifier of little *v*-. Consequently, in the absence of the licensing structure, the only possibility to get that interpretation is to rely on the semantics of the root. Now, a root of the  $\sqrt{\text{DESTROY}}$  class is an externally caused change of state, which implies the existence of a cause for the process; this licenses the interpretation of the genitive in (7c). In contrast,  $\sqrt{\text{GROW}}$  is an internally caused change of state, so the semantics of the root doesn't license the agentive interpretation, accounting for the ungrammaticality of (8c). Let us observe, therefore, that roots lack grammatical category, but have semantic properties which may be crucial for their behaviour.

<sup>1</sup> Even though it is probably an oversimplification, we provisionally accept Marantz' structure for the noun phrase as he presents it here, for the sake of the exposition. Cfr. section 2.1. in chapter two for an exposition of the proposal that we adopt.

Let us now consider the verbal constructions. This is obtained through the functional head little  $v$ , which can license an agentive external argument if certain conditions are met. This head may appear in two versions, following Chomsky (1998). A defective little  $v$  would be unable to check accusative case and would not select an external argument (10a); it would be associated with an inchoative reading. In contrast, a little  $v$  head complete in features would be able to license accusative and would select as its specifier an agent, this is, there is an External Argument (EA, 10b); this gives a causative interpretation. The alternation between defective / complete little  $v$  produces as an epiphenomenon the inchoative/causative alternation.

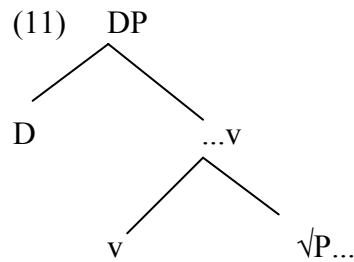


A root such as  $\sqrt{\text{GROW}}$  is compatible with both versions of little  $v$ . The defective one is legitimate because the root doesn't need a cause different from the patient argument, being an internally caused change of state. There is nothing wrong with the complete one, because the cause is licensed by little  $v$ , so it is not necessary to license it through the semantics of the root. As for a root like  $\sqrt{\text{DESTROY}}$ , it can only combine with the strong version of little  $v$ , because it needs a cause, being an externally caused change of state. This explains (7a, b) and (8a, b)<sup>2</sup>.

Finally, the gerundive is the combination of  $D^3$  and  $v$  (11), so it is predicted that there would be allowed the same constructions as in the verbal version.

<sup>2</sup> Similar observations are done with respect to adjectival participles in Spanish by Varela (2003, in press). Verbal participles may project an agent and contain eventive information; adjectival participles lack both properties.

<sup>3</sup> We disregard the empirical differences between the determiners which combine with gerundives and those which combine with action nominals and therefore we accept Marantz' proposal that the same functional projection dominates the structure in every case.



Marantz' approach seems able to predict the data. What he claims additionally is that a Lexicalist approach cannot explain them. Why? Because, allowing transformational operations in the lexicon, nothing would preclude the verbs –lexical elements- to suffer a transformation that produced transitive and intransitive versions of both the  $\sqrt{\text{GROW}}$  and the  $\sqrt{\text{DESTROY}}$  classes. Then, those elements would enter the syntax as transitive and intransitive, so they should be combinable –as verbs- with the causative and inchoative and –as nouns- with agentive genitives. As this is not the case, Marantz concludes that, in order to explain this set of data, transformational operations can only take place in syntax. In conclusion, then, the only transformational component of grammar is syntax, and the Lexicon has another nature. Marantz proposes that it should be viewed as an (expandable) list of elements, in a way which we will make explicit later.

#### 1.2.2. The syntax determines crucial morphological properties.

The second point of difference between Lexicalism and DM is whether syntactic properties are determined by morphology or morphological properties are determined by the syntax. Here are present also some phenomena which support the DM view.

Let us consider first whether syntax can have access to the internal structure of words. Lexicalism proposes that this is not the case, but the data seems to prove that this kind of relationship may take place. The data in (12) are well-known cases which may prove that the constituents of a word may be accessed by syntactic rules.

- (12)
- a. [pro- y anti-] abortistas  
Lit. [pro- and anti-] abortionist
  - b. [simple y llana]-mente  
Lit. [simple and easy]-ly
  - c. simpl-ísim-a-mente  
Lit. simple-SUP-FEM.AGR-ly
  - d. ex-[jugador del Real Madrid]  
Lit. former-[player of the Real Madrid]

Coordination is a syntactic operation, and (12a, b) constitute instances of coordination of morphological components of a word. In (12a) two prefixes are being coordinated, and they are interpreted as modifiers of the same base. We will discuss this phenomenon more carefully in chapter four, section 4.1.1., where we will reject a possible analysis with ellipsis of the base of the word, but for the moment it suffices to observe that it seems an instance of a syntactic rule which takes morphological constituents. The case in (12b) is similar, with the difference that what is being coordinated are two bases, which share the same suffix.

If morphology is previous to syntax, as Lexicalism proposes, it is expected that inflection, which is a syntactic process, takes place after derivation, a morphological process. From here it follows that inflectional morphemes should be external to

derivative ones. In (12c), however, the derivational morpheme (Varela 1990a) *–mente* is external to two clearly inflectional morphemes: the desinence *–a*<sup>4</sup> in feminine singular and the degree morpheme *–ísim*.<sup>5</sup> This constitutes a double problem for Lexicalism, then.

Finally, in (12d) the prefix *ex-*, equivalent to ‘former’, must refer semantically not to the noun to which it is added, but to the whole noun phrase that it heads, for (12d) may refer to a person which is still a player, provided that he or she does not play still in Real Madrid. This means that the prefix must take scope over a whole phrase, which is an instance of syntax-morphology interaction which is not expected by the Lexicalist paradigm. We will analyse in detail this case in chapter five, section 2.1.

There is one crucial property of morphological objects which seems to be, at least in part, determined by syntax: morpheme order. Lexicalism, as it states that morphological properties are previous to syntax, does not predict that the order of morphemes frequently reproduces the order of syntactic operations; it would seem a matter of coincidence that the order presented in the morphology parallels the order of grammatical projections in syntax.

The correlation between morphological and syntactic information was first phrased as the Mirror Principle by Baker (1985: 375): “Morphological derivation must directly reflect syntactic operations (and viceversa)”. What we expect, then, is that the order in which morphemes appear on a given word reflect the syntactic derivational history of that word. Morphemes are ordered just on syntactic grounds.

Let us consider some facts that have been claimed as evidence for the MP. Note first the following set of Chichewa data (from Baker, *ibidem*). (13a) is the core sentence; in (13b), an applicative syntactic operation has been applied to the VP, and, consequently, an applicative morpheme has been added to the verb; (13c) is formed also from (13a), but, this time, with a passive transformation that has added a passive morpheme to the verb. The crucial data is (13d) and (13e). It is possible to form a passive sentence from an applicative, but then the order of morphemes is one in which the applicative appears closer to the verbal stem than the passive morpheme, because the order of syntactic operations is first the applicative and then the passive, being ungrammatical the applicative of a passive sentence – because the verb doesn’t have two internal arguments anymore-.

- (13) a. mbidzi zi-na-perek-a        mpiringidzo kwa mtsikana  
zebras AGR-PAST-hand-ASP crowbar to girl  
The zebras handed the crowbar to the girl.  
b. mbidzi zi-na-perek-**er**-a     mtiskana mpiringidzo  
zebras AGR-PAST-hand-APPL-ASP girl crowbar  
The zebras handed the girl the crowbar.  
c. mpiringidzo u-na-perek-**edw**-a kwa mtsikana (ndi mbidzi)  
crowbar AGR-PAST-hand-PASS-ASP to girl by zebras  
The crowbar was handed to the girl by the zebras.

<sup>4</sup> Franz Rainer (p.c.) suggests that the feminine mark here is not the result of an agreement process, but one of the possible forms of the word stem, which is selected in the formation of *–mente* adverbs due to idiosyncratic reasons (as proposed in Rainer 1996). As this would be the only case in the morphology of Spanish where this form of the stem is selected instead of the masculine form, we consider this approach highly stipulative.

<sup>5</sup> Gradation is inflectional in the adjective: a gradative morpheme does not create a new word, gradation is always external to derivational morphemes and we will propose that it is paradigmatic in the sense that every qualificative adjective may have a gradative morpheme (cfr. chapters two and three), even though the semantic interpretation may differ.

- d. mtsikana a-na-perek-**er-edw**-a mpiringidzo ndi mbidzi  
 girl AGR-PAST-hand-APPL-PASS-ASP crowbar by zebras  
 The girl was handed the crowbar by zebras.  
 e. \*mtsikana a-na-perek-**edw-er**-a mpiringidzo ndi mbidzi

Baker goes on to observe that the MP must take the form of an unnatural additional stipulation in a number of theories of morphological phenomena. “The fact that the MP expresses a true generalization strongly suggests that the morphology and the syntax of Grammatical Function changing phenomena are two aspects of what is fundamentally a single process”.

MP phenomena have been identified in Quechua, Hungarian (Brody 2000:32), Eskimo and in Athapaskan languages (Rice 2000). Beard, a strong opponent of concatenative and syntactic approaches to morphology, has identified this phenomenon in Turkish (52, 1995:54). The relative order of the modal and the negative affix reflects a difference in the meaning of the verbal form that can be due to the order of each prefix. In (14a), the potential mood affects the negative; in (14b), it is the opposite.

- (14) a. Ahmet gel-me-yebil-ir-Ø  
 Ahmet come-NEG-POT-PRES-3<sup>rd</sup>.sg  
 It is possible that Ahmet will not come  
 b. Ahmet gel-e-me-z-Ø  
 Ahmet come-POT-NEG-PRES-3<sup>rd</sup>.sg  
 It is not possible that Ahmet will come

Not every example gives evidence in favour of the MP. Of course, there are also well-known phenomena that have been invoked to cast doubt on the accuracy of the MP. There are two kinds of phenomena that are potential problems for the MP. Theories which propose a radical independence between form and meaning provide many examples of this. Beard (1993) gives a big set of examples:

- (15) a. A word may suffer two processes, but only show one morpheme. In Serbocroat, the person associated to a property may be morphologically expressed adding the suffix *-ac* to the base denoting that property: *dronj-av* (in rags) gives *dronj-av-ac* (ragged person). However, if the base refers to the semantic set of salient body parts, like *brad-a*, ‘beard’, three lexical derivations –possessive adjective, agentive noun and feminine gender– are expressed by only one affix, *-onj(a)*, in such a way that bearded male is *brad-onj(a)*.  
 b. A word may be overdetermined by more than one affix to express one single lexical derivation; in this same language, the suffix *-tel`* is used to express agentive nouns: *uci-tel`*. However, in feminine, more than this suffix is needed: *uci-tel`-in-ic(a)*. In some other cases, *-tel`* is used in contexts where it has no ostensible function, such as *vrashcaj* (rotate) → *vrashca-tel`-n(yj)* (rotary).

These cases are problematic for the MP because it would predict just one affix per operation, and this is obviously not true.

Noyer (1992: 36 and folls.) notes a second class of counterexamples. The MP predicts that the same syntactic notion must be expressed always in the same morphological position of a word, and that a certain position in the word should express



always the same syntactic property, because this morphological exponent would reflect a syntactic head position. This is obviously not true, in regard of examples such as (16), taken from the Classical Arabic verbal paradigm.

- (16) a. t –aktub- aani  
 fem-write.IMPF-dual  
 b.n- aktub – u  
 1<sup>st</sup>.pl-write.IMPF-IMPF  
 c. y –aktub-na  
 default-write.IMPF-fem.dual

There is not a unique correlation between morphological properties and positions. Gender is expressed as a suffix in (16c) and as a prefix in (16a); number is expressed as a prefix in (16b) and as a suffix in (16c); prefixes are exponents of person and number (16b), gender (16a), or just a default morpheme (16c).

We believe that this data are not necessarily counterexamples to the MP. What is crucial, to our mind, is that many morpheme order phenomena can be explained by the order of the corresponding projections in the syntax. To give account of the mismatches, in those languages where there are clear cases of that, it can be proposed the existence of a post-syntactic level where syntactic heads may be subject to different operations that transform them in other type of units; these rules have a status similar to Readjustment Rules, proposed first, as far as we know, by Indian grammarian Panini. What is needed, then, is a grammatical architecture like (17).

- (17) Syntax → Operations on Terminal Nodes → Phonological Instantiation

If syntactic terminal nodes can be fused together, we would explain (15a), where two morphological processes are spelled-out by the same morpheme, because the syntactic heads responsible for those two processes have been collapsed into one. If terminal nodes could be split in two, we would explain (15b), where a single process is expressed by more than one morpheme, because the relevant syntactic head has been distributed in two or more positions. Finally, if terminal nodes can change their sequential positions, we could expect cases such as those in (16). The unmarked situation would result when a given set of terminal nodes wouldn't suffer any postsyntactic operation, and those cases would allow us to view the MP acting, but the postsyntactic operations could mask, to a certain extent, its effects, by application, for example, of template structures (McCarthy 1979, Spencer 1991).

Moreover, there exist some languages where post-syntactic operations seem to be practically non existent: these languages are the agglutinative type. Beard recognises that in these languages MP effects are pervasive. This suggests that MP is contained in the Universal Grammar, while postsyntactic operations may be possible just in some languages and impossible in some other.

### 1.2.3. Idiosyncrasies are post-syntactic.

Lexicalism proposes that the filter, which may apply to any formation, is responsible for the addition of demotivated meanings to words. Therefore, Lexicalism predicts in principle that the meaning of any word may be demotivated. DM, in contrast, proposes that syntax is responsible for the structure of words; therefore, the syntactic structure of a word may determine whether it can have a demotivated meaning or not.

Marantz (1995b, 1997, 2001) has discussed the development of demotivated meanings. First of all, he observes that morphological objects are not special in this respect, because syntactic objects may have also demotivated meanings. Marantz (1995b: 13-14, 1997: 206-211) presents as evidence of this the case of light verb structures:

- (18) take a leap, take a leak, take a break, take five, take heart, take up

If we had to isolate the meaning of *take* from those examples, we would encounter the same problems that we would have if we were to isolate the meaning of *-fer* from these words (Aronoff 1976):

- (19) re-fer, in-fer, con-fer, trans-fer

So there is no difference between syntactic structures and morphological structures in this respect. Listing the meanings is not the solution, because this procedure suggests that anything can have a demotivated meaning, while it can be shown that the structure is a pre-requisite to let demotivated meanings arise. An eventive formation with an agent cannot lexicalise, for example. There are not lexicalised structures with causatives from agentive verbs (Ruwet 1991).

- (20) a. Make oneself over, make ends meet (maybe demotivated meaning).  
b. Make oneself swim (only compositional meaning).

In addition to this, there are no idioms with eventive passives,<sup>6</sup> but there are some with stative passives. The following data is also from Ruwet (1991):

- (21) a. Chaque chose à sa place et les vaches seront bien gardées.  
b. Cet argument est tiré par les cheveux.

There is no sense of activity in these expressions; the participle denotes a quality / property, not an event. The following data from Chichewa confirms this contrast. The affix *-idwa* is exponent of an eventive passive morpheme, something which forces to interpret the word *ku-gul-idwa* as a compositional unit. In contrast, the affix *-ika* is stative and allows the word *ku-gul-ika* to take a non compositional meaning:

- (22) a. Chimanga chi – ku- gul –**-idwa** ku-msika.  
Corn AGR- PROG buy PASS in-market.  
*Corn is being bought in the market.*  
b. Chimanga chi- ku- gul –**-ika** ku-msika.

### STA

*Corn is non expensive in the market.*

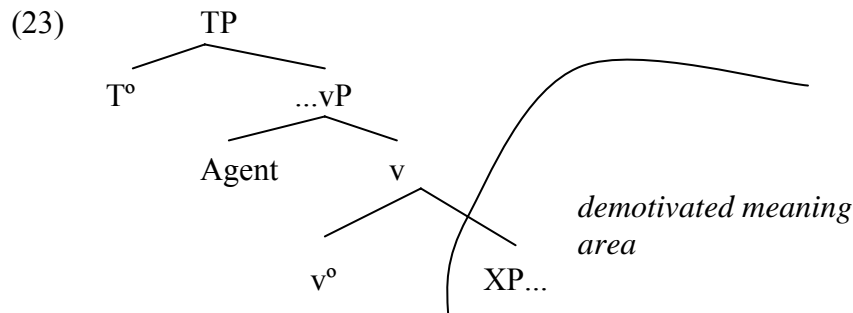
[apud Dubinsky & Simango 1996]

So, in summary, there are at least two prerequisites to allow an expression to have a demotivated meaning: it cannot be formed neither with an agent, nor with the causative

<sup>6</sup> Cfr.. however, Nunberg *et alii* (1994), in section 3 of this same chapter.

of an agentive verb, nor with an eventive passive<sup>7</sup>. Pure listing, then, is not a good way to describe the restrictions of demotivated meaning.

How can we show that the structure has a role in this process? The two properties noted can be related to a particular structural configuration. Agents are syntactically generated as specifiers of the category  $v$ , and the eventive meaning has been related with this same category  $v$  (Chomsky 2000, 2001, 2004) or has been claimed to be the semantic reflex of a functional projection that dominates  $v$  (Kratzer 1996). So there is a structural restriction on the elements that can display a demotivated meaning: they can only be formed with elements contained in the complement of  $v$  (23):



In this same line, McGinnis (2002) studies idioms and proves that even though they have demotivated meaning, their aspectual information is the one expected if they are syntactic objects with a phrasal structure, as any normal phrase. This shows that it is needed a system where a syntactic element may have demotivated meaning, so words – even though they have a demotivated meaning- are syntactic objects.

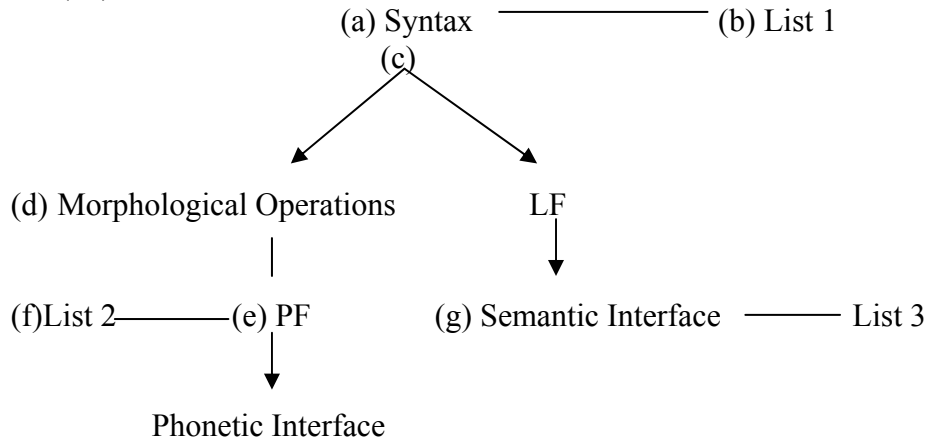
With this review, we do not want to give the impression that there are no phenomena related with word properties which constitute an argument for Lexicalism. For example, the well-attested difference between lexical phonology and post-lexical phonology (Siegel 1974, Kiparsky 1982, Halle & Mohanan 1985) seems to suggest that there must be a crucial difference between words and phrases. This situation has not yet been addressed, to our knowledge, in DM morphology, so no solution has been offered yet, if there is one. DM is a program of research in which there are still many unanswered questions. However, what we want to emphasise is that there are solid arguments for a morphology which is closer to syntax than it was thought in Lexicalism. It seems, indeed, that it is not correct to propose the existence of two different generative components in grammar, or to state that syntactic rules are blind to morphological components of the word. It seems, also, that very relevant properties of a word, such as morpheme order and demotivation of meaning, may be predicted, at least in part, from syntactic characteristics. Therefore, we take these cases as evidence that support a syntactic view of morphology, and, more specifically, the DM framework. In the next section, we will present this framework in more detail.

#### Distributed Morphology: The Architecture.

The architecture of DM according to Marantz (1997) is the following (24):

<sup>7</sup> The system as it is allows in principle for two types of structures: non agentive structures, possibly with demotivated meaning, and agentive structures with compulsory compositional meaning. Further refinements are necessary to account for cases where there are three types of structures, such as the participles studied by Varela (*op. cit.*). Embick (2004) offers an attempt to account for more than two classes of structures, precisely in the case of participles.

(24)



Syntax is the only engine of language; words are constructed through syntactic means. Syntax transfers its information to LF and PF, the Interfaces to the Performance Systems. There are three non-generative but expandable lists of information, each one associated to one level: syntax, LF or PF. Now, we will briefly comment on each one of the components of this system; we will have a fuller discussion in the next subsections.

- (a) In this component the syntactic operations –Merge, Copy and Agree– are performed with the result that structures are composed. This will be developed in 2.1.
- (b) List one provides syntax with the units with which it operates. It is also called “The Narrow Lexicon” (NL) and contains unanalysable and abstract bundles of features. In consequence, syntax operates with features deprived of phonological, morphological or conceptual content. In the DM framework, the units contained in the NL can be grouped in two: roots  $\sqrt{\phantom{x}}$  and functional categories F.
- (c) After every syntactic operation has been successfully performed, the structures – as sets of terminal nodes – are transferred to PF and LF.
- (d) In the PF Branch, some morphological operations are performed. These operations imply the manipulation of terminal nodes. Let us note that this implies that what can be considered morphology is post-syntactic. This is developed in 2.2.
- (e) After morphology, particular Vocabulary Items (VI) with phonological content are inserted in the structure’s terminal nodes. This is called Late Insertion (*cfr.* 2.3.).
- (f) List two –the Vocabulary – contains vocabulary items, and reflects two idiosyncratic properties of them: phonological information and exclusively morphological characteristics, such as declension class. List two is expandable, as new vocabulary items may be added, but is not generative.
- (g) In the semantic interface, new information is added to the terminal nodes. Conceptual semantics –the meaning that cannot be derived from the structural properties of a construction– is associated to particular VI’s and contained in List three, The Encyclopaedia. This will be developed in 2.4.

### 2.1. Syntax: its operations and units.

In DM, Grammar has one single engine to generate structures: syntax. Transformational rules are not split between the Lexicon and the Syntax, *contra* Lexicalism: every generative operation takes place in syntax.

The syntactic framework assumed by DM is the Minimalist Program (Chomsky 1995a, 2000, 2001, 2004, 2005a, 2005b). Minimalism is a program of research which tries to go beyond descriptive and explanatory adequacy analysing Language from the

assumption that it is designed in a perfect way<sup>8</sup> to solve the problems that the general properties of the organic system impose on human performance. Organic design, then, would explain why language is the way it is, and the scientific interest of the Minimalist Program is this item: “In principle, then, we can seek a level of explanation deeper than explanatory adequacy, asking not only what the properties of language are, but why they are that way” (Chomsky 2004: 105). From this perspective, the main point of interest is to be found in the conditions imposed on the system of language by the external systems that interact with it. These systems are the Sensoro-Motor system (SM) and the Conceptual-Intentional system (CI). Language must satisfy in a perfect way the conditions which these two external systems impose. The so-called Interface Levels connect language with these two systems of actuation. Interface levels map language into the external levels; they are Logical Form (LF), which connects the system of language with CI, and Phonetic Form, which connects it with SM (2004: 106).

Syntactic operations take place in the Narrow Syntax (NS). NS manipulates a subset of elements –a Lexical Array (LA)<sup>9</sup>– taken from the Narrow Lexicon (NL). The elements in the LA are undecomposable bundles of features. In the Syntax, these bundles of features are manipulated through three operations, which are minimally necessary to construct a structure: Merge, Copy, and Agree.

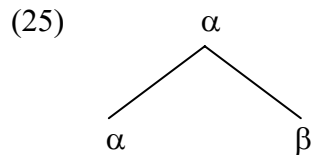
The bundles of features contain two classes of features: interpretable and uninterpretable. Interpretable features ([iF] or simply [F]) enter the syntax with a value, which has been assigned in the NL. Therefore, these features will provide the Interfaces with information. Uninterpretable features ([uF]) lack a value and cannot be read by the Interface levels. Given Minimalist assumptions, they must acquire a value before they are transferred to the interfaces; otherwise, there would be a vacuous, and therefore unnecessary, relation between Syntax and the Interfaces. Uninterpretable features must enter into a checking relation with an interpretable feature to acquire a value; this checking operation is called Agree (cf. *infra*). When every [uF] in a chunk of structure has been checked, the derivation is in a sense complete and is transferred to the Interface levels, PF and LF. There, the phonological component  $\Phi$  maps the syntactic derivation to Phonology, in what is called Spell-Out; the semantic component  $\Sigma$  maps it to Semantics. These mappings are subject to a strong requirement, The Inclusiveness Condition, which precludes new elements from being introduced during the derivation. The derivation is performed, then, only with the elements in the LA.

Narrow Syntax performs only three operations. The first operation is Merge. Merge takes two elements,  $\alpha$  and  $\beta$ , and constructs out of them a new unit –a set whose only members are  $\alpha$  and  $\beta$ . The new unit constructed from  $\alpha$  and  $\beta$  is  $\{\alpha, \beta\}$ . This unit must have a label, which must be either  $\alpha$  or  $\beta$  in order not to violate the Inclusiveness Condition. A label, then, is always a head in such a way that  $\{\alpha, \beta\}$  is informally regarded as the projection of one of the two constituents. The constituent which projects the label should be predicted by general law. Chomsky proposes that the element that projects the label is the one that has a selection feature which is checked through Merge with the other element. Let us suppose that  $\alpha$  is the element which projects its label, because it selects  $\beta$ . This gives  $\{\alpha\{\alpha, \beta\}\}$  as the unit that results from the application of Merge to  $\alpha$  and  $\beta$  (25).

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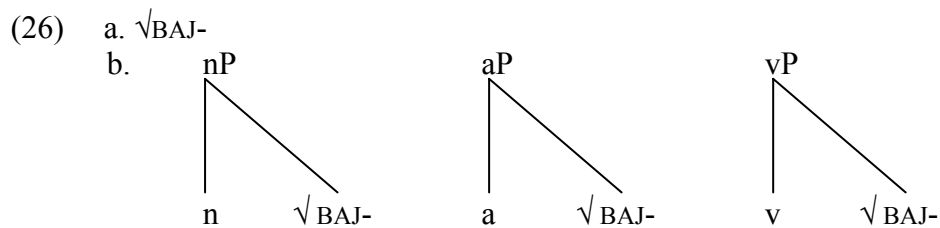
<sup>8</sup> Perfect must be understood in the Aristotelian way, meaning “using only necessary devices, not using anything that could be dispensable”.

<sup>9</sup> LA substitutes in 1998 the previous term used by Chomsky, Numeration (N), which refers to the subset of the lexicon selected, with the difference that in this case each lexical item is represented with a numerical index which determines its number of occurrences in the syntactic derivation.



In DM, there are two different elements in the Narrow Lexicon: roots and functional categories. Roots are elements deprived of grammatical category and with an incomplete argument structure, because they lack the appropriate features. These elements must acquire grammatical category and a complete argument structure through merge with a functional head. Functional heads contain categorial features and features which select arguments.

The difference between roots and functional categories can be illustrated with an example. In DM, a root such as /bax-/, BAJ- in Spanish is associated to a certain phonological information and a certain conceptual meaning. Unlike Lexicalist models, it is not the manifestation of a lexical category, and therefore it lacks grammatical category and argument structure (26a). In the syntax, however, it can be a noun, an adjective or a verb, depending on the bundle of features which is merged with it. If it is a functional head which we will call little *n*, the category will be noun; if it is little *a*, adjective, and if it is little *v*, verb (26b).



The argument structure is completed by the functional projection, although the root may select an internal argument of its own. Following Hale and Keyser (1993, 1998), we will assume that grammatical categories are distinguished by their selectional requisites as heads (cfr. chapter two, section 1.2.4.). The argumental structure and the grammatical category of a lexical item is, then, external to the lexical item, and is derived from the syntactic context. This is known as the ‘exo-skeletal’ approach (Borer 1999, 2003), in opposition to lexicalist approaches, which are called ‘endo-skeletal’.

Functional projections, as elements of vocabulary, materialise as affixes. They will be prefixes or suffixes depending on the particular languages. It is quite clear that in Spanish suffixes are the materialisation of functional projections. As is known, suffixes can change the grammatical category of words, which means that they contain information about grammatical categories. In fact, every suffix can be paired, usually, with a single grammatical category, and the grammatical category that it displays is the category that the word where it appears projects as a whole (27).

- (27) a. Materialisations of little *n* in Spanish: *-dor*, *-ción*, *-ur(a)*<sup>10</sup>, *-erí(a)*...  
 b. Materialisations of little *v* in Spanish: *-iz(ar)*, *-e(ar)*, *-ific(ar)*...  
 c. Materialisations of little *a* in Spanish: *-os(o)*, *-esc(o)*...

<sup>10</sup> We represent in parentheses the phonological segments which refer to morphemes that are argued to be inserted post-syntactically –dissociated morphemes, *vid. infra*–, as theme vowels, word markers or agreement markers.

In contrast, prefixes in Spanish do not change the grammatical category of the word as a whole, and do not select their bases according to their categorial information, but according to various semantic properties, such as Aktionsart. Typically, the same prefix can combine with nouns, verbs and adjectives, as has been always noted. This suggests that the prefix does not contain information referred to the grammatical category. These reasons lead us to classify them in Spanish as roots, not as functional categories.<sup>11</sup> The units in the NL, then, are the following:

- (28) a. Functional Projections (usually materialise as suffixes).
- b. Roots: (sometimes materialise as prefixes, sometimes as bases)

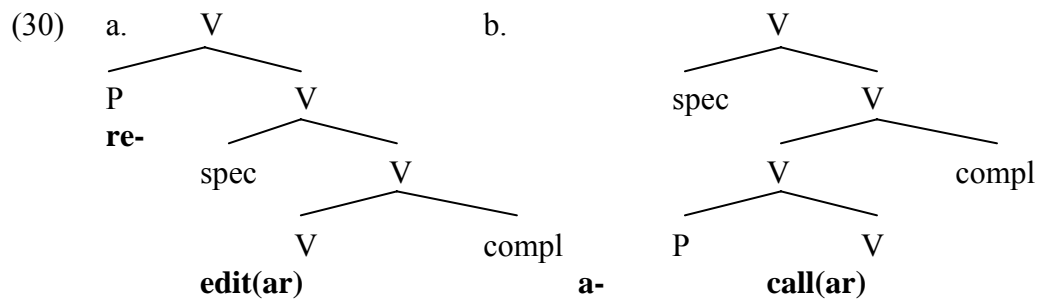
At this point we would like to make explicit our assumptions about prefixes. Roots and prefixes are category-less constituents, but the difference between them is that roots head their own projection  $\sqrt{P}$ , whereas prefixes are adjuncts to the head or to the phrase. To differentiate two classes of prefixes through their structural and configurational characteristics is an idea that, to the extent of our knowledge, was proposed for the first time by DiSciullo (1997b). In this article there is a difference between external (1997b: 59-61) and internal prefixes (1997b: 61-65) in the verbal phrase. Internal prefixes are able to change the argument or event structure of the base (such as the prefix *a-* in the Spanish example 29a), whereas external prefixes denote adverb-like notions which modify an argument or event structure that was already constructed (such as Spanish iterative *re-*, 29b).

- (29) a. *callar* [*\*a* alguien] vs. *a-callar* [*a* alguien]  
to shut up [*\*someone*] vs. to make someone shut up
- b. *editar* [*algo*] vs. *re-editar* [*algo*]  
to publish [*something*] vs. to publish [*something*] again

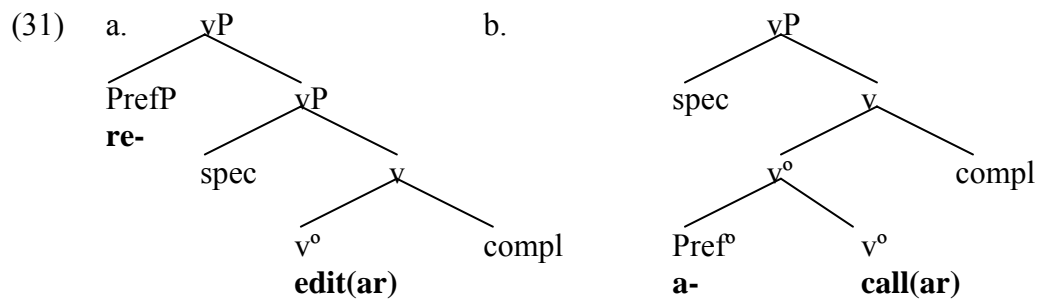
In our kind, the distinction between these two classes of prefixes is convincing, is verified by the relative ordering of the elements involved (DiSciullo 1997b: 54-56), and has been fruitfully used in the study of Spanish (Varela & Haouet 2001). The place where these elements are adjoined is the following: higher than the specifier and the complement of the head in the case of external prefixes (30a) and lower than these constituents in the case of internal ones (30b). In the diagrams in (30), *P* is the symbol used by DiSciullo to represent the prefix.

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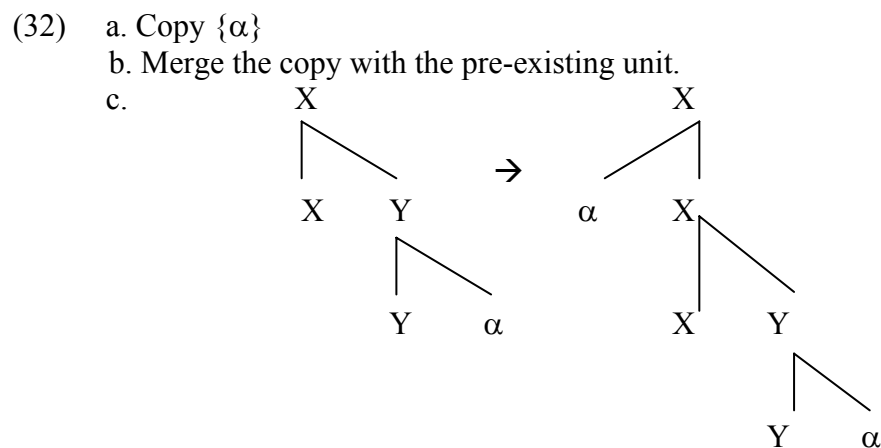
<sup>11</sup> Other authors, such as Pensalfini (2000), propose that suffixes are also roots, although they are paired in a one-to-one manner with conceptual properties that only leave room for one interpretation, in such a way that they can only be de facto combined with one functional category. We disagree with his view because it is not true that a certain affix is bi-univocally associated with one and only one conceptual meaning: the conceptual meanings covered by the suffix *-dor*, for example, are various and include agent, locative and instrumental.



As the external prefix must be placed higher than the specifier, we propose to reformulate the structural proposal by DiSciullo in the following way: we will consider external prefixes as adjuncts to the phrase, and internal prefixes, as adjuncts to the head. Following Kayne (1994), only a head can be adjoined to another head, so internal prefixes must be heads (31a) and external ones, phrases (31b). In (31), we represent the prefix as Pref.



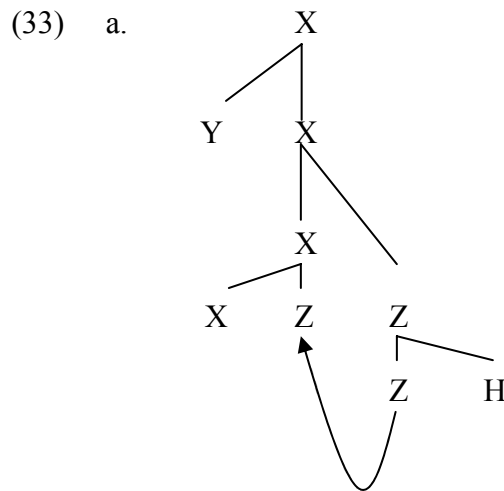
Let us go back to Merge, the operation that combines roots and functional projections, and its properties. Merge can be of two different types, external and internal. External Merge operates with at least one constituent which has been taken from the LA. The second type of Merge, Internal Merge, operates with constituents which were already in the syntactic derivation, and does not select a new element from the LA. Internal Merge, then, is the equivalent to *move-alpha* in the Government and Binding framework. Internal Merge is a complex operation, which apart from Merge implies a second operation: Copy. The constituent that suffers Internal Merge will be present in two different places of the structure. This makes necessary that, as a previous requisite to Internal Merge, the bundle of features of the constituent is copied. (32) illustrates the two operations that constitute Internal Merge:





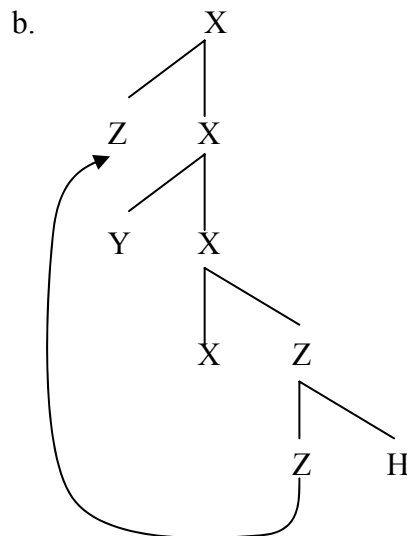
This theory of movement has no traces, but copies. When the derivation is transferred to the Phonology, every copy, excepts for one –the one that c-commands<sup>12</sup> the rest-, are deleted; the remaining one will be interpreted, with the result that it will be spelled out. In contrast, in the Semantics, every copy may be interpreted: for example, a *wh*- argument is interpreted actually in two positions: one in base position, where it is assigned the theta-role, and another one in the specifier of CP, where it is an operator.

In the Principles and Parameters approach, there were basically two types of movement: movement of phrases (Postal 1974, Chomsky 1981, 1986, Stowell 1981, Kayne 1984, 1994) and movement of heads (Koopman 1983, Baker 1988, Pollock 1989). In the Minimalist Program as exposed until Chomsky (2004: 109), in contrast, Merge has to meet a strong condition called the Extension Condition. The Extension Condition states that Merge must create a new unit, but cannot change an already existing unit. This condition, then, bans head to head movement. Head to head movement changes the properties of the head of a unit that has been already constructed in a previous Merge operation. There is no new unit being constructed here. This is illustrated in (33). (33a) shows that head to head movement doesn't respect the Extension Condition; (33b) shows a Merge operation which respects the EC.<sup>13</sup>



<sup>12</sup> We assume the following definition of c-command (Reinhart 1976):  $\alpha$  c-commands  $\beta$  iff  $\alpha$  and  $\beta$  do not dominate each other and every branching node that dominates  $\alpha$  also dominates  $\beta$ .

<sup>13</sup> In this dissertation, for the sake of clarity, we sometimes represent displacement with an arrow that connects the place where an element is merged for the first time with its surface position. We are aware, however, that the theory of copies makes movement unnecessary.



However, articles such as Pesetsky & Torrego (2001) and (2004) show empirically that head movement may be necessary, and make more explicit the conditions under which it can take place. Chomsky (2005b) abandons the Extension Condition when he proposes that, during the syntactic derivation, a probe only attracts a goal once the probe has been dominated by a projection with certain formal characteristics.<sup>14</sup> Consequently, it seems that at this moment there is no general theoretical principle that bans the syntactic movement of heads, and there is empirical evidence that this type of operation must be available.

The third and last operation, which has already been introduced, is Agree. Features in Minimalism appear in two versions, interpretable and uninterpretable. The second type of features cannot be present in the derivation when a chunk of structure is transferred, because they cannot be read by the Interfaces. What Agree does is to assign a value to uninterpretable features and erase them.

Agree proceeds in the following way. When the computational system finds an uninterpretable feature, it searches an interpretable feature of the same type to check with it the unvalued feature. Agree only takes place between features of the same type (2004: 115). This depends on a suboperation called *Match*, which searches features of the same type. When the appropriate interpretable feature is found, its value is assigned to the uninterpretable feature; this subpart of the operation is necessary to let phonology spell out the features in PF (2004: 116). We may call this subpart of the operation *Accord* to distinguish it from *Agree*. Once a value has been assigned, the requisites of PF have been met, that is, PF satisfies its interface conditions before the feature is erased. As for LF, uninterpretable features cannot be present there, even when they have received a value. Therefore, the feature must be removed from the derivation; this is performed by a second suboperation of *Agree*, *Erase* (2004: 116). The final result is that uninterpretable features are not present at the moment that the derivation is transferred to LF.

- |             |           |   |             |
|-------------|-----------|---|-------------|
| (34) Agree: | i) Accord | → | Transfer FF |
|             | ii) Erase | → | Transfer LF |

Part of the effect of the operation Agree is morphological agreement between grammatical categories, such as noun and adjective. However, Agree may not result in

<sup>14</sup> In Chomsky (2005b), TP does not attract the subject DP until it has been dominated by CP, which assigns it the phi features required to act as a probe.

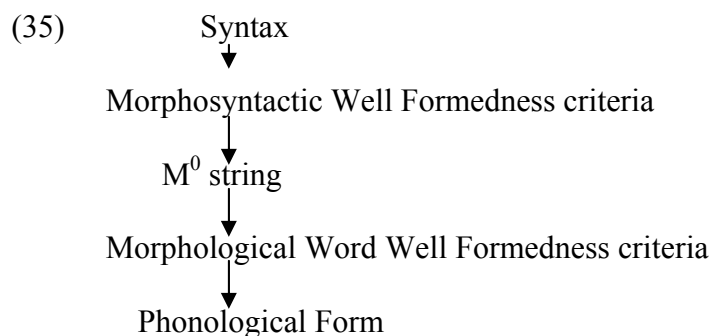
the materialisation of a morpheme, because –as we will see– that depends on the properties of the Vocabulary list in each language.

On minimalist grounds, every operation that takes place in syntax must be motivated by the necessity to check some kind of uninterpretable feature. From here, two consequences follow. One refers to the fact that an element without unchecked uninterpretable features will be syntactically inert, because it does not need to take part into any syntactic operation (2004: 115). We will discuss this characteristic in detail in chapter three, section 3.2. A second consequence is that we expect that, if the syntactic derivation reaches a point in which a chunk of structure has checked each one of its uninterpretable features, there would be no need for that chunk to stay in the computational system, because, not having more uninterpretable features, no other operation can involve it. Those chunks of structure will be transferred, and will be interpreted in the Interfaces. The name a chunk of structure such as this receives is ‘Phase’ (Chomsky 2001). Although Phases are one of the main points of research in the current Minimalist Program, we will not revise it until chapter five, because we will not use this concept to analyse the phenomena discussed until that point.

## 2.2. Morphological operations.

In the DM framework, syntactic structures, when transferred to the PF interface, are subject to a series of operations on terminal nodes. These operations are called “morphology” in the narrow sense: “We use Morphology as a cover term for a series of operations that occur in the PF branch of the grammar following the point at which the syntactic derivation splits between PF and LF.” (Embick & Noyer 2001: 554).

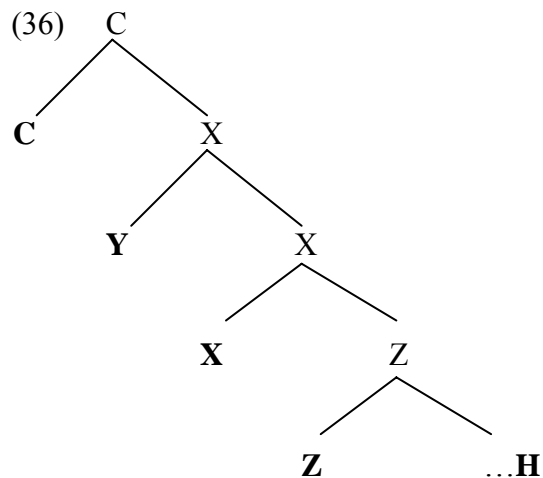
After these operations have taken place, the structure that has been formed is a hierarchical disposition of nodes of a morphological nature (though determined by the previous syntactic arrangement). Then Grammar accesses the Vocabulary, where the particular Vocabulary Items of a given language are contained, associated with some idiosyncratic properties –as their phonological form–. The PF Branch performs the mapping from syntax to phonology. Following Noyer (1992: 14), the architecture of the PF Branch of the Grammar is the following.



Morphosyntactic well formedness requisites operate on terminal syntactic nodes through operations that will be discussed in turn in the next subsections: merger, fusion, fission and impoverishment. After them, words are defined, and that gives rise to a series of requisites of well formedness that are specific to words, as for example, in Spanish, the fact that verbal stems must have a theme vowel.

### 2.2.1. Morphosyntactic Well Formedness.

Let us suppose that morphology receives from Syntax a structure such as (33), where terminal nodes are signaled in bold type.



The elements in bold in (36) are syntactic heads,  $X^0$ . In some syntactic theories of word formation, such as Baker's (1988), words are constructed with  $X^0$ , through cyclic application of head to head movement. In contrast, DM proposes that there is an interface level between syntax and the phonological instantiation of words, in such a way that there is no (necessary) one-to-one correspondence between syntactic heads and morphemes. In this interface level, syntactic terminals are mapped into  $M^0$ , that is, positions of exponence where particular vocabulary items may be inserted. In the next subsections we will consider each one of these operations in turn.

#### 2.2.1.1. Morphological Merger

Morphological Merger or just plain Merger is the general operation that puts morphemes together to construct words in the DM Framework. Marantz's (1988: 261) original definition of it is (37):

- (37) At any level of syntactic analysis, a relation between X and Y may be replaced by (expressed by) the affixation of the lexical head of X to the lexical head of Y.

Merger can take place at any level of grammar, from syntax to phonology, but the requisites that X and Y must meet to license a Merger operation are different depending on the level. If it takes place in the Syntax, X and Y must be both heads in a complement-head relation, and Merger is manifested as head to head movement. Merger in this level would put together H, Z, X and C in (33), and Y, a specifier, won't block Merger between C and X.

Instances of Merger in the PF branch can be divided in two groups, after and before vocabulary insertion (Embick & Noyer 2001: 561-565).

- a) Merger before vocabulary insertion. This type of Merger is sensitive to the hierarchical disposition of the elements in the structure.
- b) Merger after vocabulary insertion. This type of Merger is sensitive to strict adjacency requirements irrespectively of the hierarchical relations between items.

An instance of the first type of Merger is T lowering in English, which has been widely discussed in Bobaljik (1994: 3-12); this type of Merger can be interrupted by an intervening specifier, as for example the negative element 'not', which is hosted in the specifier of NegP.

- (38) a. \*Sam not likes horseradish.  
b. Sam doesn't like horseradish.

A second variety of Merger occurs after Vocabulary Insertion (VI), and is thus sensitive to another notion of adjacency. When vocabulary items are inserted, previously phonologically empty nodes are provided with phonological information. The result of this is that the grammar trades a relation of hierarchical disposition of elements for one of sequential linearisation. This is known as the Late Linearisation Hypothesis (Embick & Noyer 2001: 562): “The elements of a phrase marker are linearised at Vocabulary Insertion”.

The notion of adjacency that becomes relevant for this post-VI Merger is one of linear adjacency. Merger exchanges relations of linear adjacency for those of adjunction; this means that – to preserve the linear adjacency requisites- an element X peripheral to a constituent C won't be able to invert with an element Y outside of C. The reason is that, being outside C, X won't properly meet the requirement of adjacency to C (Embick & Noyer 2001: 563). Here the symbol \* represents a relationship of structural adjacency.

- (39) a. [... Y] \* [c X \* Z]  
b. (Improper Merger) [... X + Y]\* [c Z]

Embick & Noyer (2001) note that, when a Merger process is sensitive to idiosyncratic properties of the vocabulary items implied, it must be an instance of Local Dislocation. This makes the gradation of adjectives in English a potential case of Local Dislocation, for the comparative / superlative affix can only combine with an adjective with one metrical syllable (40).

- (40) smart-er, smart-est; \*intelligent-er, \*intelligent-est

Therefore, we expect every phonologically realised element to interrupt adjacency, even adjuncts. This is confirmed, as can be seen in (41):

- (41) a. Mary is the mo-st amazingly smart person.  
b. \*Mary is the amazingly smart-est person.

In Spanish, we propose that Merger in word formation takes place in the form of a recursive operation which puts together X<sup>0</sup>s that are in a head-complement relation. This operation is not interrupted by the presence of intervening specifiers or adjuncts, but it is sensitive to the type of features which are contained in the heads. Let us consider the next set of possible and impossible words of Spanish:

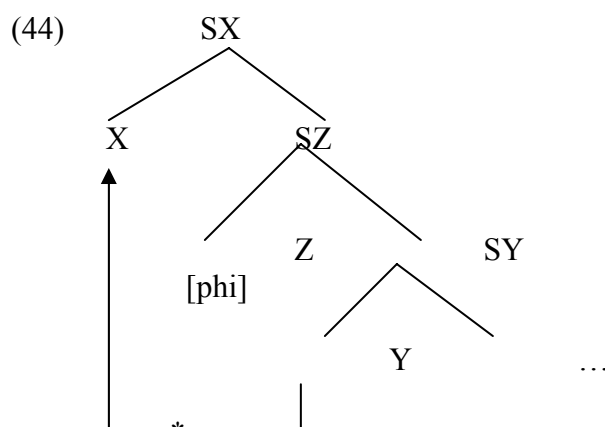
- (42) a. polit-iz -a -mos  
           root-Derivative morpheme-Theme vowel- inflectional morphemes  
       We politicise  
       b. \*polit-mos-iz-a

- c. port-al -es  
 root-Derivative morpheme-inflectional morphemes  
 Door-numbers  
 d. \*port-es-al  
 e. aren-os -as  
 root-Derivative morpheme-inflectional morphemes  
 Sandy.FEM.PL  
 f. \*aren-as-os

In the case of the verb (42a,b), the noun (42c,d) and the adjective (42e,f) the generalisation is that the inflectional morphemes must be external to the derivative ones. This is a widely observed generalisation in the study of the morphology of natural languages.<sup>15</sup> To explain it, the proposal has usually been related with an ordering between levels of morphology (most notably, Kiparsky 1982a and 1982b).

We would like to substantiate this widely observed empirical fact in the framework of DM as a formal restriction which operates on Merger. We propose that Merger cannot apply to two heads if between them there is a head which contains phi features. Phi features are nominal features of person, gender and number which can be either interpretable or uninterpretable. When Merger finds a head which contains phi features, it must stop, and it is not able to apply to a head which is over that particular head. From here it follows that a head with phi features will always realise as a terminal morpheme. The principle proposed is stated in (43), and illustrated in (44).

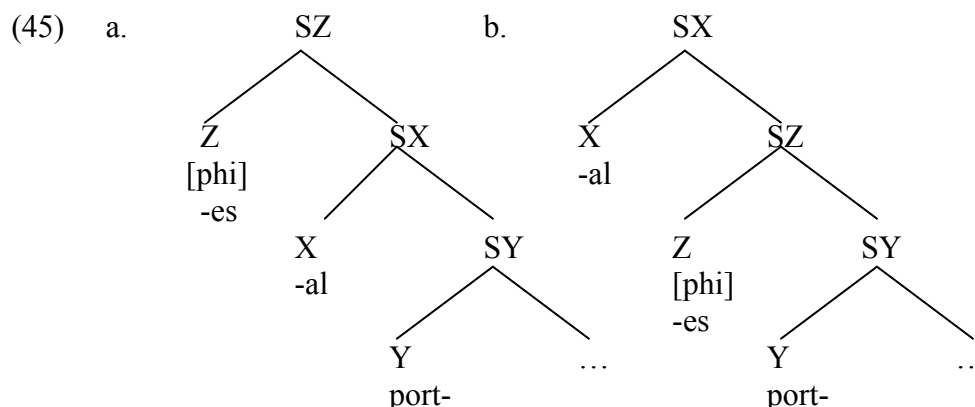
- (43) Morphological Merger restriction  
 Morphological Merger cannot apply to two heads X and Y if there is a head Z that c-commands Y, is c-commanded by X and contains phi features.



The ungrammaticality of (42b,d,f), according to our proposal, follows from the restriction in (43). Inflectional morphemes in verbs, nouns and adjectives are the morphological manifestation of phi features of gender, number and person, either interpretable or uninterpretable. In (42a,c,e), these morphemes are terminal morphemes. After they have been merged with the word, there is no subsequent Merger operation that applies to another morpheme (45a). However, in (42b,d,f), inflectional morphemes are not terminal, but are followed by a derivative morpheme. This implies that Merger

<sup>15</sup> Let us remember, for example, Greenberg's (1966) Universal 28, among many other researchers who have observed this property.

has applied between two heads even though there is an intervening head which contains phi features, which is an infraction of (43), with the result that they are ungrammatical words (45b).



Morphological Merger stops always when it finds a head with phi features, then.

It would be interesting to find a principled reason why this formal restriction on Merger has to be active in the languages of the world. We would like to suggest that it is related with the relevant role that phi features play in the syntax. Phi features intervene in agreement processes between verbs, nouns and adjectives. Through the operations of checking that they trigger, the syntactic behaviour of a constituent is defined: for example, nouns are ultimately arguments of a predicate as a result of they receiving Case from that predicate, which is triggered by a complete phi feature agreement (Chomsky 2004, cfr. chapter three, section 3.2.1.). If this is correct, the expected behaviour of a verb, noun and adjective is that, as words, they will have to be associated to heads which contain phi features, because these features determine crucial parts of their syntactic behaviour. We state this requisite as the Phi Condition.

(46) PHI CONDITION

Every functional head able to assign a grammatical category must get associated to phi features in the syntactic derivation.

We propose that the functional heads little *v* (-iz, -e, -ific...), little *n* (-al, -cion...) and little *a* (-os, -esc...), which categorise roots as verbs, nouns and adjectives respectively, do not contain phi features. This seems to be correct, for the presence of one of them does not interrupt a Merger operation to a head that c-commands it and none of the intermediate affixes shows desinences (47).

- (47) a. re-al-iza-cion-es  
Lit. *re-al-is-ation-s*  
b. escen-ifica-cion-es  
Lit. *scene-ific-ation-s*

If these heads do not contain phi features of their own, they will have to be associated to head which contain phi features, due to the principle in (46). These features are contained in the functional categories which dominate them in the syntax; therefore, Merger of one little *v*, *n* or *a* with a category provided with phi features constructs a complete word, with phi features, which are necessary to determine the syntactic relations of the item in the syntax. In the absence of a head with phi features,

we do not obtain a complete word, because the features which determine its behaviour in the syntax are not present.

Once that Morphological Merger has provided the word with a set of phi features, Merger stops and does not apply to the higher heads. From this perspective, Morphological Merger can be conceived as a mechanism that spells out the combination of functional heads with matrixes of phi features.

From this framework where functional projections must be associated with sets of phi features to have a syntactic behaviour, one interesting consequence follows. In a syntactic view, a relevant question is why is it impossible for a suffix to move out of a word, if the word is a syntactic object. The requisite that suffixes must be associated with phi features has the immediate consequence that the suffix cannot move out from the word, because in that case it wouldn't be associated to the phi features which determine crucial parts of its syntactic behaviour.

At the same time, another possibility is that –as happens in the words in (47)- we have a chain of suffixes. In this case, they all share the phi features associated to the highest of them. The result is that none of them will be able to escape from the word, because that would imply that it would lack crucial aspects of its syntactic behaviour. Words such as those in (47), even though they contain more than one suffix, have a single syntactic behaviour –the word only has one syntactic category, for instance-. In contrast, if there were more than one matrix of phi features, we would have more than one word, each one with its own syntactic behaviour.

The second consequence refers to compounds. This reasoning suggests the possibility that the non-head of a compound must be so tightly associated to the head because it is a constituent which does not have phi features of its own and must share the phi features with the head of the word, which is associated directly with the matrix. The case of compounds, however, is much more complex, for there are compounds which seem to contain internal inflectional morphemes. Compounding will be discussed in detail in chapter four, sections 3 and 4.

We propose, finally, that the fact that two or more functional heads share the same phi features has semantic consequences. We assume, in the letter and spirit of the Minimalist Program, that every functional head must have interpretable features. As we will make explicit in the next chapter, for instance we propose that the head little *n* has the feature Ref and the head little *v* has the feature Attr, both semantically interpretable. Little *v* may be related with the eventive role, Ev (Davidson 1967). We propose that when two or more functional heads share the same set of phi features, their interpretable features are identified in LF, in such a way that they are taken to denote the same entity. Let us consider them in this respect (47b). We formalise interpretable features identification in LF with an asterisk to the right of the feature (48).

- (48) a. [[[ $\sqrt{\text{ESCEN-}}$ ] ifica-]                      cion-]                      es
- b.                      *v*                      *n*                      phi features
- c.                      Ev\*                      Ref\*

In (48b) we see that in the word *escenificaciones* there are two functional heads, but only one set of phi features. According to our proposal, little *v* and little *n* share, then, the only set. This has in LF the effect that Ev, the interpretable feature of *v*, and Ref, the interpretable feature of *n*, are identified. With this procedure we guarantee that the speaker, when he or she finds the word in (48), will interpret that the referential entity

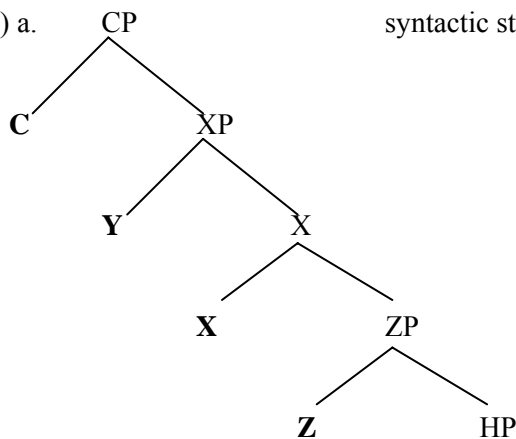


expressed by the noun *scenification* is related to the event of the verb *scenificate*, and not to any other event. The referentiality of the noun must be constructed over the event expressed by the verb, and cannot be constructed over a different verb: this is a basic semantic fact which needs to be taken into account in our description of the human faculty of language. The procedure of interpretable feature identification, then, is needed independently.

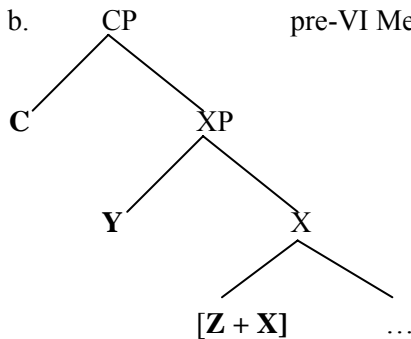
#### 2.2.1.2. Fusion.

When two elements have been merged in the PF Branch, it is possible that they are fused together in only one position of exponence  $M^\circ$ . As a consequence of this, only one vocabulary item will be inserted to materialise the two morphemes merged. In (49) this is illustrated with the tree in (36).

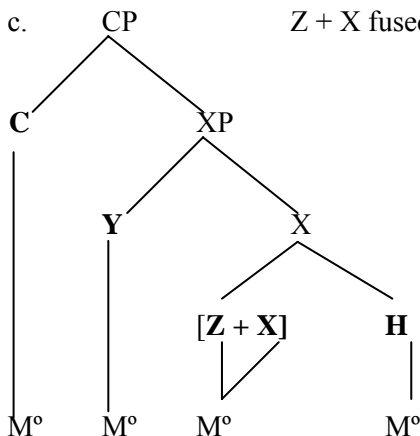
(49) a. syntactic structure



b. pre-VI Merger. Z + X merged together.



c. Z + X fused in one position of exponence

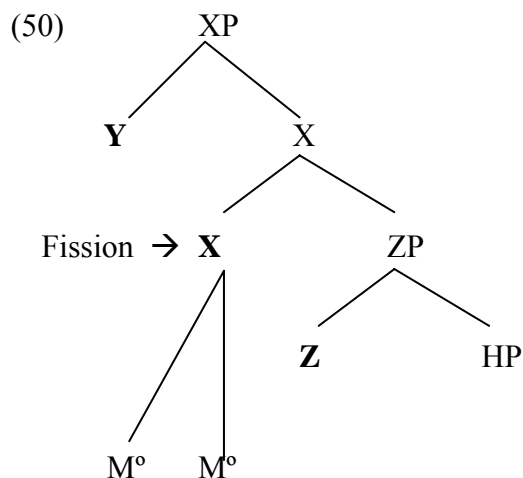


This explains cases of amalgam in which one single morpheme expresses more than one morphosyntactic property, such as Spanish *-ste*, where the features of perfect, second person and singular seem to be fused together.

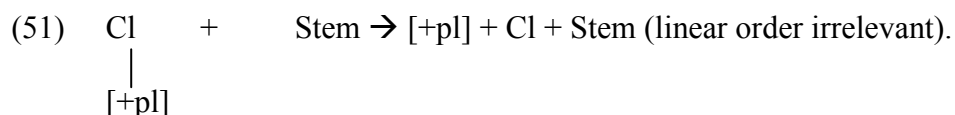
Fusion is impossible with cases of Local Dislocation, because, having taken place after VI, the positions of exponence have been defined before Merger occurs.

### 2.2.1.3. Fission.

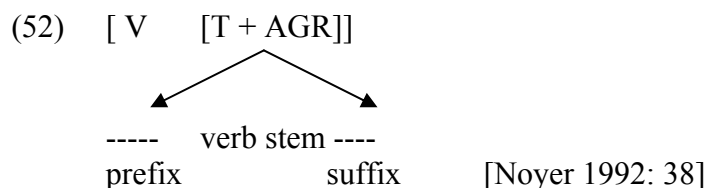
Fission occurs when a single terminal node is split in two (or possibly more) positions of exponence. This can occur with  $X^0$  or with  $M^0$ . In the first case, the result is what has been described as ‘extended exponence’, the case in which one single morphosyntactic property is expressed by more than one affix. Consider, as an illustration, the case in (50), taken from the tree in (36).



Halle & Marantz (1993: 3) provide an example of this case, applying to terminal nodes on syntactic structures. In (51), two syntactic positions –clitic and stem– are transformed in three positions of exponence, because the features contained in one of them are split in two, one for the clitic and the other one for [+pl].



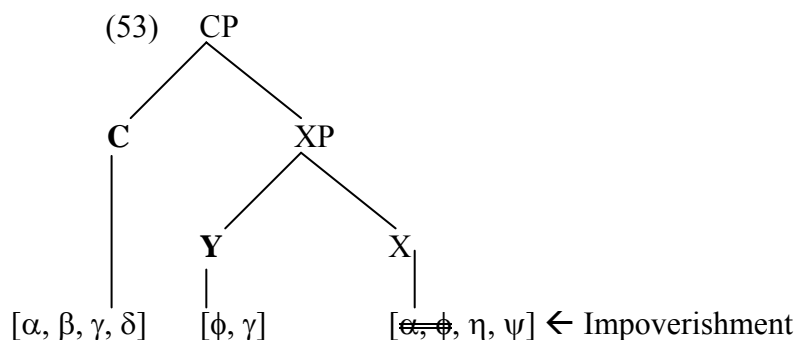
Fission may also apply to a  $M^0$  which is the result of a previous Merger / Fusion operation (Noyer 1992: 38). The effect of this is that the features of a single  $M^0$  may be distributed between several positions of exponence, as in the case of the Arabic imperfect that we have already mentioned. Following Noyer, in Arabic the  $X^0$  AGR and T merge and fuse in one  $M^0$ . Then this  $M^0$  fissions and is distributed between two positions of exponence, one after and one before the verbal stem (52).



This operation is very controversial, because the reasons why a certain terminal node must fission (and not another one) are unclear. A legitimate –though uninteresting– answer to this question is the mere stipulation: to mark some terminal nodes as subject to fission. McGinnis (1995), in contrast, proposes that fission is the way in which grammar expresses syntactic word-internal movement operations. Noyer (1992) and Halle (1997) show an alternative position in which Fission is not an entirely stipulative phenomenon, but is related to the properties of Vocabulary Insertion: usually, one single vocabulary item satisfies the requisites of a position of exponence –that is, satisfies all the features present in a certain position of exponence-. In the case of Fission, the requisites are not complete after one single vocabulary insertion operation: “For morphemes marked to undergo Fission, [...] simultaneously with insertion of the phonological exponent, a subsidiary terminal morpheme is generated into which are copied the features – if any such remain – that have not been required for (matched in) the first step. This subsidiary morpheme is then itself subject to vocabulary insertion in the usual manner.” (Halle 1997: 432).

#### 2.2.1.4. Impoverishment.

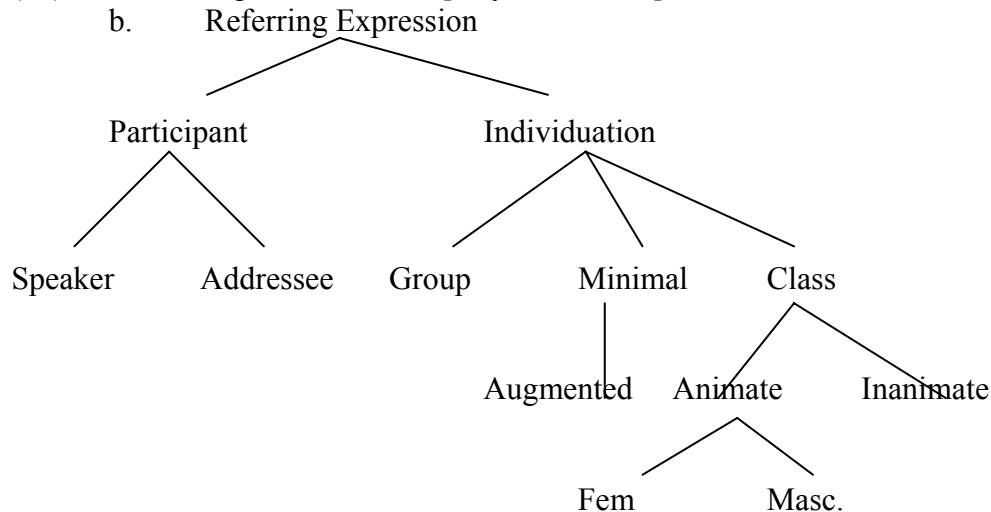
Through Impoverishment, Grammar deletes features from the bundle of a syntactic terminal node (53).



The effect of impoverishment is the expansion of the domain of application of an unmarked morpheme. Impoverishment eliminates some features from the positions of exponence; consequently, this precludes specific vocabulary items, able to check each one of the features in the bundle, from being inserted. This is what has been identified in the traditional morphological literature as ‘syncretism’. Syncretism has always been associated with the expansion of an unmarked vocabulary item: syncretism between a more specific and a less specific exponent is always performed expanding the domain of the less specific candidate. This characteristic of syncretism had no explanation in previous frameworks, to our knowledge.

The way in which Impoverishment works depends on the way in which features are represented. There have been proposed two different ways of ordering morphological features. Noyer (1992, 1997) proposes that features are ordered in hierarchies such as in (54a), but these hierarchies are not geometrised in trees –unlike phonology-. Harley, in a series of works, has claimed that morphological features are indeed grouped in trees and subtrees (54b).

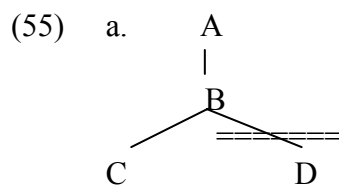
(54) a. 1 > 2 > pl > dual > fem [Noyer 1992: 46]



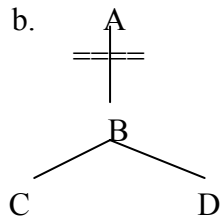
[Harley & Ritter 2002: 486]

The reason claimed by Noyer for not considering features ordered in a tree-wise structure is, mainly, that the reasons why trees are possible in phonology do not apply in morphology. In phonology, Clements (1985) proposed that only subtrees behave as natural classes for operations in Phonology, and that is evidence in favour of geometrisation. However, there is no identified tree hierarchy that could account for agreement phenomena through copying of a subtree (1992: 47). Harley 1994 claimed, however, that a certain tree structure could perform that task. Another criterion is contrastivity: being dominated by a node implies that the property expressed by that node has some sub-properties that are expressed by the nodes that it dominates. In phonology it is clear that, if [+/- distributed] depends on CORONAL, there would be distributed coronal sounds that contrast with non distributed coronal sounds. Harley (1994) claims that this has a direct reflection in morphology. In a tree like (51b), animates will contrast between feminine and masculine, but Speakers won't contrast in such a property. The third criterion in phonology is an external property, the anatomy of the vocal tract: the features are grouped to a certain extent by the articulator (DORSAL, CORONAL, ROOT...). Ritter (1997) claimed that this criterion is also met, and in the case of morphological properties the external factors are conceptual in nature in such a way that "subtrees of the geometry represent the grammaticization of natural cognitive categories, accounting for the apparent yet tenuous relationship between grammatical features and meaningful features" (Harley & Ritter 2002: 485).

If a tree geometry is accepted to express the order of features in grammar, then the process of impoverishment amounts to that of delinking<sup>16</sup> of an autosegmental representation, which was precisely the device that Bonet (1991) employed (55).



<sup>16</sup> Delinking is symbolised with the sign === crossing the line of association.



(55a) and (55b) represent alternate delinking operations. The first one satisfies a filter such as  $*[A\ D]$ ; the second one satisfies a filter such as  $*[A\ B]$ . Let us note that the prediction of Harley's theory is that a filter such as the second one would imply the non expression of C and D, something which is not entirely obvious in Noyer's hierarchical disposition. In a tree geometry, the higher the delinking takes place, the more features are erased, because the delinking of a mother node implies, *ipso facto*, the delinking of the nodes dependent on it.

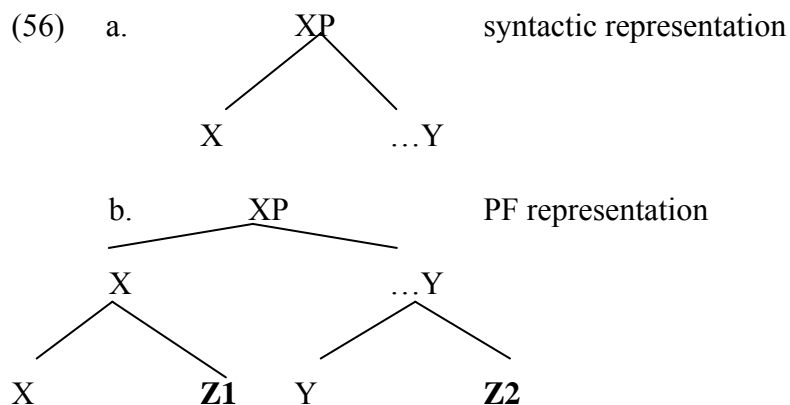
### 2.2.2. Morphological Word Well-Formedness.

A second set of operations on terminal nodes that must be accomplished in Morphology concerns those requisites that words, just because of their nature as such, must meet. This is called Autonomous Word Structure (Noyer 1992: 14 and folls.).

Noyer notes that, in some languages, words must be extended with some morphemes, as thematic increments or inflectional affixes. Neither of these characteristics has any syntactic import nor is interpreted in Logical Form. As is well known, there is no correlation between the declension class of a given word and its semantic properties. Harris (1991), for example, notes that the inflectional morpheme of Spanish nominal categories is not paired with a given gender or with any other conceptual property whatsoever. As for verbs, there is also no connection between the conjugational class of a verb and any semantic property.

For Noyer, all these properties would follow if thematic positions and inflectional affixes were supplied to the word post-syntactically, after the derivation has been split between the LF and the PF branches, as part of the morphological requisites of a word<sup>17</sup>.

These inserted positions of exponence receive the name of Dissociated Morphemes (Embick 1997). Let us take (56) as an illustration, where dissociated morphemes are in bold.

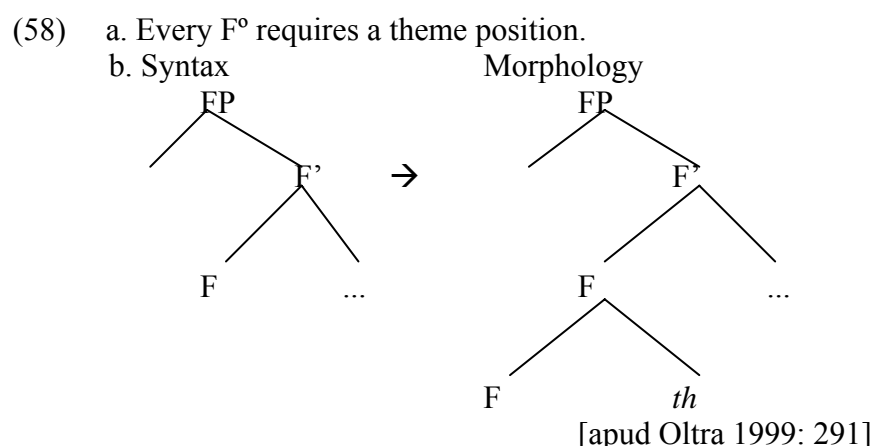


<sup>17</sup> To reduce these requisites to phonological conditions seems an attractive position. In that case it would not be necessary to state that Spanish needs to put a word marker to every noun or adjective and a theme vowel to every verb. It may be tempting to explain this property as the effect of the necessity of having vowels in every syllable in Spanish. However, at this point we will not pursue this track.

Among the languages that have been identified as belonging to this type, we find Latvian (57a), Huave (57b), Spanish (57c) and Catalan (57d).

- (57)
- |         |       |                     |
|---------|-------|---------------------|
| a. gulb | i     | m                   |
| swan    | TH    | dat [Halle 1992]    |
| b. s    | a     | niing an            |
| Poss TH | house | Poss Matthews 1972] |
| c. cant | a     | mos                 |
| sing    | TH    | AGR                 |
| d. truc | a     | m                   |
| call    | TH    | AGR                 |

Oltra (1999) proposes that theme vowels are dissociated morphemes inserted in the morphology as a post-syntactic well formedness condition which requires that a theme position be adjoined to every syntactic functional head. Oltra's analysis allows a single verbal form to have more than one theme vowel, because there will be as many theme vowel positions as there are functional heads internal to the word. This is the Morphological well formedness condition of  $F^0$  (58), which will be present in a number of languages, among them Catalan and Spanish.



### 2.3. Late Insertion.

Since Saussure and his definition of the linguistic sign, there have been identified two parts of a morpheme: the set of grammatical and semantic features and the phonological exponent of those properties. DM captures this difference with Late Insertion. For syntax, only grammatical properties of the sign are significant; the grammatical exponents of the sign are completely irrelevant for syntax. "As far as syntax is concerned, it makes no difference whether the phonetic exponent of the Perfect Participle is /d/ or /t/ or NULL" (Halle 1997: 426). In contrast, phonology must pay attention both to phonetic and grammatical features of a node. Phonology must be able to make a difference between exponents of different persons, cases, genders and tenses, because it is the module that must spell out these morphosyntactic properties.

In a Minimalist architecture, the starting point of the reasoning is that the only information present at a certain module is the information that plays a role at that module. The immediate consequence of this is the suggestion that syntax plays only with bundles of morphosyntactic features, regardless of the particular vocabulary items that will be the exponents of these features. Idiosyncratic properties of those vocabulary items –for instance, phonological form- are not present during the syntactic derivation.

This principle has been phrased as the Feature Disjointness principle (Marantz 1995a) (59).

- (59) Features that are phonological or purely morphological or arbitrary properties of Vocabulary Items are not present in the syntax; syntactic or semantic features are not inserted in morphology

The result of Feature Disjointness is Late Insertion. Idiosyncratic features are inserted post-syntactically in the M<sup>o</sup>'s nodes. The list where idiosyncratic properties of terminal nodes are contained is called the Vocabulary. The form of a Vocabulary entry is sketched in (60).

- (60) /X/                       $\leftrightarrow$  Morphosyntactic environment  
[Properties %, &, @]

The Vocabulary is the pairing of idiosyncratic properties with a morphosyntactic environment. Phonology will read the features specified in each morphological terminal and will insert in that position the idiosyncratic information that satisfies that environment in the Vocabulary List. The particular VI's that will be present in a certain language cannot be predicted and is among the traits that define clear differences between languages.<sup>18</sup>

Vocabulary Items compete for insertion in a given morphological node. This competition takes place through the *Subset Principle* (Halle 1997: 428).

- (61) The Phonological exponent of a Vocabulary Item is inserted into a morpheme in the terminal string if the item matches all or a subset of the grammatical features specified in the terminal morpheme. Insertion does not take place if the Vocabulary Item contains features not present in the morpheme. Where several Vocabulary Items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.

Let us assume that (62a) is an exhaustive list of the Vocabulary and that there is a terminal node which has the features in (62b). E, for example, will be inserted in a terminal node with features a, b and c; D, in a terminal node with features a, b, c and d, and so on.

- (62) a.        A         $\leftrightarrow$  [\_\_\_ + a, b, c, d, e, f, g]  
              B         $\leftrightarrow$  [\_\_\_ + a, b, c, d, e, f]  
              C         $\leftrightarrow$  [\_\_\_ + a, b, c, d, e]  
              D         $\leftrightarrow$  [\_\_\_ + a, b, c, d]  
              E         $\leftrightarrow$  [\_\_\_ + a, b, g]

<sup>18</sup> Harley & Noyer (1998) propose that there are two types of VI which can be differentiated through their conditions of insertion. Some VI, which typically correspond to functional projections in syntax, are inserted deterministically, in such a way that, given a certain environment, only one VI can be inserted there. These are called by these authors f-morphemes, as for example *-mos* for the features 1<sup>st</sup> person plural in the verb in Spanish. They are opposed to l-morphemes, which spell out roots, and whose main characteristic is that, given an environment, it is always possible to make an election among them. For example, in an environment such as "Root dominated by little n", VIs such as *child*, *apple*, *Noam* or *Deuteronomious* could be inserted, because all of them meet the environment conditions.

b. [a, b, c, d, e, f, g]

However, given the Subset Principle, VI A will be inserted in (62b) in this language, because its context of insertion has all the features present in the terminal node. This precludes B, C, D and E from being inserted there.

(63)  $A \rightarrow [a, b, c, d, e, f, g]$

Let us imagine that the fictitious language in (62) lacks a VI like A. In the absence of A, there would be no VI in this language which contains each one of the features present in the terminal node. In this case, the Vocabulary list is searched to identify the item that contains the biggest subset of features. That VI would be B, because it contains a subset of six features. Its insertion saturates the five features.

(64)  $B \rightarrow [a, b, c, d, e, f, g]$

The feature g has not been saturated, but E has it in its environment. However, the Subset Principle precludes insertion of E there, because E contains features that are not present in the terminal node, namely a and b, which have been saturated through insertion of B.

Late Insertion means a new perspective of what paradigms are. In Lexicalist theories, starting from Halle (1973), paradigms are independent entities that speakers must learn and where sets of morphosyntactic properties are paired with phonological forms. In DM, paradigms are generated by speakers by the interaction of the Vocabulary Items List and the Subset Principle. The Vocabulary provides the phonological form and its conditions of insertion in a certain environment.

#### 2.4. The Encyclopedia.

The last of the three lists with which grammar is provided in the DM framework is the Encyclopedia. While structural properties of meaning can be predicted from configurational properties of the syntactic derivation, there is a part of the meaning of an expression that cannot be predicted. This information is the conceptual meaning, which is listed in the Encyclopedia for every VI or group of VI's, as it is the case with idioms.

In the Encyclopedia, the difference between roots such as  $\sqrt{\text{SNOW}}$  and  $\sqrt{\text{RAIN}}$  is listed. In an Encyclopedic entry for a root like *snow*, many sorts of different notions are included, and the information listed in each entry will be different according to the cultural and personal background of the speaker. For an illustration, consider this possible encyclopedic entry for the root  $\sqrt{\text{SNOW}}$  (65).

(65)  $\sqrt{\text{SNOW}} \rightarrow [n \text{ \_\_\_\_\_\_}]$

Cold. White. Made out of water. Falls in winter. It is used to play. Susan likes to play with it. One can make snowmen out of it. Sometimes the routes get closed because of it. You can drink it if you are thirsty. In the Middle Ages, Italian cooks used to make ice-cream from it...

[v \\_\\_\\_\\_\\_\\_]

To flatter someone.

[ \\_\\_\\_\\_\\_\\_ + drop]



White flower.

As conceptual semantics is contained in a different level from that where the structural properties of an item are determined, DM predicts that some sentences will be strange because of the conceptual semantics associated with them, not their structural properties. Harley & Noyer (2000) explore the difference between an expression being ungrammatical and its being conceptually deviant or just being inappropriate for use in a normal speech situation. Their starting point is Chomsky's (1957) sentence *colorless green ideas sleep furiously*, as an example which shows that grammatical well-formedness of an expression is independent from its semantic-pragmatic accuracy in a given context.

Their proposal is that a syntactic structural description imposes a particular meaning. For example, (66a) imposes a meaning where the sun is doing whatever is being done, just for being in the place where it is, in contrast to (66b). Those properties of meaning are the structural semantics of a sentence, and are determined by the syntactic arrangement of terminal nodes (Harley & Noyer 2000: 353).

- (66) a. The sun melted the snow.  
b. The snow melted.

Therefore, not every root can be inserted in every root position. These authors claim that morphemes which correspond to roots have a context of insertion; their introduction is not deterministic, like that of f-morphemes, but there is a context that they must satisfy to be inserted. For example, a root such as  $\sqrt{\text{CONSTRUCT}}$  will be licensed in an environment where there is a [+cause] syntactically active, in addition to a little *v* and a DP that acts as an internal argument;  $\sqrt{\text{ARRIVE}}$ , in contrast, is licensed in a context where there is a [-cause] present, in addition to little *v* and a DP. Some roots will be of variable behaviour, with respect to causative meaning, and will allow insertion in a context with [+cause] or [-cause], like  $\sqrt{\text{SINK}}$  or  $\sqrt{\text{MELT}}$  in example (66). This is the way in which structural semantics interact with vocabulary items, forcing them to respect constructional aspects of interpretation. Insertion of a root in an unlicensed environment produces ungrammaticality, as can be seen in (67). Structural aspects of meaning depend on syntax, and, therefore, their violation cannot be amended post-syntactically.

- (67) a. \*The red under did not five lunch.  
b. \*James put yesterday.

[Harley & Noyer 2000: 353]

In contrast, some other sentences are deviant due to the conceptual meaning associated with the particular VI's that have been legitimately inserted in the nodes which correspond to roots. In this case, the cause of the deviance comes from the Encyclopedia and the information associated to those items. This deviance can be amended only by introducing new propositions in the encyclopedic entries of those Vocabulary Items. Let us consider the examples in (71).

- (68) a. Chris thought the book to Martha.  
b. The bridge exploded the engineers.

[Harley & Noyer 2000: 353]

As Harley & Noyer note, although *think* doesn't appear usually in this type of ditransitive structure, interpretation remains possible, though, provided that it respects the thematic role assignment, concluding that "to the extent that the sentence has any meaning, Chris must be engaging in teleportation or telepathic dictation and Martha is the recipient of a book, as information or as object. Other interpretations may be possible, but in any of them, Chris is doing the thinking and Martha is getting the book" (Harley & Noyer 2000: 353).

With this we end our discussion of the framework that we adopt in this dissertation, Distributed Morphology. In the next chapter we will concentrate on one empirical and theoretical aspect inherent to morphological theories: the nature of grammatical categories.

A research program.

We hope not to have given the impression that DM, as it stands now, is a closed program of research that does not find examples counter to its proposals. DM is a rich and complex framework that tries to answer a variety of classical questions in the morphological literature, but we would like to point out some phenomena that have been invoked from other scientific perspectives, which challenge some of DM's main proposals.

Let us start with the Mirror Principle, MP. Spencer (2003) provides a critical review of Rice (2000), where the MP is pushed to its last consequences in the study of prefixation in Athapaskan languages. Spencer's comments could refer to other similar analysis, not only Rice's. Spencer notes that, even if it happens to be correct that the semantic scope of a piece determines the order of morphemes through c-command, there would not be reasons to reject the possibility that other factors are interacting with the MP. For instance, if the only restriction to the order of morphemes is their semantic scope, it is not possible to understand why the verb rises over several affixes which associate with it (2003: 829), in such a way that they do not dominate it anymore. Moreover, as this author notes, if the objective is to give account of the relative semantic scope of the different morphemes, to propose a syntactic ordering is not the only possibility, because the same semantic hierarchy could be represented with templates or with the subcategorisation frame of each affix. In our mind, this critique to the MP is stronger than the ordering mismatches that are commonly invoked, because it directly attacks the theoretical grounds of the theory. It seems, then, that it is compulsory to understand better the nature of the MP and to find independent evidence of its existence.

Let us consider now another case. Let us remember that DM proposes that the lexicon does not account for constructions with demotivated meaning, and part of the evidence invoked is that there are structural restrictions at play, as, for instance, that agent arguments cannot be included in the demotivated meaning. However, it is necessary to observe that several researchers have found cases of expressions with demotivated meaning that include the agent or causer. Nunberg, Sag & Wasow (1994: 525-526) note that the English idiom *a little bird told me...*, which can be fully inflected, includes an agent; they also claim that an electronic post by Alexis Manaster-Ramer contained other demotivated expressions with the same structure. To the extent of our knowledge, *a little bird* is indeed an agent, also in the equivalent Spanish idiom. This can be proved by the possibility of combining the idiom with a volitive adverb or a final sentence:

- (69) a. Me ha dicho un pajarito, queriendo, que me iban a dar el trabajo.

- A little bird told me, on purpose, that I was getting the job.  
 b. Me ha dicho un pajarito que no estabas aquí para que me fuera a casa.  
 A little bird told me that you were not here to make me go home.

This kind of constructions –even though Nunberg, Sag & Wasow admit that they are not frequent- stands as a problem to the analysis of idioms in DM.

Let us consider, finally, Late Insertion and its characteristics. As we said, one of the advantages of Late Insertion is that, as it claims that the grammar works with abstract matrixes of features, there matrixes can be modified by some operations, for example, erasing some of them. The result is that the matrix will be spelled out with a different Vocabulary Item. In the case of syncretism, the analysis proposed in DM –which uses feature impoverishment- predicts two results: the VI that spells out the matrixes will be the one which is less marked and the features spelled out by the VI's involved in the syncretism phenomenon will constitute a natural class.

With respect to these consequences, Baerman (2004) studies nominal paradigms from different languages of the world and identifies several cases of syncretism that do not behave as DM predicts. First he presents cases of what Stump (1993, 2001) calls bidirectional syncretism. In these cases, each of the two forms involved in the syncretism extends the forms that it spells out alternatively; in some cases, it is one form that wins and in other cases it is the other. For instance (2004: 812), in Modern Russian, the stems in *-o*, such as *stol*, ‘table’ or *student*, ‘student’, if the noun is non-animate, the nominative and the accusative singular are involved in a syncretism phenomenon where the dominating form is the animate nominative singular. In contrast, when the noun is animate, the accusative and the genitive singular are spelled out by the non-animate genitive singular form (70).

(70)	non-animate		animate
nom.sg.	stol-∅	←	student-∅
acc.sg.	stol-∅		student-a
gen.sg.	stol-a	→	student-a

We may consider any of the two forms, the animate or the non-animate, the genitive or the nominative, as the less marked from the pair; in any case, bidirectional syncretism is a problem for the predictions of DM.

Secondly, Baerman (2004: 824) presents some cases of syncretism which involve entities whose morphosyntactic features do not constitute a natural class. For example, the agreement marks of the verb in Dhaasanac, a Cushitic language, have two variants, which we call A and B. A is used in the first person singular, the third person masculine singular, the first person plural –when it is an inclusive form- and the third person plural. B is used for all the second persons, the third person singular in feminine and the first person plural with exclusive reading. No system of features of grammatical person (cfr. for example Halle 1997) can account for this pattern grouping the matrixes of features in a natural class.

It is clear, in our mind, that the phenomenon of syncretism –and, therefore, also the concept of paradigm- is not completely understood in DM, so much more research is necessary.

Due to these reasons, as we are aware of the situation of the theoretical proposal we work with, we want to note that our intention when we started this research was to test how far the ideas proposed by DM could be pushed, and what kind of results would be obtained if we applied these proposals to the study of some intriguing facts of the morphology of natural languages. During our research, we have considered that the most important part of our investigation was to confront the predictions made by the different theories with the actual data. As will be seen in the next pages, sometimes we will argue that DM provides the researcher with better instruments to explain some phenomena. However, during our investigation, there have also been problems which we have been unable to solve, and, in some cases, these problems are basically those that other morphological theories were also unable to explain. It has also been the case that we have found new problems that other theories did not have to face. In such cases, we have always tried to make it clear that we do not have a complete answer to these problems. Even though it is possible, and, actually, probable, that more skilled researchers would solve these problems with the instruments provided by DM, we honestly believe that at least some of these problems suggest that the theoretical framework can be improved. There is still a huge amount of work to do.

## 1. How to define categories.

In European languages, it is obvious that there are different classes of words. Words differ in the type of inflectional morphemes that they take, and therefore in the paradigm that defines them. In any Romance language, for example, some words can be combined with tense morphemes, while others take case endings. In some languages, it has even been argued that words may differ in the phonological requisites they must be subject to<sup>19</sup>. They may also differ in the main function that they fulfil in the sentence, although some scholars would say that this is not a strict difference or may have nothing to do with the class to which a word is supposed to belong. These differences support the existence of ‘grammatical categories’.

Not only linguists, but also philosophers, have addressed the problem of what classes of words exist, what are the relationships that they establish between them and how it is possible to explain why a certain word belongs to a particular class. In this section we will be concerned with the last one of these questions.

Some approaches to grammar consider that this last question cannot be addressed in a scientifically relevant way. In these approaches there is no attempt to answer this question, and, instead, it is proposed that every word has to be associated to a category label, which has to be stored with other unpredictable information, such as the phonological form or the meaning of simple units. From this perspective, categorisation is arbitrary, and, although it may be possible to recognise some tendencies – semantic, functional or formal –, they do not constitute criteria strong enough to be predictive. This is the view adopted in most formulations of Lexicalism, where the category of an item is contained in the lexicon and the syntax, in such a way that the postsyntactic components – semantics and phonology – limit themselves to read the label. We consider that this is a possible and honest approach to the problem, that has the advantage that there is no risk of overgeneration and also that exceptions to general tendencies do not constitute a problem anymore. Moreover, it is recognised that there may be general tendencies: facts such as that semantic events are usually expressed as verbs, if not explained, at least are integrated into the system. However, in this dissertation we will try to prove that the grammatical label of an element is predictable, so we will not adopt this view.

There has been a great number of scientific approaches – both philosophic and linguistic – that have tried to predict to which word class a word belongs in a principled basis. These approaches consider that there must be a general rule, or sets of rules, that take into account one or several properties of the word and, consequently, ascribe it to a certain word class and not another. Exceptions are usually analysed in such a way that they turn out to be ‘covered’ instances of the application of general rules.

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<sup>19</sup> One obvious example is the different stress pattern of otherwise homophonous pairs noun-verb in English. From a different perspective, Trommelen (1989) proposes a correlation between syllable structure and the noun / verb distinction in Dutch. He observes that nouns in Dutch can have a syllable structure with three consonants in coda position (*gierst* [gɪrst], ‘millet’; *koorts* [kɔrts], ‘fever’; *oogst* [ɔkst], ‘harvest’), while this is impossible in underived verbs. Trommelen goes as far as to say that the category of an underived word in Dutch could be assigned using syllable structure as a guide. We will not pursue this line of inquiry, though.

## 1.1.Semantic theories.

### 1.1.1. Semantics and philosophy.

Theories that try to explain categorisation differ in the properties which the rules proposed are sensible to.

The traditional choice of a property to define grammatical categories or classes of words is conceptual semantics, that is, the denotation of a word. Historically, the first of these theories that choose the semantic way to predict the grammatical category of a word – in the Western tradition – is presented in Aristotle's *Poetics*. In this work, the two major categories, noun –'onoma', used as a general term for nouns and adjectives– and verb –'rema'– are differentiated through conceptual means. In Aristotle's proposal nouns are determined by the expression of entities that are not subject to time or change as time passes; in contrast, verbs express entities that have a temporal nature, because they change as time passes or because they are entities that are temporally bounded. In an Aristotelian conceptualisation, that uses necessary and sufficient conditions to define elements, the possession or absence of a temporal component determines that a word is a noun or a verb, as is stated in *Poetics*, XX (1457a).

Nouns are meaningful complex voices, deprived of a notion of time, none of whose parts has a meaning by itself [...]. Verbs are meaningful complex voices, with a notion of time, none of whose parts, as it is also the case with nouns, has meaning by itself. Truly, voices such as 'man' or 'white' do not show 'when', while 'he walks' or 'he walked', to their own meaning, the first one adds the sense of present tense, and the second one, past tense.

Aristotle also provides characterisation of the categories of article and conjunction, although they are not so widely quoted in the bibliography as those for noun and verb. Aristotle defines articles – 'arthron', where prepositions are included – and conjunctions – 'syndesmos' – as meaningless categories, in opposition to verbs and nouns, meaningful elements, in which could be interpreted from our contemporary perspective as the first identification of the lexical vs. functional categories distinction.

This is the first attempt known in Western thought to define grammatical categories taking the conceptual meaning of the items as a starting point.

Aristotle's proposal is the base for medieval classifications of categories, and from this source, the practice of classifying parts of speech attending to their common sense conceptual meaning has come into traditional analysis. In this way, nouns are used to denote substances such as tables, rocks and children; verbs express activities like eating, walking or killing; adjectives take as their referents properties or states, such as *red*, *strong*, *awake* or *dead*. Some other categories seem to be derived from more basic categories, and therefore their conceptual meaning seems to be also derived: adverbs express the qualities of the activities denoted by verbs. There are some grammatical categories that are not easily correlated with a conceptual meaning, such as the preposition, that seems to express a set of different notions of time, place, manner and instrument, among others, but this seemingly semantic indetermination had been recognised already in Aristotle's definition. Flaws like that don't limit the intuitive appeal of this approach to grammatical categories.

Probably, after Aristotle, the most influential proposal in this line of thought is to be found in the *Grammaire générale et raisonnée de Port Royal* (quoted here from its

third edition, 1676). This grammar, in a sense, extends the Medieval tradition, because here we find the same classes of words that were considered in Medieval grammars, but they are defined in a way where it can be easily recognised the Rationalist approach to science shown in Descartes and Leibniz. The definitions that are used in this grammar to explain the differences between the main grammatical categories are based on the philosophical notions of substance, accident, proposition and judgement. Nouns and adjectives are defined following the wide-spread distinction between substance and accident (1):

- (1) [Chapter 2, our translation] The objects of our thoughts are either things, such as the earth, the sun, the wood, which are ordinarily called 'substances' [noun], or the manner of things, such as being round, red, wise, which is usually called 'accident' [adjective].

Determiners are defined based on the notion of referentiality, which had been considered in the philosophic tradition through the discussion of identity, so intense in the case of Leibniz (2).

- (2) [Chapter 7] Almost in every language some particles, called articles, have been invented to determine the meaning in another way, both in singular and in plural.

Prepositions are compared to cases, because they share the common function of showing the relations that are established between the substances in the world (3). Adverbs are considered as reduced prepositional phrases, that have developed in languages due to the law of minimal effort (4).

- (3) [Chapter 11] Case and prepositions have been invented for the same task : to signal the relations among things.
- (4) [Chapter 12] The desire that human beings have to shorten their discourses produced adverbs, for most of these particles are used to denote in one word what can be denoted with a preposition and a noun.

Verbs, conjunctions and interjections are considered categories that do not denote the object to the thought, but the way in which the thought is expressed. Verbs, for instance, are words used primarily to denote affirmation (5). Conjunctions are the elements used to denote the relations between the different thoughts (6), and finally, interjections are expressions that denote the subjective emotions produced by the soul (7).

- (5) [Chapter 13] Up to this moment we have explained the words which mean the object of our thoughts. It is necessary now to speak about those which denote the manner of our thoughts, which are verbs, conjunctions and interjections. [...] Verbs [are] words whose main use is to denote affirmation, that is, to signal that the discourse where that word is used is the discourse of a man who, besides conceiving things, can judge them.
- (6) [Chapter 23] We will see that these particles denote the operations of our spirit, which disjoins things, deny them or consider them absolutely.
- (7) [Chapter 23] Interjections are words which do not mean anything without us, which are sounds more natural than artificial, which determine the motions of our soul.

As is known at least since Bloomfield (1933), this approach is too simplistic and leaves far too many exceptions out of the generalisations. In short, it can be said that, at least if meaning is to be understood as conceptual meaning, that is, as the world-knowledge denotation of a word, there is no one-to-one correspondence between grammatical categories and meanings. Exceptions can be found in the two directions.

A concept can be expressed by more than one grammatical category. For example, it can be true that activities or changes of state – events in the contemporary terminology starting from Davidson (1967) – are usually expressed by verbs, but they can also be expressed by nouns, as in (8a)<sup>20</sup>. It is also false that a grammatical category only expresses one type of concepts, because nouns, besides events, can also express properties and states (8b), substances (8c), but also temporal or locative relations between entities, as in (8d). Adjectives can express properties, but they can express also activities that select for an agentive subject (9a, Stowell 1981), or modalities (9b)<sup>21</sup>, and, despite what Aristotle proposed as a general rule, they can also denote the time of a certain predicate (9c)<sup>22</sup>. Verbs do express activities as the general rule, but in European languages they also express states (10a) or relations between elements (10b). Finally, not every adverb expresses properties of events or states; many adverbs express deictic notions, such as definite locations of time or place, so they are clearly referential (11a)<sup>23</sup>, while others express quantities (11b).

- (8) a. marathon, party, war, session, battle, nap, game...  
b. pain, hunger, beauty, oldness...  
c. dog, sand, coal, water, boy ...  
d. interior, Monday, future...
- (9) a. cruel, fierce, liar...  
b. presumed, alleged, possible, certain...  
c. former, new, recent, present ...
- (10) a. to sleep, to like, to want...  
b. to connect, to precede, to follow...
- (11) a. today, yesterday, here...  
b. quite, very, enough...

In other words, there is no correspondence between a certain philosophical or cognitive category and the grammatical behaviour of the word that instantiates that concept. If categories are to be defined in an Aristotelian way – with necessary and sufficient conditions – the approach presented in the previous pages is untenable, even from a purely descriptive perspective. Therefore, this traditional conception of categorisation, that we will call ‘the common sense approach’, cannot define grammatical categories in a scientific way.

This philosophical perspective, rooted on Rationalism, has been recently renewed in the bibliography. Wierzbicka (1988, 1996) has developed a system of semantic primitives that she uses to explain the grammatical behaviour of the lexical items that materialise them. In this task she recognises the influence of Leibniz’ rationalist enterprise of creating an alphabet of human thoughts (*alphabetum cogitationum humanorum*), a set of undefinable semantic primitives that combine in more complex

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<sup>20</sup> Cfr. Bosque (1999a)

<sup>21</sup> Cfr. Demonte (1999a)

<sup>22</sup> Cfr. Demonte (1999a)

<sup>23</sup> Cfr. Rodríguez Ramalle (1995, 2004).



thoughts<sup>24</sup>; she also quotes frequently the works of Descartes and Pascal, recognising them as a noticeable influence on her work<sup>25</sup>.

The basic supposition of Wierzbicka's theory –which is in fact the subjacent supposition of most philosophical theories– is that “grammatical constructions embody certain meanings” and the linguist's role is “to reveal these meanings, to show exactly what they are and how the use of a given construction can be predicted from its meaning” (1988: 7).

The enterprise of determining the meaning of any construction requires a very well motivated semantic metalanguage, and the semantic primitives provide the theory with this metalanguage. “The metalanguage is based on a lexicon that contains a hypothetical set of universal semantic primitives which correspond to undefinable lexical items of natural languages” (1988: 7). In later work, Wierzbicka seems to be more clear about the need of such a set of semantic primitives. Without them, no semantic theory would be scientifically explanatory: “Without a set of primitives all descriptions of meaning are actually or potentially circular (as when, for example, to demand is defined as ‘to request firmly’, and to request as ‘to demand gently’ [...]). Any set of primitives is better than none, because with some such set semantic description is inherently circular and, ultimately, untenable.” (1996:11).

Among the primitives proposed by this author, we find the following (12):

- (12) I, you, this, some, something, place, time, say, think, like, do, happen, good, bad, where, if, because, see, there is, live, far, here, maybe, word...

The fact that semantic primitives are undefinable determines that they must be innate (1996: 16), something that is reflected in language acquisition because the child always acquires lexical items that express semantic primitives earlier than other elements<sup>26</sup>. Necessarily, then, semantic primitives are universal, and their existence explains that one language can be –basically- translated into any other language.

This proposal, despite the great effort that it makes to try to systematise the lexical semantics of typologically very different languages, encounters some problems that didn't affect as clearly the traditional philosophical view.

There are some problems that affect the entire architecture of the proposal<sup>27</sup>. Note first that, as every semantic primitive is underivable and the semantics of an element determines its grammatical behaviour, Wierzbicka implies that there are as many

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<sup>24</sup> “If nothing could be comprehended in itself nothing at all could ever be comprehended. Because what can only be comprehended via something else can be comprehended only to the extent that other thing can be comprehended, and so on; accordingly, we can say that we have understood something only when we have broken it down into parts which can be understood in themselves” (Leibniz 1966: 430, *apud* Wierzbicka 1996: 11; Wierzbicka's translation).

<sup>25</sup> “It is clear that there are words which cannot be defined, and if nature hadn't provided for this by giving all people the same idea all our expressions would be obscure” (Descartes 1931: 580, *apud* Wierzbicka 1996: 12).

<sup>26</sup> “The notion of innate and universal semantic primitives which underlies this book corresponds, in some way, to Slobin (1985) “semantic space” of “prelinguistic meaning”, in which “core concepts and clusters of related notions can be identified” (1163). Slobin's central claim is that [...] “what is constant [in the early grammars of every input language] are the ‘basic notions’ that first receive grammatical expression, along with early constraints on the positioning of grammatical elements and the ways in which they relate to syntactic expression” (1996: 17).

<sup>27</sup> We will not discuss particular proposals of semantic primitives, as for example the differentiation between two primitives, place and time. From a diachronic and synchronic perspective, it would seem that time notions are derived from place notions, so it is not clear that they should be considered equally basic from Wierzbicka's own perspective.

categories as there are semantic primitives. We cannot speak of sub-categories in this case, because none of the primitives can be considered a specification of another, as this would imply that it can be derived from it. This will produce a huge system of grammatical primitives.

Keeping in mind also that being a primitive implies being undefinable and having nothing in common with other primitives – because if there was something in common between them, there would be a more basic primitive present in both elements-, her system is then unable to find certain relationships between categories, such as the fact that in some languages adjectives have more in common with verbs than with nouns, while in other languages it is just the opposite. It is somehow unexpected, then, that in her 1996 work she groups some primitives under certain labels, such as ‘determiners’; this label seems to be a notational sign that catches the intuition that primitives such as *I* and *You* have more in common than *I* and *Think*, for example, but cannot be an ontological component of Wierzbicka’s theory, then.

An immediate consequence of Wierzbicka’s proposal is that it raises a new lexical relation, allomorphy: the different lexical elements that manifest the same semantic primitive are allomorphemes of the same primitive. For example, *I* and *me* would be allomorphemes of the same semantic primitive, *I* (1996: 26). However, note that the morphological behaviour of the different allomorphemes could be different. In 1988, Wierzbicka recognises UNDER as one of her semantic primitives, and maintains it as such in 1996. It would seem that words such as ‘caer’ (fall), ‘debajo’ (under) and ‘aplastado’ (‘crushed’) would be allomorphemes of this semantic primitive, because it seems that it is a necessary component of it. However, the first word takes verbal morphology, the last one adjectival morphology and the second one acts as an adverb, allowing only diminutive morphemes. This shows that Wierzbicka’s starting point that the semantic primitives determine the grammatical behaviour of a lexical item cannot be held without important caveats: at least, the morphological behaviour cannot be predicted. Therefore, it would seem that there is no clear *a priori* reason to start a task such as the one that Wierzbicka is developing, because the result is that her own primitives are materialising in lexical items whose behaviour is different<sup>28</sup>.

Wierzbicka’s proposal results, then, in a grammar that contains two sets of primitive elements which cannot be derived one from the other and that in any case are irreducible to more basic units: semantic primitives and morphological inflectional classes. This is the main reason why we will not pursue her enterprise in this dissertation.

### 1.1.2. Semantic theories in functionalism.

The problems that are found in the philosophical conception of grammatical categories have been noted by some proponents of the semantic view. One of the main lines of investigation that try to derive grammatical categories from their semantic information, leaving philosophical problems aside, comes from the functionalist framework. We will call this perspective the functionalist semantic perspective (Dixon 1977, Croft 1991 and references therein).

The theoreticians that have supported this view propose that the functionalist perspective is superior to the formal perspective to the extent that it can correlate the grammatical construction and its interlinguistic domain of application. The crucial term

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<sup>28</sup> One possible solution in a system such as Wierzbicka’s would be to analyse the way in which different combinations of semantic primitives determine the selection of one inflectional set of morphemes, that is, to propose an internal semantic structure where primitives combine in a hierarchical way. As far as we know, there have been no proposals in this direction in Wierzbicka’s framework.

in this defense of the functionalist perspective is ‘interlinguistic’. As Croft (1991: 23) notes, the semantic view has obvious advantages that should suffice for grammarians to adopt it, such as its intuitive appeal or the acquisition data regarding semantic bootstrapping (Pinker 1989). Croft recognises that the main reason not to adopt it could be the large number of interlinguistic variation that can be found in the materialisation of a certain conceptual notion. One example of this variation is found in Dixon (1977), where it is shown that the notional categories that are manifested in adjectives can be specified in a very systematic way. The problem is that not every language has adjectives, so it is not possible to make a strong prediction such as “In every language, these notions manifest as adjectives”. Interlinguistic variation, then, makes a simplistic semantic view untenable. Still, in spite of this apparent flaw, semantics should be considered as the basis of a complete linguistic analysis. As Dixon himself puts it:

We work from the assumption that the syntactic properties of a lexical item can largely be predicted from its semantic description. Semantics is thus held to be prior to syntax. The ways in which syntactic properties can be predicted on the basis of semantic representations are complex, and are not yet fully understood [...]. Imagine a mature speaker learning a new word. Suppose that he initially acquires a fullish knowledge of its semantic possibilities, without encountering it used in very many complex constructions. On the basis of his semantic competence, and his understanding of the general connections between semantic types and syntactic properties in that language, he immediately knows how to use the word in a syntactically acceptable manner. That is, he is able to predict its syntactic properties on the basis of the semantic specification. (Dixon 1977: 8)

Croft observes, also, that interlinguistic variation is more dangerous to formal theories than to semantic ones, to such a extent that it should prevent grammarians from employing just formal data to define the grammatical categories in a given language. The formal referent that he has in mind is the theory that Dionisius of Thrax employed to define his categories: inflectional features manifested in a given word. Croft argues that, as inflectional features are prone to interlinguistic variation, the categories defined using these criteria would be understandable only within the limits of that language, and maybe other typologically very close languages, but those categories wouldn’t be translated to a different language.

Croft’s proposal is, then, not to abandon the semantic view, but to reject the use of the traditional philosophical categories or the semantic primitives. Instead, the semantic functionalist analysis defines the grammatical elements by the role they have in speech. Interlinguistic facts would be accounted for from this perspective. The number of speech functions that have to be performed is limited and shared by every human language, so the theory that would be obtained from these principles won’t run the risk of being idiosyncratic. In this theory, the function performed by a grammatical element, regardless of its inflectional features, should be enough to ascribe it to a certain grammatical category.

Every major lexical category is designed to meet the requisites of a certain speech function, or, in Croft’s terminology, ‘pragmatic function’. The noun is the part of speech that performs the function of reference, which is “to get the hearer to identify an entity as what the speaker is talking about”; the verb performs predication, a notion “corresponding to an externally defined function, namely, what the speaker intends to say about what he is talking about (the referent)”; finally, adjectives perform modification, “a function accessory to reference and predication (restrictive modification / secondary comment)” (Croft 1991: 51-53).

Of course, a word that is used basically as a referential element can also be used for predication or modification. At this point, functionalist theory combines with markedness theory, in the sense that a word whose primary function is one that can be adapted to perform another function, but in that case it has to display a marked morphological form, which is derived from the more basic one.

Words that correspond notionally to objects will appear as nouns that perform reference, but they can be adapted, with morphological markers such as the suffix *-ise* or the verb *to be* to perform the function of predication –as in *carbon – carbonise / to be carbon-*, or with markers such as *-al*, to perform modification –as in *department – departmental-*. Adjectives, that correspond to properties, can perform modification, but can be adapted to perform referentiality (with markers such as *-ness*, as in *good - goodness*), or predication, as in the case of nouns, with the verb *to be*, as in *to be good*. Finally, verbs, that correspond to actions or states, perform predication, but can be adapted to perform reference (*-ation*, as in *manifest - manifestation*) or modification (as in a relative clause, or in participial form, as in *find – who finds / found*).

This proposal, then, would be useful to a typological perspective, because the task for a grammarian would be made easier to the extent that he/she only would have to identify the pragmatic functions and the grammatical constructions that perform them; then, the next step would be to determine which words are unmarked in each pragmatic function, which would produce a classification of the grammatical categories of that language. It would be also very easily determined whether a language lacks a certain category, because for the pragmatic function that corresponds to that category there would be no instances of unmarked constructions.

The reasons why we do not follow this proposal in this dissertation are general problems that, we believe, may affect the functionalist approach to grammar and markedness theory. As far as we know, the explicit basis of this theory, namely, that there is a correlation between grammatical construction and pragmatic functions, is untrue in the case of grammatical categories. Even combining the functionalist proposal with a markedness theory such that every word can display every function if it is unmarked, there are clear exceptions in the behaviour of simple categories. Consider for example the case of nouns. Nouns, categories whose main function is reference, do appear as modifiers in both English and Spanish, without evident signs of morphological markedness, as can be seen in (13):

- (13) a. pantalones **campana**, corbata **mariposa**, azul **cielo**, verde **botella**...  
 Lit. trousers bell, tie butterfly, blue sky, green bottle  
 b. **high heel** shoes, **ball point** pen...<sup>29</sup>

When used as modifiers, these nouns keep the same form they display when used as referents. In languages such as Arabic or Russian, nouns appear, without morphological marking, playing the role of predicates, at least in some tenses.

- (14) Hada r-rayulu **Muhammad**  
 That the-man Mahoma  
 That man is Mahoma.

<sup>29</sup> The order of the elements in the English construction could be considered as a sign of markedness, in the sense that the head has to be to the right in this case, while English phrases usually have their head to the left. However, we doubt that word order, by itself, can be used as a diagnosis for markedness, unless we wanted to say that possessors, which also have their heads to the right, are doubly marked, once with the genitive morpheme and once by word order.

Secondly, a solid theory of markedness would be needed for this proposal to have clear predictive power. The notion of markedness is normally understood as a correlation between morphological or syntactic complexity and semantic complexity, in such a way that, for example, as plural is notionally more complex than singular, the morphological expression of plural should be more complex than that of singular, or if patients are usually inanimate entities, an animate patient, which is notionally more complex, is expressed with a special syntactic construction<sup>30</sup>. However, this is not the way in which Croft understands markedness here. Croft relates morphological complexity not to semantic complexity *per se*, but to the fulfilment of certain pragmatic functions, none of which is considered to be more complex than another. Complexity is substituted by adequacy, in the sense that each category is considered adequate for a function and not adequate for the other two. From this perspective, what Croft calls being unmarked means being prototypical, this is, being very close to an *a priori* definition of what a certain grammatical constituent is expected to do. As that aprioristic definition does not contain, by nature, characteristics of the uncommon exponents of that category, there is a strong circularity in his reasoning: an unmarked element is an element that satisfies exactly the characteristics of a definition, and what is defined in that definition are only the unmarked elements of that class. For this reason we consider that it can be risky to base an explanatory theory of word categorisation on this type of markedness theory.

#### 1.1.3. Cognitive grammar.

Another very influential semantic theory that takes a great interest in the definition of grammatical categories is cognitive grammar. Cognitive grammar's vision of the architecture of the linguistic capacity is that grammar is basically a symbolic system, and the lexicon is "a distillation of shared human experience" (Langacker 2000: 2), so, to give a complete description of the lexicon and the grammar of a language, the speakers's knowledge of the world must be invoked. As Croft & Cruse (2003: 1) put it:

We see three major hypotheses as guiding the cognitive linguistics approach to language:

- language is not an autonomous cognitive faculty.
- grammar is conceptualization
- knowledge of language emerges from language use

In this view, the universal properties of language are the reflection of the universal cognitive capacities of the human species, or the reflection of common sensorial experiences<sup>31</sup>. These common experiences, many of them determined by the biology of

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<sup>30</sup> Cfr. Dressler (1984, 1986), Dressler *et alii* (1990), Dressler, Mayerthaler, Panagl, Wurzel (1987).

<sup>31</sup> For example, according to Lakoff & Johnson (1980), universally, terms referred to downward movements are used to express feelings of sadness, affliction or depression, while upward movements refer to situations of happiness, satisfaction, willingness or strength. This is, according to them, due to the fact that universally men fall when they are tired, when they faint or when they are ill. In their own words (Lakoff & Johnson 1980: 15):

Happy is up; sad is down [...]

Physical basis: Dropping posture typically goes along with sadness and depression; erect posture with a positive emotional state.

(Lakoff & Johnson 1980: 16)

Foreseeable future events are up (and ahead) [...]

the species, are reflected in the mind as something called ‘basic domains’ (Langacker 1987, 2000), that is, conceptual schemas that are pervasive in the human conceptual apparatus and that are so simple that they cannot be reduced to other experiences. Basic domains are used by the speaker to understand more complex experiences, concepts and ideas, because the complex experiences are shaped following those frames. Basic domains constitute, then, the pattern which is used to organise the concepts in the mind of the speaker.

Some examples of the basic domains that the speaker uses are colours, the notion of spatial extensionality and movement, and the difference between living and dead beings. These domains constitute schemas that are so basic that can be used to organise more complex entities. For example, speakers are able to understand temporal dimensions, that are inherently abstract, because they shape them as if they were spatial dimensions, because spatial extension constitutes a frame. Feelings and emotions, which can be considered also quite complex experiences, are understood and explained because they are organised to a great extent as physical movements (see footnote 14) or even as colours.

This ability to understand more complex experiences or concepts with respect to more simple experiences or concepts is the ability of comparison, which is understood as a basic human cognitive capacity: “we can compare two experiences and register either their identity or any discrepancy between them. We can use one structure as a basis for categorising another. We have the capacity for abstraction (schematization) and thus for conceiving of situations with varying degrees of specificity” (Langacker 2000: 2). The result of this capacity is the power of metaphorisation as a way to categorise new or immaterial experiences by reference to previous physical experience.

Comparison is not only applied to understand more abstract experiences through more basic ones, but it is also applied when trying to classify the different entities in a domain. An entity is classified in a domain not because it has some necessary and sufficient characteristics that make them belong to that domain, but because it has some similarity, understood sometimes very loosely, to the other members of the domain. For example, penguins, parrots and sparrows are classified together as birds because they have some similarities. From here it follows that in every domain there would be elements that would be characteristic and typical of the domain, and other elements that are classified in this domain by comparison to the typical members, because they maintain some similarities with them. Typical members of a class or domain are called ‘prototypes’ and atypical members of a class, contained in it by comparison to other members, are called ‘peripheral members’.

From cognitive grammar it follows necessarily a vision of grammar as a symbolic system that is used to shape the experience in schemas, which are also referred to as ‘frames’ (Fillmore 1977). Frames are patterns that organise the sensorial experience, transformed in concepts, in different ways. Every frame shapes the reality highlighting a certain concept, which is called the profile, against a base concept, which is usually referred to as the ‘background’. Langacker (1987) observes that the concept RADIUS, expressed in English by the word ‘radius’, can only be understood if it is defined against a certain base concept, which is the concept of CIRCLE. This means, for this author, that the lexical item ‘radius’ is a frame that conceptualises the concept RADIUS as its profile and the concept CIRCLE as its background. Not only lexical items, but also

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Physical basis: Normally our eyes look in the direction in which we typically move (ahead, forward). As an object approaches a person (or the person approaches the object); the object appears larger. Since the ground is perceived as being fixed, the top of the object appears to be moving upward in the person field of vision.

syntactic constructions are frames that shape reality in a different way, taking some concepts as profiles and other as backgrounds.

Within this framework, the notion of grammatical category is, forcefully, semantic and it is subject to the principle of prototypicality, for there would be some instances of a category that are more basic and are employed to categorise, by comparison, another less clear instances of that same category. Lexical classes are claimed to be susceptible to semantic characterisation. Universal grammatical classes, such as verbs and nouns, must correspond to basic cognitive differences in the way that humans classify their experience: “From my perspective it is utterly impossible to suppose that something as fundamental and universal as the noun and verb classes would not reflect a rudimentary conceptual distinction” (Langacker 2000: 8).

Each lexical class is internally organised in a constellation of prototypes and peripheral elements<sup>32</sup>. The more basic instances of a grammatical category are the core of that lexical class, and less clear instances of that class are compared to them and classified as the periphery of the class. For example, in the class of nouns, core elements would be those nouns that, as ‘house’ or ‘butter’, correspond to physical entities, while in the periphery there would be those nouns that correspond to properties and states, such as ‘hunger’ and ‘beauty’, or those that express events, such as ‘party’. In the class of verbs, the core would be constituted by verbs expressing causative events, such as ‘eat’ or ‘read’, whereas verbs that correspond to non eventive relations, such as ‘to be’, ‘to lie’ or ‘to depend’ are in the periphery. Scholars working in the cognitive grammar framework claim that the theory predicts the mismatches between formal category and semantic concept that are a problem for the rest of the semantically based theories, because these mismatches are a reflection of the basic human operation of comparison, which determines the existence of non prototypical members of a class.

The differences between grammatical classes are determined by the way in which each category schematises the same piece of human experience. From this point of view, each category is a different frame that conceptualises reality with a different profile / background structure. Given the same situation, the use of one category or the other changes the profile. Let us take, as an illustration, the situation in which some builders are working on a house. If we use a verb, *construct*, what we profile is the action itself, which is highlighted in the framework of the situation. If we express that situation with a noun such as *construction*, we are highlighting the ensemble of the situation, considered from a static perspective, profiling the situation as a whole. The other lexical classes perform different profilings: prepositions, for example, highlight relations between elements, against the background of the elements themselves, as in *X with Y*.

We consider cognitive grammar a very difficult theory to argue against, because, due to its proposal of the existence of a periphery in every classification, it is virtually impossible to find any counterexample to it. This empirical advantage of cognitive grammar, from a methodological perspective, can be considered a flaw, because CG cannot be tested with the finding of opposed evidence. Our reason not to adopt cognitive grammar in this dissertation, then, is that one of its theoretical basis is that the counterevidence that could be found against its classifications supports the essence of the classification itself.

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<sup>32</sup> Croft & Cruse (2003: 77): “Not all members of a category have the same status within the category. People have intuitions that some category members are better examples of the category than others. Members that are judged to be the best examples of a category can be considered to be the most central in the category [...]”

Another methodological criticism, also caused by the prediction of the existence of peripheral elements, is that every generalisation in the framework of cognitive grammar will be very weak, because, by nature, it won't be applicable to every instance of a phenomenon, because every phenomenon has a core and a periphery. Therefore, predictions become very general and, to a certain extent, devoid of relevance.

Another consequence of the core / periphery distinction is that the analysis loses its explanatory power, because counterexamples are not very different from evidence in favour of the theory, as they all conspire to prove the adequacy of the analysis.

Apart from these criticisms, that affect the method used in the framework, we believe that from a theoretical point of view there are also some flaws. In our mind, it is not clear what it means for an element to be in the periphery of a certain category. It is not clear, specifically, if it means that it doesn't belong to that category, that it belongs to more than one category or that it doesn't properly fit in any category at all. Of course, the answer that can be offered in the framework of cognitive grammar is that when we ask questions like that we are guided by Aristotelian logic, which seeks to classify everything with necessary and sufficient conditions, whereas CG classifications are not driven by Aristotelian logic. Even though this may be a fair answer, we believe that a theory that predicts, as one of its central claims, the existence of peripheral elements should contain a subtheory that studies the behaviour of peripheral elements, in such a way that it is possible to find common properties between those elements, by opposition to the core of each category, and obtain criteria to determine if something is a true peripheral element or not<sup>33</sup>. As far as we know, there is no such a subtheory, and that is the reason why, as we believe, there exists no independent way to determine that an element is peripheral<sup>34</sup>.

Finally, on an empirical level, we think that there is a serious problem that cognitive grammar has to face with respect to grammatical categories, and it is that core and peripheral elements of a category do not always seem to behave differently, if we consider their formal properties. If language is a symbolic system in which lexical items

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<sup>33</sup> There is, however, a complete theory about the specificity of a given conceptual category. In Langacker, Lakoff & Johnson, Croft & Cruse, etc., there is a distinction between basic categories, such as 'car', 'dog' or 'apple', superordinate categories –such as 'vehicle', 'animal' and 'fruit'– and subordinate categories –such as 'hatchback', 'spaniel' and 'granny smith'–. Superordinate categories have fewer defining attributes, and the resemblance between the elements that are categorised there is very loose. Subordinate categories are less informative than basic level categories, because their members are too similar to the members of the neighbouring categories; they are usually morphologically complex words.

<sup>34</sup> Croft & Cruse (2003: 78) propose some criteria to determine if a given lexical element is in the core or in the periphery of a lexical category. They mention as criteria 'frequency and order of mention' –when asked to make a list of the items that belong to a category X, some elements appear before and more frequently than others–, 'order of learning' –the child learns before core elements, but they recognise that this can be due to the frequency with which they hear the word–, 'family resemblance' –core elements should be those that share more properties with the rest of the elements of the category–, 'verification speed' –in experiments that measure the time of response of a subject, speakers need more time to ascribe a peripheral element to a category– and 'priming' –when presented with a member of the same category, the subject of the experiment needs less time to decide if a string of letters can be ordered in such a way that a word can be formed–. These criteria actually are measuring some general cognitive or pragmatic properties of lexical items, such as the fact that knowledge of the world makes a subject relate one element with another, or makes a subject think of a certain element when asked to give examples of a certain class. Within the framework of cognitive grammar, these may be valid criteria, because cognitive grammar has as one of its basic assumptions the fact that language is not autonomous from the knowledge of the world, but, still, they do not provide evidence that can be used to prove the independent existence of the core / periphery distinction. Problems such as 'the odd number paradox' show, in our opinion, that phenomena that can be interpreted as the emergence of prototypical instances of a category are caused by frequency of appearance of a given element, and therefore can occur even with clear cases of Aristotelian categorisation with necessary –sufficient conditions, such as the definition of odd numbers.



and constructions are frames that organise reality in different ways, we would expect there to be a difference between being a core constituent of a category, whose properties are used as criteria to classify other elements, and being in the periphery. It seems that it is not so with respect to the formal properties or the set of inflectional morphemes that a lexical item takes. Let's consider any lexical class. Nouns, peripheral or not, can trigger in Spanish number and gender agreement; verbs, independently of whether they express states, relations or causative events, have a full paradigm with person and tense variants. In the framework of cognitive grammar, it seems to us a mystery how elements with different category status, some of them of unclear category ascription by virtue of their being in the periphery, behave the same with respect to inflectional properties.

#### 1.1.4. Montague semantics.

Another major semantic theory that addresses the problem of defining grammatical categories is Montaguian formal semantics. This system is 'type-theoretic' (Dowty 1981: 88 and folls.), in the sense that defines categories using a system of types that can be combined together. In classical Montaguian semantics, there are two basic types, *e*, standing for 'entities', and *t*, standing for 'truth'. In *e* are names and individual variables, that is, basically, the arguments of predicates. Formulas, this is, expressions that can be assigned a truth value, belong to type *t*. The two basic types can be combined recursively, creating complex types, such as  $\langle e, t \rangle$ ,  $\langle e, \langle e, t \rangle \rangle$ ,  $\langle t, t \rangle$ ,  $\langle t, \langle t, t \rangle \rangle$ , and so on. Complex types act as functions that take as input the first type and give as a result the second type. For example,  $\langle e, t \rangle$  is a complex type that takes an expression of type *e* and gives as a result an expression of type *t*.

In this system, grammatical categories are types, either complex or simple<sup>35</sup>. From this perspective, there are general types, such as individual variables, *e*, formulas, *t*, intransitive predicates,  $\langle e, t \rangle$  -a type that needs one argument to be assigned a truth value-, transitive predicates  $\langle e, \langle e, t \rangle \rangle$  -a type that needs two arguments to be assigned a truth value-. An adjective is included in the set of intransitive predicates, because, apart for some exceptions that require two arguments<sup>36</sup>, they are expressions that need one argument to have a truth value, and therefore are defined by a function  $\langle e, t \rangle$ . The problem with this system is that intransitive verbs such as 'arrive' will be included in the same set, because they are also functions that need to take one individual entity to obtain a formula. Nouns also are generally treated as individual variables, but when they are used in a predicative position, as in 'John is a doctor', they seem to have also the semantic property of being in need of only one argument to be assigned a truth value, so in those cases they will have to be treated also as intransitive predicates, and therefore be included in the same set as 'cough' and 'red'. This puts them in the same set of elements whose formal properties are very different. We take, then, the Montaguian proposal of definition for grammatical categories as a possibly accurate system to explain the logical properties of expressions in language, but that does not shed enough light on their purely linguistic properties. Therefore, we will not use this system in our dissertation<sup>37</sup>.

<sup>35</sup> More exactly, as Montaguian semantics is most generally thought of as an extensional theory of semantics, grammatical categories are conceived as sets of expressions defined by a label, which is their type. Types, then, are sets.

<sup>36</sup> Such as 'easy', 'equal', or 'different'.

<sup>37</sup> However, it is fair to mention some attempts to apply Montaguian semantics to a detailed analysis of the syntactic and semantic properties of some categories. Zucchi (1993) analyses in depth different classes of eventive nominals, and Kennedy (1999) analyses gradability and comparison in the adjectival domain. We would like to point out that these two works introduce new basic types that were not

#### 1.1.5. LCS semantics.

To finish this survey of the most relevant semantic theories that have tried to explain categorisation, we would like to refer to Jackendoff's Lexico-Conceptual Structure (LCS). In Jackendoff's view, a language that gratuitously parses syntactic structures as purely formal expressions, without reference to their semantics, would make no sense; crucially, those structures must encode an internal concept, what is called a "thought". Therefore, a complete description of the language faculty cannot be limited to the syntactic rules and their properties, but has to take into account a set of rules that construct and decode the thoughts that the linguistic expressions transmit. Those thoughts are dealt with by the Conceptual Formation Rules, and are composed of Conceptual Structures, just like phrases are dealt with by Syntactic Rules and are composed of Syntactic Structures. In the same way as in syntax there are categories, in the conceptual component there are conceptual categories:

The essential units of conceptual structures are conceptual constituents, each of which belongs to one of a small set of major ontological categories (or conceptual parts of speech), such as Thing, Event, State, Action, Place, Path, Property and Amount" (1990: 22)

The major ontological categories are notionally different because they denote different conceptual entities, but they all share algebraic properties of combinability, so that they can take part in recursive formulas where one member of the ontological categories is a function that takes another member of an ontological category as argument.

Jackendoff's proposal is a complex and detailed attempt to account for any semantic property of categories, and the algebraic combination of ontological categories leaves room to make explicit the differences between classes and subclasses, but it is not a theory that tries to predict the grammatical category of a lexical item by its conceptual components. In his view, syntax and semantics (also phonology) are different levels whose information must be specified independently; the information contained in each level has to be connected, and that connection takes place in each specific lexical item, which is, in a sense, an interface unit. A given syntactic structure, then, does not correspond forcefully to any conceptual structure, and therefore the category label of an item must be stored in the lexical entry of a particular lexical item, without the possibility of deriving it from its semantics<sup>38</sup>.

The main reason not to adopt this theory is precisely that it leaves too much freedom to generate different structures. There are three generative levels: the semantics, the syntax and the phonology, and the independent structures created in each of these levels can be linked to the other structures in an idiosyncratic way. To our knowledge, no proper constraints on the possible ways of linking one structure to the other have been developed, with the result that it is very difficult to determine, from different plausible structures, which is the correct one. At the same time, LCS' semantics does not imply an isomorphism between syntax and semantics, because both structures are different and autonomous.

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proposed in the basic Montaguian system to account for the differences in the behaviour of the categories and subcategories studied.

<sup>38</sup> The grammatical category of an item must also be stipulated in the lexical entry in another relevant semantically based theory, HPSG (Pollard & Sag 1994), where every lexical item contains a tree of features that specifies all the pertinent information to predict its syntactic behaviour. The complexities of this rich theory cannot be fully accounted for in this short survey, and, as they don't try to predict the category label of an element, we will refrain from writing more about it.

## 1.2. Formal theories.

### 1.2.1. Morpheme marking.

Historically, one of the first, and the most relevant, of the formal theories that have tried to classify grammatical categories is the *Techné* of Dionysius of Thrax. In this system, every grammatical category is defined by the type of inflectional morphemes that it requires, that is, by the grammatical accidents that it is subject to in its paradigm. This system is very simple, totally descriptive and, as we will see, has many flaws, but we would like to point out that it does provide an objective way to group different words in a given language. Even semantically oriented theories usually have to refer at some point in their reasoning to the fact that the words classified in a conceptual category share (or do not share) a set of inflectional marks.

#### (15) *TECHNÉ'S* DEFINITIONS OF GRAMMATICAL CATEGORIES.

##### 1. Nouns (Chapter 12).

Noun is the declinable part of speech that denotes an object or an action<sup>39</sup>. [...] The accidents of the noun are gender, species<sup>40</sup>, form, number and case.

##### 2. Verb (Chapter 13)

The verb is a caseless word which is combined with tenses, persons and numbers, and that denotes actions or passions. The accidents of the verb are eight: mood, voice, species, figure<sup>41</sup>, number, person, tense, conjugation.

##### 3. Preposition (Chapter 18)

Prepositions are those words that appear before every part of speech, in composition and in a phrase.

##### 4. Adverbs (Chapter 19)

The adverb is the undeclinable part of speech that modifies or completes the verb.

Considering the case of Spanish, the *Techné* system would describe the noun as a category that has gender, number and case features –although this accident is only properly present as a morphological constituent in pronouns-. An adjective is a category that is subject to gender, number and, sometimes, also degree morphology. The verb can be defined as a tense-marked category, differentiating it from any other category just by virtue of this accident. Prepositions, conjunctions and some adverbs would be classified in the same category with respect to their inflectional morphemes, because they do not take any of them; to determine their category, we have to pay attention to their function.

A crucial reason for which this theory cannot be used to sustain an analysis of Universal Grammar, even if it were completely correct, is that it is idiosyncratically based on one language, Dionysius of Thrax's own dialect of Greek. Any classification which takes the criteria used here will be idiosyncratic of one possible language.

We think that morphological criteria can be a good means with which to go on to proceed to an analysis of grammatical categories; however, the problem with Dionysius' system is –in our mind– that it is based on explicit morphological marking,

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<sup>39</sup> Observe that semantic criteria are mentioned, but are not taken to be crucial, because it is recognised that nouns, just like verbs, can denote actions.

<sup>40</sup> Primitive or derived, and derived nouns divide in seven species, among them patronimic, comparative, diminutive, and so on.

<sup>41</sup> Three figures are differentiated: simplex, complex and parasyntetic.

this is, it considers only the purely exponential realisation of certain linguistic properties such as number, gender, tense or aspect. This classification does not consider the possibility that some morphological property is present and active but not accompanied by phonological materialisation. However, the different morpho-phonological realisations of a formal feature constitute –as is well known– one major source of interlinguistic variation. Historically, the morphology of a language is prone to change<sup>42</sup>, unlike syntax, that tends to be more stable –even though syntactic changes are also well-documented–.

### 1.2.2. Distributional properties.

We would like to refer briefly to another theory that tried to discover grammatical categorisation through formal means. Its criterion of identification is the distribution of an item, that is, in which formal contexts it can appear. For example, nouns are defined as those elements that can appear in the context D + \_\_\_\_\_, where D stands for any determiner. We will not use this criterion because it is clear to us that a description of the element by its distribution alone does not give enough information of its behaviour – at least, because there are empty categories – and classifies together elements which do not have the same behaviour. In the mentioned context D + \_\_\_\_\_, nouns can be found ('el niño', 'the boy'), but also complementisers ('el que vengas', lit. 'the that you come.SUBJ', 'that you come'), adjectives ('el alto', lit. 'the tall', 'the tall one') and relative pronouns ('el cual', lit. 'the which', 'which').

### 1.2.3. Abstract features.

In the generative tradition, starting from Chomsky (1965), there have been attempts to define the grammatical categories through a reduced set of features present in them and accessible to syntax. The most well-known example of this proposal is found in (1970), where there are two specific category features, [N] and [V], that were proposed *ad hoc* to give account of selectional phenomena. This system departed from the classical structuralist tradition, which proposed to determine the grammatical category of an element paying attention to its distributional properties. In this view, grammatical categories are not anymore interpreted as the formal signature of a syntactic element, but as combinable features that are stored in the lexicon and determine parts of the syntactic behaviour of other elements (Chomsky 1970: 208):

When the reliance on analytic procedures of segmentation and classification is abandoned, there is no reason to retain the notion of category at all, even for the base. We might as well eliminate the distinction of feature and category, and regard all symbols of the grammar as sets of features. If the elements NP, VP and so on are treated as certain feature complexes, then there is no incoherence in supposing that there are complex symbols of the form [+def, +NP].

Chomsky considered here three lexical categories: nouns, verbs and adjectives. Binary combinations of lexical features will constitute their category signature, as represented in (16). In the standard generative analysis that comes from Chomsky (1970), (16a) corresponds to a noun; (16b), to a verb, and (16c), to an adjective.

(16) a. [+N, -V]

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<sup>42</sup> In contemporary Spanish, for example, there are at least two phenomena of paradigm leveling, affecting second person singular –s in the aorist (*cantaste-s* instead of the previous *cantaste*) and irregular aorists from verbs such as *andar* (*and-a-ste* instead of *and-uv-i-ste*).

- b. [-N, +V]
- c. [+N, +V]

Jackendoff (1977) proposes the fourth mathematically possible combination of these features, and claims that this is the lexical feature composition of prepositions. The implication that follows from here is to classify prepositions as one lexical class, but note that this was not (necessarily) the case in Chomsky's system.

- (17) [-N, -V]

The classification that adopts the four possible combinations of features is accepted in Chomsky (1981: 48). The problems with this classification are well known and have been observed in major works in the field, most recently, to our knowledge, in Baker (2003: 1-3).

This system is scientifically interesting to the extent that categories that share the same value of a feature will share also some relevant syntactic properties. Therefore, we would expect nouns and adjectives, [+N] categories, to behave the same with respect to some phenomena; verbs and adjectives, [+V] should also have common characteristics, as nouns and prepositions, [-V], and prepositions and verbs, [-N]. The problem is that these relationships do not seem to be empirically valid.

First of all, note that the values of the features and the way in which they combine to give as a result the different categories make it difficult to find counterexamples. There are only two relationships that are not expected, because their categories don't share any features. Those are Preposition and Adjective and Noun and Verb. Any other relationship is expected.

There are obvious situations where adjectives and prepositions behave alike. In fact, these two types of categories are the typical noun modifiers, and they can also be predicates with copulative verbs, as (18) witnesses.

- (18) a. Una camiseta {maravillosa / de algodón / con mangas / blanca}.  
 Lit. a T-shirt {wonderful / of cotton / with sleeves / white}  
 'A {wonderful / cotton / white } T-shirt {with sleeves}  
 b. El café es { negro / con leche / de Colombia / excitante}  
 Lit. the coffee is { black / with milk / from Colombia / exciting}  
 'Coffee is {black / with milk / from Colombia / exciting}

As for nouns and verbs, Baker (2003: 3-10) notes that in Mohawk nouns and verbs take similar prefixes, which may lead to posit that there is no such category difference in this language.

A bigger problem with this system that uses idiosyncratically defined category features is that it leaves no room to study the differences between categories that should behave similarly, because they share feature values. Baker (2003: 2) notes that although both AP and PP can be used as resultative complements in VP's, NP's and VP's cannot (19, example 2 in Baker 2003):

- (19) a. John pounded the metal **flat**.  
 b. John threw the ball **into the barrel**.  
 c. \*John pounded the metal **a sword**.  
 d. \*John polished the table **shine**.

As Baker observes, the system that has been developed from Chomsky 1970 can give account of some commonalities –not every commonality– but is unable to provide a basis for studying the differences.

However, it is worth noting, in our opinion, that Chomsky's commitment to a feature system such as the one presented here may not have been very strong. If we consider some of his points in his 1970 paper, it seems that he regarded [N] and [V] only as notational conventions used for the sake of exposition, to give an example of possible features, and he considered the role of feature theory in the definition of grammatical categories a matter that still was to be studied. Consider, for example this quotation (1970: 199).

There is, to my knowledge, no convincing argument for a category including just verbs and adjectives (or, to take another traditional view, nouns and adjectives), although it is not excluded that some such subdivision may be correct. It is quite possible that the categories noun, verb, adjective are the reflection of a deeper feature structure, each being a combination of features of a more abstract sort. IN THIS WAY, THE VARIOUS RELATIONS AMONG THESE CATEGORIES MIGHT BE EXPRESSIBLE. FOR THE MOMENT, HOWEVER, THIS IS HARDLY CLEAR ENOUGH EVEN TO BE A SPECULATION [emphasis mine, AF]

In any case, some other authors have tried to reduce categories to features in the lexicon-syntax, but they have tried to use different features. An interesting move has been to search features that do not represent *per se* categories, but are independently present in the syntactic derivation and whose appearance may define a grammatical category. Déchaine (1993) proposes to use the feature of [reference], which would be present in nouns and verbs –able to express referential things and referential propositions– but absent in the rest of categories. The problem with this system is, again, that it is not rich enough to explain all the differences and similarities among categories, as happened with Chomsky's initial model.

Jackendoff (1977: 31-32) presents an appealing variation which has become renewed in the recent literature. His intuition is that grammatical categories should be defined through their argumental structure. Therefore, he proposes that the categories be defined by the presence / absence of a subject and an object. His system is the following:

- (20) a. [+subject, -object] Noun
- b. [+subject, +object] Verb
- c. [-subject, -object] Adjective
- d. [-subject, +object] Prepositions

There are obvious advantages to this system. First of all, it seeks to define the categories without reference to stipulative category features. Secondly, this system is richer than Déchaine's, because it combines two features and allows relations to be defined –although not as many as would be necessary, if we consider the rich system of subcategories in natural languages-. Note that the relations predicted –noun and verb, verb and preposition, adjective and preposition– are empirically more accurate than those predicted by Chomsky: the predicators verb and preposition, which combine to assign theta-roles, are put together, as well as the modifiers adjective and preposition.

However, there are problems, some universal, other specific for determinate languages. Among the universal problems there is the adjective not having a subject. Adjectives are predicates, and, as such, they need a subject, just like verbs need them, and that is a property that – independently of how it is syntactically fulfilled – should be

represented in the properties of the category in question. A similar problem arises with the preposition, semantically a relator, which needs two elements to satisfy the semantic relationship that it expresses.

Among the problems that are particular to some languages, Jackendoff's reason to propose that nouns are defined by the presence of a subject is to be found in the saxon genitives, which behave like noun subjects with respect, for example, to the possible theta roles that they can satisfy. The problem is that languages like Spanish and French do not have this type of subject. This would mean that between English and Spanish, there would be a difference with respect to what are verbs and what are nouns, such as in Spanish adjectives and nouns would be the same category, due to the fact that their nouns cannot have subjects. This is an undesirable consequence.

#### 1.2.4. Theories based on the structural configuration.

Jackendoff's intuition in his 1977's work, however, has been considered very valuable and has been more elaborated in the work of Hale and Keyser (cfr. particularly 1993, 1998, 2002). The idea here is, as Jackendoff proposed, that grammatical categories are to be differentiated in the syntax, and through their argumental structure.

[...] We will assume the traditional categories V, N, A, P (see Chomsky 1970), and we will continue to employ this traditional alphabetic notation for them. Furthermore, we assume here that this exhausts the inventory of major lexical categories. The fact that the inventory of categories is restricted in this way is relevant, we claim, to understanding why the inventory of "thematic roles" is also small. (Hale & Keyser 1993: 66)

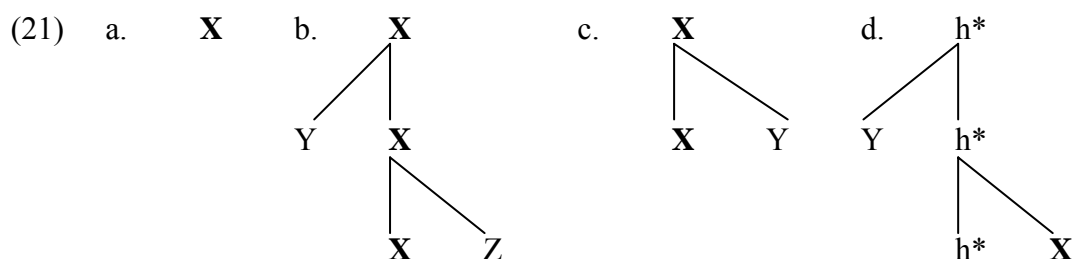
The starting point of these authors is that the set of possible thematic roles found in the languages of the world is, surprisingly, very restricted, and is not subject to variation. Moreover, the assignment of these theta-roles seems to be determined to a great degree by their structural position. In a parallel way, the basic lexical categories are also interlinguistically very restricted – no more than four –. Their proposal is to relate the two entities, argument structure and categories, in what they call 'lexical relational structures' (LRS).

During the course of our investigations, we have become persuaded that the proper representation of predicate argument structure is itself a syntax. That is to say, as a matter of strictly lexical representation, each lexical category projects its category to a phrasal level and determines within that projection an unambiguous system of structural relations holding between the head, the category projections, and its arguments (specifier, if present, and complement). We will refer to these projections sometimes as lexical argumental structures and sometimes as lexical relational structures (Hale & Keyser 1993: 53).

Thus, the differences between lexical categories follow from the arguments that they, as heads, select. There are two structural positions that can be filled in the projection of a head: complement and specifier. These two elements, combined, give as a result four possible combinations, which is precisely the number of main lexical categories identified in the languages of the world. As the projection of heads is considered universal, universally there will be four lexical categories; a possible source of interlinguistic variation will be the morphological spell out of each type of head and the particular relationship between an LRS and a lexical category.

Hale & Keyser's proposal for the grammatical categories in English is the following. The noun is the typical non-relational category, so it has neither a complement nor a specifier (21a). The preposition is the opposite of the noun with

respect to argument structure, because it is semantically the relator of two elements, so it has both a complement and a specifier (21b). A verb is a category that is defined by its having a complement, but it doesn't have a specifier (21c). Finally, the adjective is a predicate that needs a subject, but by itself it cannot license that specifier position<sup>43</sup>, so it has to attach parasitically to another head that has the power of licensing the specifier (21d).



It has been proposed that the last structure, which corresponds to an adjective, is not basic, but derived through the combination of two basic LRS's. Mateu (2002) proposes that (21d) is derived from the more basic configurations (21a) and (21b). This means that on an abstract level of analysis an adjective corresponds to something like a noun plus a preposition. In fact, one of the possibilities that an adjective has to license its specifier is to combine with a relational head, a preposition (cfr. section 2.2.1. later in this chapter). The second possibility that exists is that the adjective manifests itself as the complement of a verb, that is a head that selects a complement, in such a way that the argument of the adjective manifests itself in the verbal phrase. In this way, as the argument of the adjective is the second argument of the verb, it projects as a specifier. Deadjectival verbs, such as 'tighten', 'whiten' or the Spanish verbs 'engordar' ('to fatten') and 'ennegrecer' ('to blacken'), are analysed as cases of this situation (Hale & Keyser 1993: 79).

Hale & Keyser propose that LRS's belong to a syntactic level which they call 'lexical syntax'. Lexical syntax is a syntactic component where every argument is defined, with the only exception of external subjects, such as, for example, the external argument of the verb. To get a phrasal syntax from lexical syntax, then, what is needed is to project also external subjects. These elements, on the other hand, can be projected in a number of ways. Observe, in any case, that lexical syntax is syntax, as heads project in phrases. Lexical syntax should not be confused with the Lexicon in Lexicalism.

As we have already observed, the morphological manifestation of these lexical categories does not have to be universal. For example, H&K propose that morphological verbs like 'to have' seem to be prepositions in the level of lexical syntax (Hale & Keyser 1993, endnote 6):

In LRS representations, of course, we are dealing with the universal categories, whatever they turn out to be. Their realisation in individual languages as nouns, verbs, and so on, is a parametric matter. Thus, the English possessive verb *have*, for example, is

<sup>43</sup> The incapacity of the adjective to project a specifier derives from the basic principles of Bare Phrase Structure (Chomsky 1993), where the inexistence of an intermediate level X-bar makes specifiers and complements impossible to define independently. Thus, the first argument selected by a head projects as the complement, and if there is only one argument selected, it must be a complement. The specifier must be the second argument selected. Consequently, only a head that selects a first argument – a complement – can select also a specifier. As adjectives only select one argument, they cannot project it as a specifier unless they combine with one another in a more complex structure.



probably a realisation of the universal category P, not V. But the Warlpiri verb *mardani*, which most often “translates” English *have*, is clearly V, not P.

An open question, then, is how is it possible to explain that a head whose LCS makes it a preposition ends up taking the morphology characteristic of verbs.

The result of H&K theory is a system with a high degree of isomorphy between syntax and semantics, because the positions in the configuration correspond to semantic notions such as relator, predicate and subject<sup>44</sup>.

The main objection that can be made to H&K, in our mind, is whether it is strictly necessary to posit an intermediate syntactic level that defines arguments in the absence of external subjects, and whether there is independent evidence of its existence, apart from the coherence of the system. In a minimalist framework, such as the one that we adopt in this dissertation, to propose the existence of more than one generative system is a very controversial step, so it must be done on very solid empirical and theoretical grounds. To the extent that we understand H&K’s system, this evidence is not provided, not surprisingly, because H&K never claim explicitly that they have any intention of following the orthodox Minimalist framework. H&K’s proposal that argumental structures and the projection of heads in syntax play a crucial role in the definition of grammatical categories seems to be theoretically promising, and has proved itself as a source of deep insight in many aspects of the behaviour of lexical classes. In this dissertation we will adopt their major proposals, with the exception of the differentiation of lexical and phrasal syntax, in an adaptation of their theory inside the framework of Distributed Morphology.

#### 1.2.4.1. Configurational theories: the case of Distributed Morphology.

Distributed Morphology (DM) also proposes to differentiate grammatical categories through syntactic features. The main idea with respect to grammatical categories is that language plays with elements which do not contain category features; depending on the syntactic context where these elements merge, they will get one category or another. Therefore, this is a proposal of underspecification of categorisation.

In syntax there is a basic difference between roots, which are these elements without a category of their own, and functional projections, that are sets of formal features that, when they merge with the roots, constitute the context that determines their formal behaviour.

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<sup>44</sup> Based on H&K’s work, Baker (2003) proposes to define grammatical categories, assuming the level of lexical syntax, taking into consideration its surface behaviour in sentential syntax. That is the reason why for this author the verb is the only category that truly takes a subject. The verb is defined in sentential syntax by its combination with the head little *v*, which, when strong, selects as its specifiers an external argument; when little *v* is weak, it doesn’t select an external argument, but then one of the internal arguments of the verb is taken as subject. Therefore, verbs are the typical predicates, accounting in a formal manner for the intuitions of traditional analysis. In contrast, Baker shows that, in order to take a subject, nouns and adjectives have to combine with a Predicative Phrase (Bowers 1993), so they cannot license subjects by themselves.

As for nouns, they are defined also by their syntactic behaviour, as potential bearers of referential indexes that can be used, as pairs of integers, to determine the identity of the individuals used in the discourse. A corollary assures that an element that licenses a specifier cannot bear a referential index, guaranteeing in this way that nothing will be an argument and a predicate at the same time.

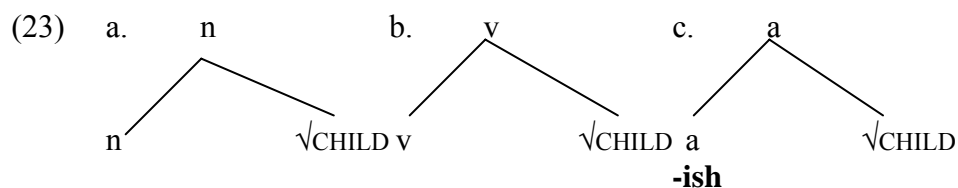
Finally, adjectives are a negatively defined category: they are what neither nouns nor verbs are. Baker’s theory has, from our point of view, the same problems as H&K, because he still differentiates two generative levels, one translatable to lexical syntax, which Baker calls ‘morphology’, and a purely syntactic one.

What this basic system implies is that, first of all, no lexical item strictly pertains to any grammatical category prior to its inclusion in a syntactic derivation. In this regard, it differs from Lexicalism, where the categorisation of an item was a pre-syntactic matter, but also from H&K, because these authors have a level of lexical syntax, prior to sentential syntax, where the heads have already been defined as members of a certain grammatical category by their LCSs. To our knowledge, syntax plays a more important role in DM than in H&K. The existence of roots that can have any category when projected into syntax is a phenomenon in favour of which Distributed Morphology finds one piece of evidence.

- (22)     $\sqrt{\text{CHILD}}$              $\rightarrow$     the child (noun)  
     $\rightarrow$     to child (verb)  
     $\rightarrow$     child-ish (adjective)

In DM the set of features that is contained in the functional projection that is merged with the root determines its grammatical category. The syntactic relationship that must be established between the root and the functional projection is one of domination, this is, the functional projection and the root must be structural sisters, and the functional projection must project its label.

Thus, the same root is a noun when it is dominated by a certain functional head, that we will call *little n*; it becomes a verb when it is dominated by *little v*; and it becomes an adjective when it is dominated by the head *little a* (23).



The three functional projections represented in (23) have been proposed in Marantz (2001). The labels *n*, *v* and *a* actually stand for bundles of syntactic features, so the differences between grammatical categories are explained by the different features that intervene in their dominating functional projections. One prediction that derives from here is that, as features must interact during the syntactic derivation, the syntactic operations determine the category status of a certain root, in such a way that in some cases a root won't be able to manifest itself as a certain category because the features combined do not give as a result a convergent derivation.

This proposal has immediate empirical consequences. Marantz (2001) observes that the cases that Aronoff (1976: 88-90) analyses as truncations, this is, cases where a morpheme is cancelled as a result of the addition of another one (24), can be accounted for without this type of rule if the base of the word is a root which cannot spell out without a head that assigns category to it; Vocabulary Items such as *-ee* and *-ate* are the spell out of two different functional heads, *little n* and *little v* (25).

- (24)    a. evacu-ate, evacu-ee; nomin-ate, nomin-ee  
           b. releg-ate, releg-able; penetr-ate, penetr-able; consecrate, consecrat-able



We think that H&K's *lexical relational structures* can be placed in this system. If argument selection has to be treated as a syntactic process, as H&K treat it, the selectional properties of a head must be the result of the presence of certain features in the head. The consequence of this is that the presence of specifiers and/or complements can be expressed in terms of properties of the bundles of features that dominate the roots. The argumental structure of a head is conceived as a set of formal features that require the merging of other constituents.

As can be seen in (23), prepositions are not considered as a main lexical category in Marantz (2001); remember that they were not considered as such in Chomsky (1970) either. In our opinion there are good reasons to differentiate prepositions from nouns, verbs and adjectives, at least because, as it is known, prepositions cannot be used as bases for morphological processes<sup>45</sup>. This difference is captured if they are not the same type of element as the traditional lexical classes verb, noun and adjective.

The natural question is what are prepositions. We will address this question in chapter three, section 6, where we will point out some of their characteristics. Suffice it to say, for the moment, that we will consider prepositions as pure bundles of phi features used for purposes of predication and case assignment, and which are unable to categorise a root<sup>46</sup>.

Barner & Bale (2002) offer some psycholinguistic evidence that categories are underspecified in the lexicon. In their experiment, they analyse the way in which two types of patients with language impairment problems produce grammatical categories. Agrammatic patients have problems in the production of verbs, but not in the production of nouns. On the other hand, patients called 'anomic' have problem in the production of nouns, but have no problems in the production of verbs. They observe that, at first blush, this could be seen as evidence counter to the underspecification of grammatical categories, which is precisely the conclusion of Caramazza and Hillis (1991: 789) when they address this data. The proposal of Barner & Bale is that from this data it does not follow that category underspecification of roots is mistaken. An alternative answer would be the following: patients do not have problems with the roots, but with the association of the root with a certain set of functional projections, either verbal or nominal. From this perspective, this type of aphasia affects only one set of functional projections, leaving the other one intact.

They provide two phenomena as evidence. The first one is that agrammatic patients do not avoid the use of verbs, but only the use of verbal morphology, which is substituted by a bare infinitival form. What they present, then, is the root, deprived of morphological information that should be present in the verbal functional projections that dominate it, as tense, aspect or agreement.

<sup>45</sup> They intervene in word formation processes in a reduced number of cases, and always as prefixes: *ante-sala*, *ante-ojos*, *sin-vergüenza*, *sim-par*, etc...

<sup>46</sup> As for adverbs, observe that there is no proposal that they constitute a different functional projection in this system. Remember that, traditionally, adverbs have been a class that contains elements of very different behaviours. Some Spanish adverbs have characteristics of adjectives, and others seem to behave like nouns (cfr. Rodríguez Ramalle 1995, 2000).

Also, while they are unable to produce verbs, agrammatic patients may produce nominalised forms of verbs, such as ‘the washing up’, ‘the jumping’, ‘the climber’, and so on (Barner & Bale 2002: 781). If roots contained information about the grammatical category, these words would have a structure in which the base is a verb that later on is derived as a noun (26a). Agrammatic patients wouldn’t be expected to be able to produce such type of formations, because they can’t produce verbs. On the other hand, if roots do not have category, these are instances of elements that, even though their semantics may be eventive, are in a syntactic context of noun, and have never been verbs (26b). Agrammatic patients are expected, precisely, to use this type of words.

- (26) a. [[climb]<sub>v</sub> er]<sub>N</sub>  
 b. [[climb]<sub>√</sub> er]<sub>n</sub>

In the next section we will analyse in detail the case of the noun and the adjective to show the empirical and theoretical advantages of the position adopted in this dissertation.

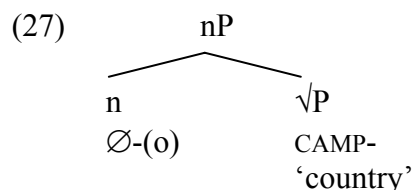
## 2. Nouns and adjectives.

In this section we will study the particular case of nouns and adjectives in a framework where grammatical categories are defined by the bundles of features of the functional projections that dominate them in syntax. We will make explicit our assumptions about the functional projections that dominate adjectives and nouns and, in the second part of the chapter, we will offer evidence in favour of this view of categorisation through an analysis of conversion.

### 2.1. Nouns.

The structure of the NP assumed in this dissertation contains three layers of functional projections over the nominal head, following Zamparelli (2000) and Borer (1999, 2004), who build on previous work by Abney (1986) and Ritter (1991). We will briefly revise and motivate this analysis.

Following the basic claims of DM with respect to categorisation, our structure for the NP must contain at least two projections: one projection for the root that will be categorised as a noun and one functional projection that assigns a noun category to it (27).

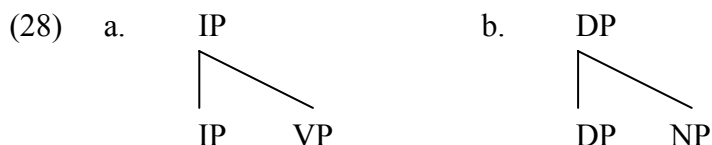


In addition to these two constituents, we assume more structure.

#### 2.1.1. The DP.

Since the work of Abney (1986), the so-called ‘Determiner Phrase (DP) hypothesis’ has been accepted. This hypothesis proposes that determiners such as articles are the manifestation of a functional head that selects the NP as its complement. In previous analysis (cfr. Jackendoff 1977), the determiner counted as the specifier of the category NP; Abney proposes that it must head its own projection; with this change, in Abney’s view, a high degree of structural uniformity between lexical categories is obtained,

because the structure formed by the determiner and the head (28b) is similar to the one formed by the verb and the inflection (28a).



This parallelism captures some properties of determiners. First of all, it explains that its semantic contribution is by no means conceptual, for it is a functional projection selecting the noun. Note that determiners express deictic or anaphoric notions, just like Inflection shows deictic or anaphoric tenses.

Secondly, the supposition that D is a head instead of a specifier explains why it precedes the noun in a language like English or Spanish, where heads appear to the left of their complements. Moreover, as Abney notes, if we have a unique determiner head position, it is also possible to explain why possessives and determiners never co-occurs (29): the reason is that when one constituent occupies D<sup>o</sup> there is no place for another.

- (29) a. John's book.  
b. This book.  
c. \*This John's book.

The third set of evidence provided by Abney refers to the notion of ‘noun subject’. Abney notes that his theory predicts that the functional layer above NP can license an argument of the NP in a relation similar to the one that is established between one of the arguments of the VP and IP. Abney provides examples of genitives carrying out the role of nominal subjects in Hungarian (30) and in English (31). The following set of data illustrates this property.

- (30) a. *kaz en kalap-om*  
the I-Nom hat-Isg.  
My hat (lit. the I hat-my)  
b. *az te kalap-od*  
the you-Nom hat-2sg.  
Your hat.  
c. *Peter kalap-ja*  
Peter hat-3sg.  
Peter's hat.

[Abney 1987: 17, quoting Szabolcsi 1981, 1987]

- (31) a. [John] IP [painted this picture] VP  
b. [John's] DP [painting this picture] NP  
c. [John's] DP [paint of this picture] NP

Abney notes that in Hungarian the same morphemes that realise subject-verb agreement realise possessive-noun agreement, so he proposes that the structure is identical and every difference in their formal realisation (for example, nominative vs. genitive case in the subject, accusative vs. prepositional construction in the object) can be derived from independent case assignment properties of the heads V and N.

This evidence has widely been regarded as conclusive and, to our knowledge, every study of the NP in the generative framework assumes the DP hypothesis with slight variations that do not affect the basic proposal that there is a functional projection above NP related to determiners and the semantic notions of referentiality and identity.

### 2.1.2. The NumP.

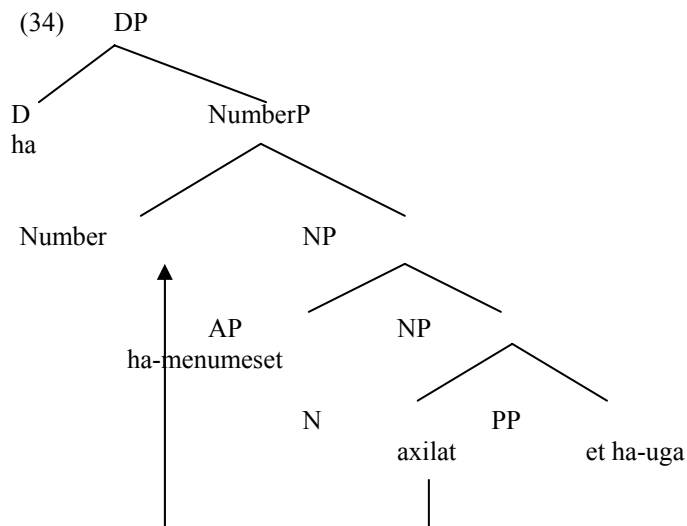
The functional layers dominating a noun phrase have been extended in later developments of the theory, and other authors have proposed that there must be more than one functional projection. Ritter (1991) assumes the existence of the DP and proposes a new projection, Number Phrase. Her proposal is that, while DP has to be related to referentiality, Number Phrase must be related to specificity and houses the structural constituents that provide the quantificational properties of NPs. Ritter is led to this proposal mainly by empirical evidence that has to do with two genitive constructions in Modern Hebrew, the construct state (32a) and the free genitive (32b).

- (32) a. axilat Dan et ha-uga  
       eating-the Dan ACC the-cake  
       Dan's eating of the cake  
       b. **ha**-axilat shel Dan et ha-uga  
       **the**-eating GEN Dan ACC the-cake  
       the eating of the cake by Dan

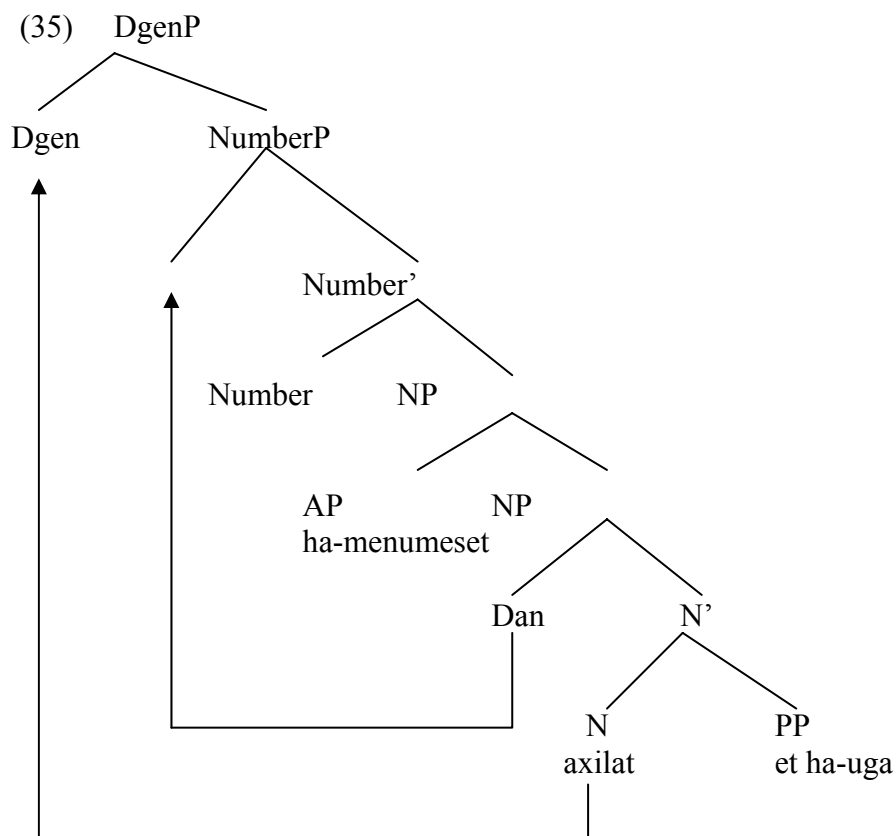
There are some differences between the structure in (32a) and (32b). In the construct state (CS) in (32a), it is impossible that a determiner appears, unlike in the free genitive (FG) – the overt determiner is in bold in (32b)–. This difference shows, for Ritter, that in the CS there must be a phonologically empty D head. In CS the most embedded element determines the referentiality of the whole phrase, in such a way that an adjective modifying the head agrees in referentiality with the embedded element. In the FG, the referentiality depends on the particular D° that combines with the noun. The order of the elements is also different; an adjective can be interposed between the noun and the subject in the FG, but this is not clearly possible in the same position in a CS.

- (33) a. axilat (?? ha-menumaset) Dan et ha-uga  
       eating (the-polite) Dan ACC the-cake  
       Dan's polite eating of the cake.  
       b. ha-axilat ha-menumaset shel Dan et ha-uga  
       The polite eating of the cake by Dan

The position of the adjective is used by Ritter to show whether an element has moved from its base position or not; assuming that adjectives are adjuncts to NP, the contrast in (33) shows that in the FG the noun has moved upwards and that is the reason why the adjective follows it. If this construction were a CS, the N° could have moved to D°, which is empty, but in FG D° is occupied. Therefore, N° cannot move to D°, so it has to have moved to a position above NP. This projection above NP is Number Phrase (34, using Ritter's notation of grammatical labels).



In the CS a Number Phrase is also involved, but with a different role. As the appearance of *ha* combined with the head noun is prohibited, Ritter assumes that there must be something occupying  $D^0$ ; she proposes that it is the head noun, that moves to  $D^0$  instead of landing in  $\text{Number}^0$ . This empty  $D^0$  is what the author calls Genitive D, which is able to assign genitive case to the subject. The next move is that the genitive subject, which must appear before the adjective, moves from inside the NP to the specifier of Number Phrase, as is shown in (35).



This is Ritter's evidence to propose the presence of two different projections, DP and NumP<sup>47</sup>, above the NP.

### 2.1.3. The KiP.

Other authors have proposed that there are three functional projections above NP, among them Zamparelli in his dissertation, published as a book in Zamparelli (2000).

In his view, the three layers available are Strong Determiner Phrase (SDP), Predicative Determiner Phrase (PDP) and Kind Phrase (KiP). Referentiality in the noun phrase is always obtained through an element found in SDP, overt or empty, and the rest of the material in this extended DP hypothesis counts as a qualification of the entity referred to in SDP.

En el SDP, los elementos que allí se contienen expresan una propiedad predicada del núcleo SDF. Given that our dissertation is not properly about the structure of the noun phrase, we will not discuss here the relationships between the PDP and Ritter's NumP, nor whether it is possible to collapse these two projections into a single one.

The Kind Phrase, KiP, is interpreted as a 'kind' in Chierchia's (1984, 1988: 18) sense, who builds on a previous article by Cocciarella (1976) where a kind is defined as a nominalised property, in a certain sense as the proper name of a class of entities. The basic intuition that makes Zamparelli propose the existence of this other phrase is that, as semantic studies note, nouns express by themselves a set of properties –the noun *whale* denotes properties such as for instance being big, being an animal, etc.–, but become kinds, that is, entities that attribute to their referents a single property: to belong to that particular kind.

Zamparelli invokes evidence from pronominalisation and coordination to show that it is necessary to distinguish three functional projections over the noun; we will not reproduce here this evidence, which can be found in Zamparelli's (2000) work.

We will, however, discuss the specific evidence that Zamparelli (1998) invokes to prove the existence of the KiP. In this article it is observed that noun phrases with *kind*, *type*, *sort* or *species* (36) are peculiar for a variety of reasons. First of all, they can appear in syntactic contexts which are reserved for semantic kinds, such as the subject of predicates like 'common', 'rare' and 'widespread' (37).

- (36) a. that kind of goat  
b. esta clase de cabra

- (37) a. that kind of goat is {common / rare / widespread}  
b. esta clase de cabra {es común / es escasa / está extendida}

'Kind' construction is possible, with the same meaning, with the kind term appearing before the content noun (38a) or after it (38b).

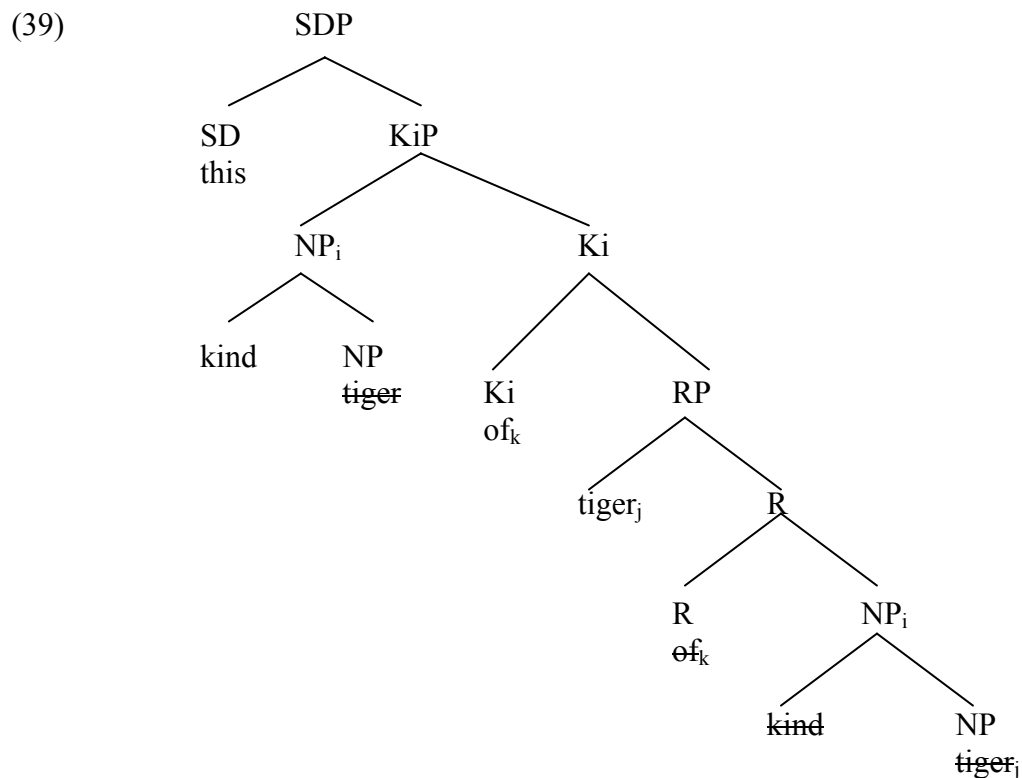
- (38) a. tiger of a kind / tigre de un tipo  
b. a kind of tiger / un tipo de tigre

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<sup>47</sup> Borer (2003) proposes to split the number properties of Number Phrase in two different projections. Her intention is to give account of the basic difference between mass nouns and count noun. She formalises this difference proposing that there is a particular projection, CL, which is headed by a function that she calls 'divide'. When it appears over the NP, the class denoted by it is partitioned, so it gets a count interpretation; when it does not appear, in the absence of the function 'divide', the reading is mass. The second projection, NuP, gives account of quantification *strictu sensu*. In the presence of CL, it quantifies over the partitions defined by 'divide'; in the absence of CL, this is not possible, so this accounts for why mass nouns do not admit number morphology.



These structures cannot be analysed if ‘kind’ is considered as a usual noun. Instead, if it is hosted in a projection that transforms sets of properties into singletons containing kinds, the semantic property of denoting a class even with a demonstrative can be understood. Zamparelli observes that an expression such as ‘that kind of tiger’ is, semantically, a proper subpart of the whole class of tigers, *Panthera tigris*. This author proposes that a relation of proper partitivity is expressed in the syntax of natural languages with a specific functional projection, that he calls Residue Phrase (RP). This projection is headed by an operator, phonologically expressed by *of*, that takes as a complement a NP denoting the complete set from which a subpart is selected. This is a complex NP which has a content noun, in this case *tiger*, and a noun that means ‘class’ or ‘kind’, in this case *kind*. As a first step of the derivation, the content noun is copied in the specifier of RP, probably for reasons of case licensing (ibidem: 17). This copy gives as a result the order ‘tiger of kind’, which does not correspond to the surface construction. However, if the whole NP, with the noun ‘kind’, is copied into a position over RP, the right order will be obtained. This position cannot be the specifier of SDP, because the construction is generic and expresses a class, as it has been proved. The position to which the whole NP is copied is the specifier of KiP. Finally, the head of RP is merged with the head of Ki, maybe because  $Ki^0$  was phonologically empty. Under normal conditions, only the copy that c-commands the others will be realised in the phonological interface. This gives as a result the real order ‘this kind of tiger’ (39).



In order to derive the opposite order, ‘a tiger of this kind’, Zamparelli proposes that the structure in (39) is selected by a higher RP. Over the RP there is a PDP, where the indefinite ‘a’ is hosted. In the specifier of the new RP the head of the KiP with its complement is copied; now, maintaining the same assumptions about which of the copies is erased, the surface structure obtained is ‘a tiger of this kind’.

In this dissertation, we will use Zamparelli’s system, but we would like to be more explicit than this author with respect to the features, interpretable and uninterpretable,

that are present in the functional projections that dominate the noun. In consequence, in the next sections we will discuss in detail the formal features that we propose that are contained in each head of the noun phrase.

#### 2.1.4. Formal features contained in each projection.

First, we would like to propose that little *n* contains an interpretable feature, [Ref], which tries to capture the semantic properties of nouns in the languages of the world. Baker (2003: 101-109) observes that a nominal expression, even if it is not referential, can be defined in Logical Form because it is an expression to which it is assigned an index of referentiality which can be used to judge whether two entities are the same or not. In the logical literature this characteristic is called ‘criterion of identity’. Geach (1962, apud Baker 2003: 101), observes that in the context ‘X is the same \_\_\_\_\_ as Y’, it only makes sense to fill the blank with words that belong to the category noun (40).

- (40)
- a. This is the same house as this.
  - b. \*This is the same run as this.
  - c. \*This is the same up as this.
  - d. \*This is the same clever as this.

Commenting on this pattern, Baker (2003) observes that these sentences are not merely ungrammatical – because ‘the same’ can only formally combine with nouns –, but also incoherent, because no possible meaning can be assigned to them. Baker reminds us that ungrammatical sentences may be assigned meaning in many cases; this is not one of those cases, and the reason is, according to Geach (1962), Gupta (1980) and Baker himself, because nouns are the only categories that are assigned an index of referentiality, which can be used as a criterion of identity<sup>48</sup>.

Baker proposes to explain this logical property through the assignment of a referential index to every noun in LF. This author conceives an index as an ordered pair of integers, as in  $X_{\{j,k\}}$ . This formula is read as ‘j is the same X as k’. The first integer in every pair is new for every use of a noun in the syntactic structure; the second member of every pair, though it can be shared with other nouns in the syntactic structure. Therefore, in Baker’s terms, (41a), where person shares the second integer with man, means (41b) in logical terms:

- (41)
- a. This person<sub>{j,k}</sub> is the man<sub>{h,k}</sub> that Judy met.
  - b. This person is the same man that Judy met.

We think that Baker’s term ‘index of referentiality’ may be somewhat misleading, because the criterion of identity is active even with nouns which do not have a semantic referent, that is, non specific nouns, such as the complement of a verb like *buscar*, ‘to look for’. Consider (42). (42a) is translated as (42b), just like (41), even though the

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<sup>48</sup> Different nouns have, from a logical perspective, different criteria of identity. This property explains why (ia) and (ib) are both true, but from their combination with (ic) it is not legitimate to infer (id) (apud Baker 2003: 103): the criterion of identity that determines that one block set is the same as another is not the same that determines whether one castle is the same as another.

- (i)
- a. This is a block set.
  - b. This is a castle.
  - c. This is the same block set as the one that was here this morning.
  - d. This is the same castle as the one that was here this morning.

nominal expression ‘a secretary’ is clearly non specific, as the use of the subjunctive proves it in Spanish. We provide an English version in (42c) and (42d).

- (42) a. Busco una secretaria<sub>{j,k}</sub> que sepa [SUBJUNCTIVE] inglés. Esta persona <sub>{h,k}</sub> debe tener conocimientos de informática.  
 b. La secretaria que sepa [SUBJUNCTIVE] inglés es la misma persona que debe tener conocimientos de informática.  
 c. I am looking for a secretary that knows English. This person must have a knowledge in computer science.  
 d. The secretary that knows English must be the same person that has a knowledge in computer science.

This situation is to be expected if the assignment of an index to the noun is independent of the functional projections that dominate it. As Zamparelli proves, referentiality, definiteness or deixis are notions that depend on the functional projections that host quantifiers and determiners, and are independent of nouns themselves. We take data such as (42) as evidence that the property that makes a noun receive an index in LF is a property of the head  $n^0$ , independently of the determiner used.

We propose to formalise this property of  $n^0$  as an interpretable feature contained in its feature matrix. This interpretable feature, which is kept in LF, is translated there as an index of referentiality, in Baker’s terms. Therefore, we will call this feature [Ref], for ‘referentiality’, in the sense just presented.

We propose that little  $n$  lacks interpretable phi feature of gender or number. These are contained, respectively, as we will see, in KiP and NumP. Some evidence that little  $n$  lacks this type of features can be found in the pattern of data in (43). A DP projection can be modified by a post-nominal adjective (43a); a NumP can also be modified by it (43b) –we know that it is a NumP because it is headed by a quantifier-; in contrast, a projection lower than NumP cannot be modified by a post-nominal adjective (43c).

- (43) a. Juan es el médico (inteligente).  
 lit. Juan is the doctor (intelligent)  
 b. Juan es un médico (inteligente).  
 lit. Juan is a doctor (intelligent).  
 c. Juan es médico (\*inteligente).  
 lit. Juan is doctor (\*intelligent).

This pattern is accounted for if the projection that houses *médico* in (43c) lacks the features that are necessary to trigger the adjective’s agreement. By implication, this means that nP, present in (43c) for it is a noun, lacks the features that the adjective requires, this is, gender and number interpretable features.

Another piece of evidence in favour of this proposal is found in the behaviour of some Spanish nominalising suffixes, such as *-ero* / *-era*, agentive ‘-er’ in English. This suffix, the spell out of little  $n$ , has the same syntactic and semantic behaviour in the two versions presented, one masculine and the other feminine, with the crucial difference that the gender changes. If we assume that little  $n$  has an inherent gender feature, we would be forced to assume that there are two suffixes which are almost synonyms, only differentiated by the gender specification. Let us remember that the matrixes of morphosyntactic features cannot be decomposed, so they act as atomic units in syntax. In contrast, if, as we propose, the gender feature is not contained in little  $n$ , but in one of

the functional heads that dominate it, the gender variation of suffixes such as *-ero* / *-era* is obtained through combination of functional heads. A similar reasoning can be done with the number feature, for most of them can manifest themselves in singular and in plural, a fact which should not force us to multiply each suffix by two.

In the next two sections we will address the morphological specification of gender and number in Spanish.

#### 2.1.4.1. Gender.

Let us now consider the projection *KiP*. We propose that *Ki*<sup>o</sup> provides an interpretable feature, [Gen], that semantically acts as a function that takes a set of properties, which is the denotation of the projection little *n*, and turns it into a kind. The morphological manifestation of this operation is gender. Gender, in a language like Spanish, provides the information associated to the declensional class of the noun, and is generally realised phonologically as a desinence, called Word Marker (WM) in Harris (1991).

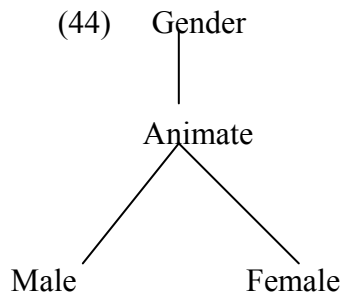
We propose that the gender feature of nouns, [Gen], is contained in *Ki*<sup>o</sup>, for gender assignment is associated with the ascription of the noun to a certain kind.

It is plausible to think that *Ki*<sup>o</sup> contains also other features which affect the gender information of a noun. Candidates for being such type of features are those notions that have proved to play a role in the particular gender assignment of nouns throughout the languages of the world. One conceivable candidate for this role is the notion of animacy.

Our proposal is that, as a feature, Gender is a mother node from where there may be at least one dependent feature, [animate]. The presence of the feature [animate], whose prototypical semantic interpretation is a human reading, will imply, then, the presence of the projection that hosts the feature Gender.

There is plenty of evidence that shows that the feature [animate] is related to gender assignment. Corbett (1991: 8-20) observes that most gender systems that use semantic criteria classify their nouns into classes following a basic distinction between inanimate and animate, or human and non human –which is its prototypical manifestation-. Corbett observes this property in a wide range of languages, among them Zande, Ket, Ojibwa, Lak -and other thirty five Caucasian languages-, Tamil, Kannada, Telugu, Kolami, Ollami, Parji, Diyari and Dizi.

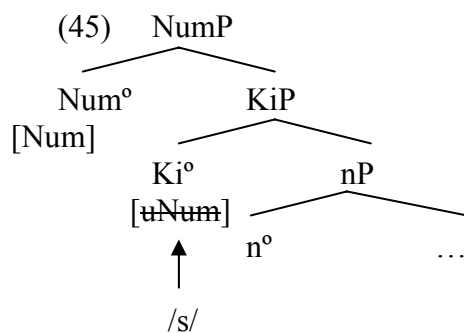
In Spanish, this feature also has a clear morphological role with respect to gender. Let us note that gender distinctions between male and female actually exist only in the case of animate nouns, such as *panadero*, ‘baker’, and *perro*, ‘dog’. In inanimate nouns, such as *pared*, ‘wall’, or *ventana*, ‘window’, there are no gender distinction between masculine and feminine, and class assignment is completely arbitrary, so it seems to be idiosyncratic information which is inserted together with the Vocabulary Item. The motivated character that male / female have in the case of animate nouns is explained by a tree structure such as the one in (44), because a feature such as male / female presupposes the presence of a feature such as animate, on which it depends. Considering these data in such a wide range of languages, the correct generalisation seems to be that there is a basic inanimate / animate distinction active in most gender systems, including English and Spanish. Male and female is a morphological distinction that is applied to animate nouns, but never properly to inanimate nouns. This suggests that the semantic feature [animate] is contained in Gender and makes it possible a contrast between male and female. We will express this relation of implication as node dependency (Harley & Ritter 2002) (44).



If the structure is the same as in (44), it is explained that [animate] is located in the bundle of features responsible for the different noun classes<sup>49</sup>.

#### 2.4.1.2. Number.

We propose that  $Ki^{\circ}$  also contains an uninterpretable feature of number, [uNum], which implies that this head will have to be associated with NumP, which contains [iNum]. The spell out of the checking of [uNum] is number morphology, as for example, in Spanish, the Vocabulary Item /-s/. That is, we propose that the plural marker in Spanish is spelled out in  $Ki^{\circ}$ , as a result of the agreement of this head with NumP, and not in Num $^{\circ}$ , as could be thought at first.



As we already said (cfr. footnote 29 in this chapter), some proposals present a split NumP: the first projection produces the difference between mass and count nouns; the second one, which dominates the other, quantifies the entity defined by the lower head (Borer 2004). As the goal of our dissertation is not to analyse the number specification of nouns, we will not discuss this proposal and we will keep the simpler analysis by Ritter (1991).

Some evidence in favour that number is spelled out in  $Ki^{\circ}$  and not in Num $^{\circ}$  can be found in certain cases where the gender of a non-animated noun is altered by a different number value. This situation is, at first blush, unexpected, but it can be explained if the number morpheme is spelled out in the head that contains the information about gender. The data belongs to the Asturian dialect of the Lena and are taken from Corbett (2000: 124), who quotes Hualde (1992: 108) as his source:

<sup>49</sup> There is also plenty of evidence that [animate] is a feature which is contained in the syntax and influences many processes. As it is well-known, in some languages of the world, such as Classical Arabic, a non animate noun does not trigger complete agreement, while an animate noun forces agreement in person and number (Mondloch 1978: 42, apud Yamamoto 1999: 42-43, for the case of Quiché). Animacy is also related with a special accusative case in some other languages of the world, among them Spanish (cfr. for example, Comrie 1989: 188-189, Lyons 1968: 355). Word order is also affected by animacy (Leech, Francis and Xu: 1994 for the case of English, Hawkinson & Hyman 1974: 149 for the African language Shona, Suárez 1983: 97-98 for Tlapenec or Hale 1973: 302 for Navajo, among many others).

- (46)
- |                   |      |           |
|-------------------|------|-----------|
| a. la maéra       | tába | sék-o     |
| The wood [mass]   | was  | dry-masc. |
| b. la maéra       | tába | sek-a     |
| The woord [count] | was  | dry-fem.  |

In this dialect, the same noun has two genders, as agreement shows: when it is a count noun, it triggers feminine agreement; when it is a mass noun, the adjective agrees in a different form, different also from the masculine agreement –which would be *seku*-. What is essential here is that a change in the number value of a noun results in a change in its gender agreement.

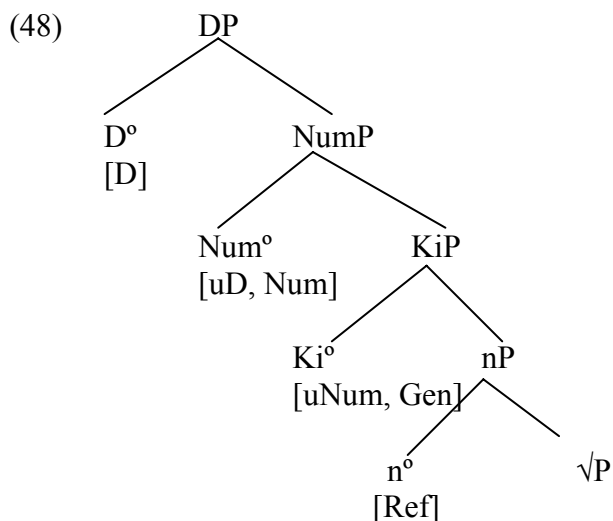
On the other hand, in the same dialect there are some nouns that have three number forms, one for the plural (47a), another for the singular (47b) and a last one for the mass number (47c). Let us observe that the desinence –which, as is known, correlates with the gender- changes in the two last forms. The data is taken from Corbett (2000: 124), who quotes Neira (1955, 1982) as his source.

- (47)
- a. pelos (*hair*, plural)
  - b. pilu (*pelo*, singular, as in ‘to pull one hair’)
  - c. pelo (*pelo*, mass, as in ‘to have blonde hair’)

This data belongs to Asturian, but in standard Spanish there are some cases – although rare- whose gender is different in correlation with a difference in number. There are some cases where it is possible to trace a mass meaning in the feminine and a count reading in the masculine. This is the case of (*la*) *leña*, ‘firewood’, vs. (*el*) *leño*, ‘a piece of firewood’. Even though the historical origin of the mass feminine is well attested –an old Latin plural neuter in –a which is reinterpreted in Romance as a feminine when neuter gender disappears- the speaker is not aware of this origin today, and in fact this distinction is non-systematic. There is, thus, some evidence that number is morphologically expressed in the head where gender information is contained.

Going back to the tree diagram, we propose that the projection that selects KiP, NumP, contains an interpretable feature [Num], which checks the uninterpretable feature of Ki°. In addition, we assume that Num° also contains an uninterpretable D feature, [uD], that forces combination with a D projection, which trivially contains the feature [D].

In synthesis, the feature structure we propose for the noun phrase is the following:



The presence in Ki° of gender features which are spelled out motivates that in Spanish a noun manifests itself morphologically in Ki°; we propose that in languages without an overt gender marking, as English, the noun may manifest itself in *n*°. This proposal will have consequences for the relative ordering of relational adjectives and nouns (cfr. chapter three, section 4.2.).

## 2.2. Adjectives.

In this section we will discuss the functional projections that dominate little *a* and determine part of its syntactic behaviour.

### 2.2.1. The RP and the predicative relationship.

In this dissertation, we will assume the proposal of Hale & Keyser<sup>50</sup> (cfr. 1993, 1998), because it is not an *ad hoc* theory of adjectives, but is integrated in a complete

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<sup>50</sup> We are aware that the syntactic projection of the category ‘adjective’ is one major point of disagreement between different theories about the noun phrase and its modifiers. Apart from Hale & Keyser’s theory, there have been at least four other characterisations of adjectives, which we will not follow for different reasons. They have been considered adjuncts, specifiers, heads and reduced clauses. The traditional characterisation of the position of the adjective in generative grammar comes from Jackendoff (1977). This author proposes that adjectives are categories freely generated as adjuncts to the noun. The main problem with this theory is that the proposal doesn’t account for the positional restrictions between adjectives of different classes, first identified by Sproat and Shih (1988, in ia). Note that Spanish follows the mirror reflect of the English order (ib).

- (i) Quality < Size < Shape / Colour < Provenance
  - a. a beautiful big {red / round} Italian carpet.
  - b. Una alfombra italiana {roja / redonda} enorme espléndida

If adjectives are adjuncts, we cannot predict such clear sequential restrictions. Moreover, this description of the class of adjectives does not capture the intuition that adjectives, like verbs, are predicates that need a subject to which they assign a theta-role.

The second possibility is to analyse adjectives as specifiers. Cinque (1999) proposes that adverbs are specifiers of functional projections in different layers of the clausal structure; this theory can be adopted in the nominal projections, in which case adjectives would be considered specifiers of functional projections to be found between DP and NP. This could in principle give account of the sequential restrictions identified by Sproat and Shih, because each functional projection would select a certain set of features, but it has many other problems.

First of all, it would be redundant to propose the existence of different functional projections that would house lexically different adjectives. Note that each adjective is, lexically, a colour, size, quality, shape or provenance adjective; it is not the case that the same adjective can be understood as a colour or quality adjective depending on the position, as happens with some adverbs that can be understood as subject-oriented or manner-oriented depending on the syntactic projection to which it is attached. Cinque’s theory about adverbs cannot be easily extended to adjectives because their behaviour is different at least in this respect. We will not discuss the theoretical implications of Cinque’s proposal from the perspective of the proliferation of functional categories that it produces.

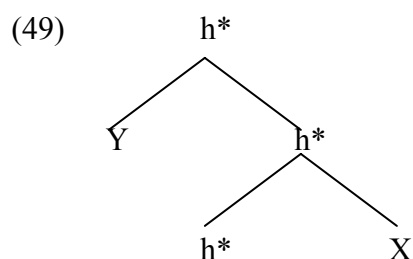
The third possibility is to consider that adjectives are heads. This proposal was presented in Abney (1986), and consists of analysing the adjective as one of the extended projections of the noun, as a category that dominates and selects the noun (ii).

- (ii) [AP [A° [NP ...]]]

There are both theoretical and empirical reasons not to accept this structure in the case of Spanish postnominal adjectives, but we will delay its exposition until later on in this chapter.

The fourth analysis that we would like to consider is Kayne’s (1994) proposal that the adjective is contained in a reduced predicative clause, together with a CP. This is also Demonte’s (1999) analysis of (postnominal) adjectives in Spanish.

theory about the projection of every lexical category, which makes it theoretically more coherent and empirically easier to confront with negative evidence. As we saw in 1.2.4., these authors propose that adjectives are predicative categories, just like verbs are predicative categories. Unlike verbs, however, their lack of a complement forces them to combine with another head, as their complement, to get the subject that they need to satisfy their argumental requisites (49).



Now we will formalise this argumental structure in the system of DM, with roots and functional projections whose matrixes of features determine the behaviour of the category in the syntax.

Following the basic principles adopted in this work, we will propose the existence of a head little *a*, which categorises as an adjective any root that it selects. We will define the feature matrix of little *a* as in (50).

(50) [Attr]

[Attr], which stands for Attributive, is an interpretable feature, therefore kept in Logical Form, which is interpreted on this interface level as a relationship of predication between a predicate and a subject. The feature Attr, then, makes an adjective a predicate, and forces it to be associated thematically with a subject in LF. We will discuss the feature Attr in more detail later on.

The problem is that, by hypothesis, only specifiers can be interpreted as subjects, and the head little *a* cannot select a specifier by itself.

This forces little *a* to combine with a relational head, *R*, which corresponds to *h\** in the diagram in (49). The head *R*<sup>o</sup> combines with little *a*, then, providing a position for the specifier that little *a* needs. The features that we propose that are included in *R*<sup>o</sup> are the following (51):

(51) [u phi, uG, ρ]

Let us discuss these features one by one. With [u phi] we represent a complete set of uninterpretable nominal features, with gender and number. [u phi], then, can be represented also as [uGen, uNum]. These nominal features must be checked, during the syntactic derivation, through agreement with a category that contains their interpretable

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(iii) [NP N<sub>i</sub><sup>o</sup> [CP C<sup>o</sup> [MC [PRO<sub>i</sub>] AP]]]

There are two properties of this analysis that distinguish it from the other three and that produce, in our opinion, a deeper insight of the category, and it is that it treats adjectives as clearly predicative categories, accounting for the intuition that adjectives need to have a subject, just like verbs, and that they hold an argumental relationship with them. The main problem with this proposal is that the CP actually never materialises in a language like Spanish, so there is no independent coverage for the proposal that this functional projection dominates the adjectival structure.



version, obviously a fully projected noun phrase. The presence of the set of features [u phi] explains that, in Spanish, adjectives agree with nouns.

[uG] is an uninterpretable feature for degree. This second feature is motivated by the fact that adjectives are predicates that are inherently graduable and need to be associated with a degree in order to be fully interpretable. Although this is a highly complex matter (Kamp 1975, Cresswell 1976, Kennedy 1999, Zwarts 1992, among many others; cfr. *infra* 1.3.), suffice it to say for the moment that to be able to assign a truth value to a proposition that contains an adjective, it is necessary first to measure to what extent the property which it denotes is held by the subject of predication and compare it with a standard value that is actualised through contextual means. Every adjective is, then, graded, because the property denoted always must be assigned a value to determine its truth or falseness. To give a simple example, in the sentence (52), to determine if the proposition is true or false, there are two requirements that have to be met: first, the standard value that the property of being tall displays in that context must be fixed - tallness requirements won't be the same in a context of basketball players as in a context of kindergarden students-; then, that standard value must be compared with the value that the property of being tall has relative to Maximus. If the value of tallness that Maximus has is bigger or equal to the standard value of tallness in the context, the truth value of the sentence in (52) is 1 (true); if it is smaller, the truth value is 0 (false). Values of properties are more commonly referred to as 'degrees'.

(52) Maximus is tall.

The interpretable feature [p] is the last feature contained in  $R^0$ . This feature is kept in LF, where it is interpreted as any kind of relationship between the two arguments of the head. We propose that any relational head contains this feature, whose specific interpretation depends on the context where it appears (cfr. Downing 1977).

Now we will consider in which way the combination of the heads  $R^0$  and little *a* results in the structure of subject and predication. Let us consider first in more detail the feature [Attr]. We adopt this feature from Spencer (1999). In the theory of this author, 'Attribution' is a category role exclusive to adjectives. This is the role that forces the adjective to be predicated from a subject. Moreover, the category of the subject must be a noun, for Attribution must be identified with a Referential role, which is only contained in nouns, to give as a result the predication structure. As can be seen, we have translated the category role proposed by Spencer as an interpretable feature, as we did with the feature [Ref] in the case of the noun.

The uninterpretable features must be checked and erased, in order to prevent them entering the interfaces. The two features [uGen] and [uNum] actually determine the category with which the adjective must combine in the syntax, because an uninterpretable feature must be checked with an interpretable feature of its same type.

As for the interpretable feature, they do not trigger operations in the narrow syntax, for there is nothing wrong with an interpretable feature entering the interfaces. What are at stake here are the operations of the semantic interface, because interpretable features are read in this level. At LF, predication relations between a subject and its predicate must be defined.

Therefore, the combination of  $R^0$  and little *a* imply operations in the narrow syntax and in LF.

The [u phi] bundle of features contained in  $R^0$  can only be checked with a matrix of features from the same kind, but in the interpretable version, namely [i phi]. As we have already shown, the only category that contains this set of features in its matrix is a

complete fully projected nominal phrase. A nominal projection will be merged, then, in the specifier of  $R^\circ$ . When the noun and the adjective combine in syntax, then, they will enter into a checking relationship with [uGen] and [uNum]. Checking implies first to assigning a value to the uninterpretable feature, and, secondly, to erase it. These operations are morphologically manifested as agreement.

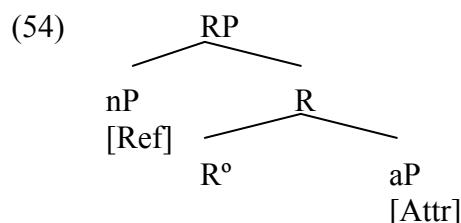
For the structure to be legitimate, the interpretable feature [Attr] has to be associated with a [Ref] feature, in such a way that the relationship is interpreted as a subject-predicate relationship. An LF operation takes place without further operations that change the structure, but only through the interpretation of the configurations that have resulted from the syntactic operations in the computational system. We propose that in Spanish the relation of agreement between two sets of phi features is interpreted as a thematic relation.

We propose that this thematic relationship is expressed in the LF interface through the identification of the feature [Attr] of the adjective with the [Ref] feature of the noun. Following Spencer (1999), we will formalise thematic identification with an asterisc over the feature, as in (53).

$$(53) \quad [\text{Attr}^*] \dots [\text{Ref}^*]$$

The combination of a fully projected noun phrase with RP satisfies the agreement requisites of  $R^\circ$ , as well as the argumental structure of the adjective. Postsyntactically, there is a Morphological Merger operation between the head  $R^\circ$  and  $a^\circ$ , which results in one single constituent<sup>51</sup>.

Derivationally, the structure that we propose is the following. First,  $R^\circ$  merges with aP, which it takes as its complement, and then selects nP as its specifier (54).

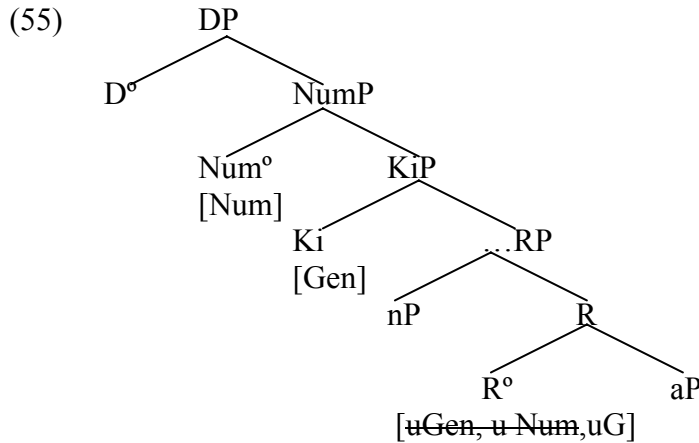


This operation accounts for the argument structure of the adjective, and makes predication possible in LF, but it does not check the uninterpretable features contained in  $R^\circ$ . Due to this, RP merges with the projections KiP, NumP and DP, which contain the phi features necessary to check some of its uninterpretable features.

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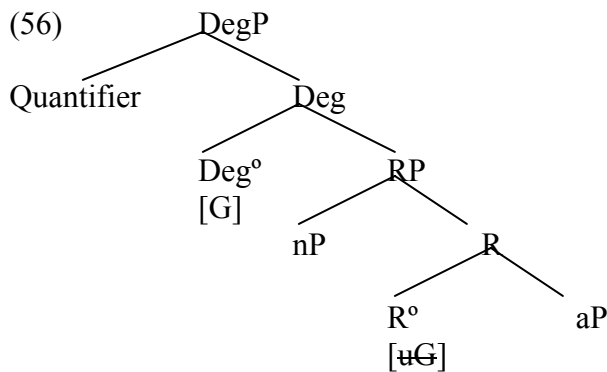
<sup>51</sup> In some other languages, such as Welsh, the two heads implied in the process may be spelled out distinctly, and adjectives may manifest themselves phonologically with overt prepositions:

- (i) Mae Tom yn hapus  
Is.3<sup>rd</sup>.sg. Tom in happy, *Tom is happy*
- (ii) Mae-r ferch yn garedig  
Is.3<sup>rd</sup>.sg.-the.fem girl in kind, *The girl is kind*



### 2.2.2. The DegP.

In diagram (55) we did not represent the existence of a syntactic projection that checks the degree feature contained in  $R^\circ$ ,  $[uG]$ . We have not considered yet the implications of the feature  $[uG]$  being present in  $R^\circ$ . As this feature is uninterpretable, it must be checked and erased. This forces the merging of a head that contains  $[iG]$ ; in other words, this forces the adjective to combine with a projection that is able to express degree. This projection is DegP (cfr. Corver 1997) which assigns a value to the property denoted by the adjective. The proposal states that, in semantic terms, every adjective has a referential open degree position that has to be bound by an operator, in an instance of thematic discharge through theta-identification. This operator is contained in DegP. We will not follow Corver, however, in its proposal that degree morphemes, such as superlative *-ísim*, are the spell out of the head  $Deg^\circ$ ; on the contrary, we will argue that there morphemes are the spell out if the feature  $[uG]$  contained in  $R^\circ$  when it is checked. We assume, however, that the modifiers of  $Deg^\circ$ , such as measure phrases and adverbial quantifiers, are specifiers of DegP (56).



Let us present now the evidence we have to claim that Spanish *-ísim-* is spelled out in  $R^\circ$ , as the result of the checking of  $[uG]$ , and not in  $Deg^\circ$ . Let us observe that the relative ordering between the degree and the agreement morpheme, when they appear in the same adjective, is the following (57):

- (57)    a. clar-            ísim-            as  
             adjective       SUP            AGR

That is, agreement is always external to the degree morpheme. In accordance with the Mirror Principle (cfr. chapter one, 1.2.2.), this relative ordering between the

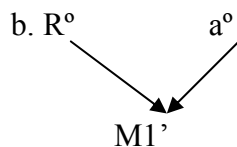
morphemes means that the head that houses the degree morpheme cannot c-command the head that houses agreement. There are reasons to think that agreement is contained in the head that makes predication possible,  $R^0$ , so the degree morpheme cannot be spelled out over  $R^0$ . We propose that  $R^0$  fissions in order to produce one morphological position of exponence to spell out [uG] with a value and another to spell out the agreement morphemes.

Of course, it would be technically possible to assume that the degree morpheme is spelled out in  $Deg^0$ , agreement in  $R^0$ , and then a template is applied that stipulates the surface order of morphemes. Nonetheless, there is no independent evidence to argue for this proposal –and in our mind it is not easy to find it-, so we believe that there is no reason to propose such a template and that morpheme ordering must be interpreted until its last consequences.

Therefore, following Corver (1997), we propose that degree morphemes are spelled out in the head position, which makes it possible that they attach to their adjectives, but, unlike this author, we argue that –at least in Spanish- the degree morpheme is not spelled out in  $Deg^0$ , but in  $R^0$ , and therefore the Spanish adjective does not rise to  $Deg^0$  systematically.

It is well-known that sometimes adjectives express they degree as a syncretic form, as in *mejor*, ‘better’, *peor*, ‘worse’, *mayor*, ‘bigger’, *máximo*, ‘biggest’, etc... This implies that in morphology there is a possible fusion process that fuses together  $R^0$  and  $a^0$  when [uG] has a particular value assigned, comparative or superlative. This process is triggered by specific Vocabulary Items. We represent the assignment of value to [uG] with the symbol ‘v’.

(58) a. Fusion ( $R^0[vG]$ ,  $a^0$ ) =  $M1'$



Now we will consider in detail the possibility that degree must be expressed with a different syntactic head, as has been proposed in Abney (1987), Corver (1991, 1997) and Zwarts (1992), among others. Evidence in favour of this head comes from the following phenomena (Corver 1997):

A. LEFT BRANCH EXTRACTION. Moving a degree element to the specifier of CP is ungrammatical, as (59) shows for Dutch:

(59) \*Hoe<sub>i</sub> is Jan [<sub>t<sub>i</sub></sub> verslaafd slaappillen]?  
 \*How is Jan addicted to sleeping pills?

This is explained if degree elements are heads, because the movement of a head to a specifier violates the requisite of structure preservation, due to the fact that only maximal projections can be specifiers. (Corver 1997: 296-297).

In Spanish, the data are the same:

(60) a. \*¿[Cuán]<sub>i</sub> es Juan <sub>t<sub>i</sub></sub> alto?  
 Lit. How is Juan <sub>t<sub>i</sub></sub> tall?  
 b. ¿[Cuán alto]<sub>i</sub> es Juan <sub>t<sub>i</sub></sub>?

lit. How tall is Juan?

B. EXTRACTION FROM THE SPECIFIER OF DegP. It is possible to move the complex formed by the degree phrase and the adjective or only the measure phrase associated with the degree, but never the set formed by the measure phrase and the degree element. (Corver 1997: 298-299, for Dutch).

- (61) a. [Hoeveel cm. te klein]<sub>i</sub> denk je dat ze  $t_i$  was?  
How many cm. too short think you that she was?  
b. \* [Hoeveel cm. te]<sub>i</sub> denk je dat ze  $t_i$  klein was?  
c. [Hoeveel cm]<sub>i</sub> denk je dat ze  $t_i$  te klein was?

This can be explained if there is a DegP whose specifier houses measure phrases. (61a) and (61c) are grammatical because what is moved are constituents, respectively, the whole DegP and the measure phrase that is in the specifier of DegP; (61b) is ungrammatical because its movement involves a non constituent: the sum of the head Deg° and the specifier of DegP, without the complement aP.

Again, the Spanish data point to the same conclusion. The sentences in (62) are the translation of the Dutch sentences in (61).

- (62) a. ¿[Cuántos centímetros más bajo de la cuenta]<sub>i</sub> crees que es Juan  $t_i$ ?  
b. \*¿[Cuántos centímetros más]<sub>i</sub> crees que es Juan  $t_i$  más bajo de la cuenta?  
c. ¿[Cuántos centímetros]<sub>i</sub> crees que es Juan  $t_i$  más bajo de la cuenta?

C. FREE ADVERBS. An adverb such as Dutch ‘ongeveer’, ‘approximately’, can be generated either to the right or to the left of the category to which it is attached. Therefore (63):

- (63) [(ongeveer) waar (ongeveer)] heb je dat boek gevonden?  
Approximately where have you that book found?  
Approximately where have found that book?

However, when they are attached to degree elements they can only appear to the left.

- (64) Ongeveer hoe (\*ongeveer) lang is Bill?  
Approximately how tall is Bill?

According to Corver (1997), this can be explained if DegP is a functional projection that selects a particular category; according to this view, the presence of ‘ongeveer’ attached to the right interrupts the selection of the aP.

This data also has a parallel structure in Spanish. Considering that the adverbial locution ‘más o menos’ can be an equivalent of Dutch ‘ongeveer’, it cannot appear to the left of a degree element, but may appear to the left of another interrogative:

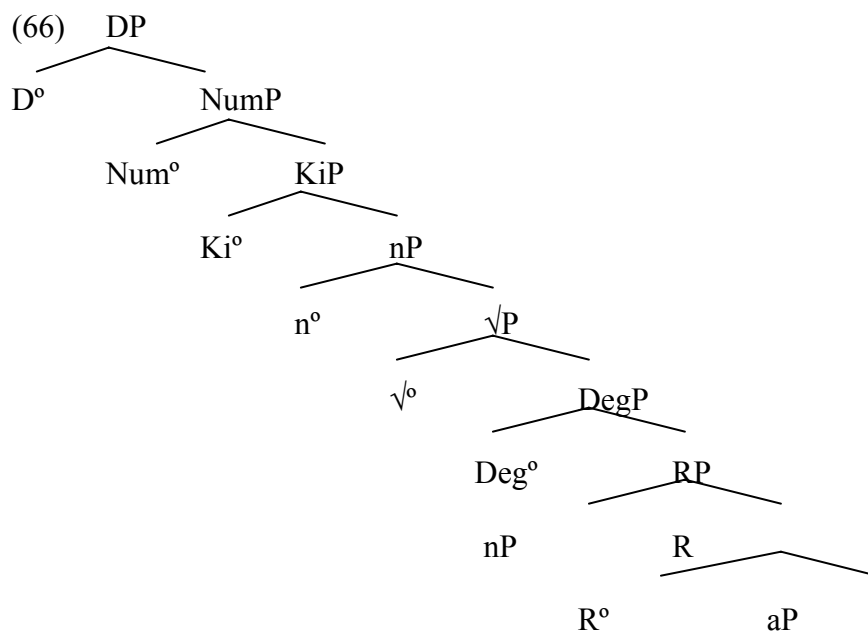
- (65) a. ¿[(más o menos) cuándo (más o menos)] piensas venir?  
[(approximately) when (approximately)] do you expect to come?  
b. ¿[(más o menos) cuán (\*más o menos) alto] es Juan?  
[(approximately) how (\*approximately) tall] is Juan?

Another piece of evidence that Corver (1997: 295) offers has to do with the fact that degree morphemes attach morphologically to the adjective. As we have said, this does not argue by itself for a DegP, but for the fact that the morpheme is spelled out in a head which c-commands the adjective head. Therefore, the status of this piece of evidence is not the same as the other three phenomena discussed.

We have presented the syntactic evidence that backs the proposal of a syntactic degree head<sup>52</sup>. In the next section we will address the problem of some adjectives that do not seem to be combinable with a DegP because they do not seem to be graduable. However, we would like to point out before a peculiarity of the proposed structure.

### 2.2.3. The combination of the predicative structure with the functional projections.

When we combine the structure in (55) with the one in (56) and with a noun phrase that acts as an argument, we obtain the following result:



Let us observe that in this structure, there are two nP nodes, for we have one inside the predicative structure and another one dominating the DegP. The first one plays the role of being the subject of predication of the adjective, and the second one combines with the functional projections that license it as an argument and check the uninterpretable features of the RP.

This could be considered a flaw of our analysis. We will show, however, that the structure does not produce problems in the interfaces, and, later on, we will provide evidence in favour of the existence of two nP's.

Let us observe, in the first place, that the structure guarantees that the two nP's will be interpreted as the same element in LF. Both nP's are c-commanded by the same set of phi features, which are contained in Ki° and Num°. Following the principle that we have proposed for the chains of suffixes that belong to the same word, which states that those functional heads that share their phi features identify their interpretable features in LF (cfr. chapter first, 2.2.1.1.), both nP's will be interpreted as one single entity.

<sup>52</sup> Corver (1997) proposes a syntactic representation where there are two different projections for degree, which are parallel, in some ways, to DP and NumP in the noun domain. We will not discuss Corver's system, for it is irrelevant given our immediate purposes.

The structure also guarantees that both nP's will not be spelled out at the same time, for, as one of them c-commands the other, the structurally lower nP will be elided.<sup>53</sup> We assume a principle such as the one in (67), which we consider intuitive and is implicit in the reasonings about the spell out of copies in the PF interface (cfr., for instance, Zamparelli 1998, in section 2.1.3. of this chapter), to license the elision of certain constituents.

- (67) Given two identical elements, only the one that c-commands the other is spelled out.

It does not seem, then, that the proposed structure causes more trouble to the interfaces LF and PF than any other structure with ellipsis. However, it is not enough to prove that the structure does not cause trouble, but also that there is evidence that makes the structure preferable to others.

The piece of evidence that would argue for this structure would be a case where the entity which is the subject of the property denoted by the adjective is not exactly the same as the one that plays the role of being the argument in the sentence; this situation would argue for two different nP's which are identified in LF. Let us note that the fact that the two nP's identify their [Ref] features in LF only implies that they are a single referential entity, but not that their denotation has to be identical. Baker (2003:103) notes that different nouns can have different criteria of identity (cfr. footnote 32 in this same chapter). We believe that the following cases of adjectives, widely discussed in the literature (Higginbotham 1989, Larson 1995, McConnell-Ginet 1982, Siegel 1976), illustrate the situation that we are describing (68):

- (68) a. Visité a una bailarina maravillosa.  
lit. I visited a dancer wonderful.  
b. Visité a un médico bueno.  
lit. I visited a doctor good.  
c. Visité a un cantautor triste.  
lit. I visited a folk-singer sad.

These adjectives allow a reading where they predicate their property from the noun which they modify, which is a noun that designates a job, in such a way that the person referred with the DP in (68b), for instance, may not be good as a person, but only as a doctor. This is known as the subsecutive reading. The one that is interesting to us is the intersective reading, where the adjective is not predicated from the name of the job, but from the person itself. In this reading, the interpretation of (68b) is that the referent is considered good as a human being –*a good person* –, whereas he or she can be a bad doctor. Crucially, in this second reading, the adjective is not predicated from the noun that plays the role of being the argument inside the sentence. Our structure predicts that in grammar there is room for cases such as these.

The cases illustrated in (68) have been explained with exclusively semantic criteria, partly independent from a syntactic structure. However, we expect that, if the right

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<sup>53</sup> We will not revise here the large literature about ellipsis in a syntactic framework (Fiengo & May 1994, Lobeck 1995, Merchant 2001) or in a semantic framework (Dalrymple et alii 1991, Gardent 1999, Egg & Erk 2002). Let us note, however, that the proposed configuration meets the requisites of identification through agreement that Lobeck (1995: 30-36) proposed for nominal ellipsis, for the elided nP is housed in the specifier of a category that agrees with the functional projections that provide the noun with phi features.

explanation is syntactic –even if there are other factors that intervene-, a change in the structure will make the effect disappear. This is indeed correct. Let us observe that if the adjective appears in pre-nominal position, the ambiguity disappears and the only reading available is the substantive one, that in which the adjective is predicated from the job, expressed by the noun which plays the role of argument:

- (69) a. Visité a una maravillosa bailarina.  
lit. I visited a wonderful dancer.  
b. Visité a un buen médico.  
lit. I visited a good doctor.  
c. Visité a un triste cantautor.  
lit. I visited a sad folk-singer.

The effect is restricted to several adjectives. The ambiguity only appears with adjectives such as *malo*, ‘bad’ and *gracioso*, ‘funny’, (*un actor gracioso*, ‘a funny actor’), but not with others, such as *blanco*, ‘white’, (*un médico blanco*, ‘a white doctor’) or *guapo*, ‘handsome’, (*un actor guapo*, ‘a handsome actor’), where only the intersective reading is available.

To conclude, we believe that the structure represented in (66) can be proposed on solid grounds to account for a noun phrase with a post-nominal adjective.

#### 2.2.4. Classes of adjectives and gradability.

Forcefully, our proposal requires that we address the case of two classes of adjectives that, *prima facie*, are not gradable. These classes are:

- a) Some qualitative adjectives that express notions that, pragmatically, are not subject to gradation, such as *perfecto* or *ciego*.
- b) Relational adjectives, such as *Spanish*, *geometrical*, *atomic*, *aspectual*, *relational*...

It is worth noting that we are referring here to adjectives that can be in postnominal positions. These adjectives can be combined with a degree marker when they occupy the postnominal position and also when they are in the prenominal position, as (70) reflects<sup>54</sup>.

- (70) a. el chico muy pesado / el muy pesado chico  
Lit. the boy very boring / the very boring boy  
b. el hijo poco deseado / el poco deseado chico  
Lit. the son little desired / the little desired boy.  
c. la mujer bastante reticente / la bastante reticente mujer  
Lit. the woman quite reticent / the quite reticent woman.  
d. tu virtud tan conocida / tu tan conocida virtud  
Lit. your virtue so well-known / your so well-known virtue

<sup>54</sup> With some differences, though. For example, in prenominal position comparative adjectives cannot appear. Let us consider (i). While (ia) can be comparative and superlative, (ib) can only be superlative.

- (i) a. El chico más alto {que Pedro / de toda la clase}  
b. El más alto chico {\*que Pedro / de toda la clase}

We will not discuss here this difference, nor the rest of the properties of prenominal adjectives, which are a matter of their own.



As is well-known, there is a set of elements which have been considered adjectives in traditional grammars and which only appear in prenominal position. These elements can never be modified by degree adverbs or morphemes. Among them we find *presunto*, ‘alleged’, *supuesto*, ‘supposed’, and *seguro*, ‘sure’, which affect the modality of the statement, words such as *mero*, ‘mere’, which affect intensionality, and such as *mismo*, ‘same’, which affect identification. We will not refer to these elements in this dissertation (cfr. Demonte 1999b for an account). Let us note, however, that gradability is not the only adjectival property that these elements lack. They cannot occur in predicative position (71), and, semantically, they do not denote properties of the nouns they modify.

- (71) a. \*La idea es mera.  
Lit. the idea is mere.  
b. \*El culpable es presunto.  
Lit. the guilty is presumed.  
c. \*El culpable es supuesto.  
Lit. the guilty is alleged.  
d. \*El culpable es mismo.  
Lit. the guilty is same.  
e. #El culpable es puro.  
Lit. the guilty is pure.

We would like to suggest that these elements do not belong to the category of adjectives, given that they lack their main properties. One reason traditional grammar may have to call these elements adjectives is that, like them, they agree with the noun in gender and number. However, many determiners and quantifiers also have this property, so this is not reason enough to consider them adjectives. In addition, some of them can produce adverbs in *–mente*, ‘-ly’, as *meramente*, ‘merely’; however, we would like to point out that it is far from clear under which circumstances *–mente* suffixation is possible.

We will not refer, therefore, to the so-called prenominal adjectives here, as we consider them to be a matter for independent study.

We will address the case of postnominal adjectives that do not seem to be gradable.

First of all, consider the case of the adjectives that are qualitative<sup>55</sup> but in principle seem to avoid gradation. In (72) we offer some examples of these elements.

- (72) *vivo*, ‘alive’, *viudo*, ‘widower’, *soltero*, ‘bachelor’, *estéril*, ‘sterile’, *perfecto*, ‘perfect’, *infinito*, ‘infinite’, *completo*, ‘complete’, *fértil*, ‘fertile’, *solo*, ‘alone’, *único*, ‘unique’, *igual*, ‘equal’, *distinto*, ‘distinct’, *recto*, ‘straight’, *muerto*, ‘dead’, *curvo*, ‘curved’, *entero*, ‘entire’, *(in)visible*, ‘(in)visible’, *(in)divisible*, ‘(in)divisible’, *amorfo*,

<sup>55</sup> Even though we will make explicit our criteria to identify a relational adjective –vs. a qualitative adjective– in the next chapter (cfr. in particular section 1), we will advance now one criterion that may be used to determine that every adjective in the list (72) is qualitative. Bosque (2002) observes that two relational adjective in singular can refer to a noun in plural with a distributive reading, as in *los embajadores francés y español*, lit. ‘the ambassadors.pl. French.sg. and Spanish.sg.’, which is equivalent to *el embajador francés y el embajador español*, ‘the French ambassador and the Spanish ambassador’; in contrast, qualitative adjectives do not allow this reading (\**los embajadores alto y bajo*, lit. ‘the ambassadors.pl. tall.sg and small.sg.’). None of the adjectives in the list (72) shows the behaviour of a relational adjective in this respect.

‘amorphous’, *ignoto*, ‘unknown’, *redondo*, ‘round’, *total*, ‘total’, *absoluto*, ‘absolute’, *(in)dependiente*, ‘(in)dependent’, *bizco*, ‘cross-eyed’, *tuerto*, ‘one-eyed’, *ciego*, ‘blind’...

In this list there are some adjectives that come from truncated participles, such as *muerto*, *vivo* and *tuerto*; some others are derived from Spanish verbs, but have clear adjectival properties: *divisible*, *visible* and *dependiente*; the rest do not have any relation with a Spanish verb. They can all precede the noun that they modify, which constitutes evidence that they are qualitative adjectives.

We propose that what makes these adjectives not graduable is not any structural or formal property, but only the conceptual information associated with the root of the adjective. Usually, properties such as being deprived of life, being deprived of an eye, not having a wife, being complete, being the only one or being impossible to divide do not accept gradation, because, conceptually, they are a matter of ‘all or nothing’. However, we propose that the formal structure associated with the adjective allows gradation.

Pragmatics has access to conceptual semantics, so, in order to demonstrate that our explanation is correct, we must alter the pragmatic context and show that in a different context the adjective can be graded. When these adjectives are included in a cognitive context where the notion expressed can be considered from the right perspective, it can be graded.

Contexts in which it can be said that someone is only half dead or very dead can be easily imagined. It is necessary only to perform the pragmatic operation of coercion, and to reinterpret the concept expressed by *dead* in such a way that it metaphorically expresses the property of being exhausted or broken. Being single can also be conceived in a particular degree when it is interpreted not as the property of not having a wife, but as the property of behaving in a typical way which is considered, due to the conceptual information, characteristic of single people. The adjective ‘visible’ can also be graduated when it is not understood in its literal sense of not being perceptible through the sense of sight, but in the metaphoric sense of being understandable or evident for the mind. The same happens with *blind*.

In fact, most of these adjectives also allow for graduation in their literal sense when they are in comparative contexts. Let us consider the case of a doctor who has two patients, both of them with a severe optical illness. The doctor is comparing the remaining visual capacity of the two patients; in this context, it is possible to say (73).

- (73) Este paciente es más ciego que ese otro.  
This patient is more blind than that other one.

Even an adjective such as *perfecto* and *total* can be graduated in such a context. These actual texts show it.

(74)

Todos son felices, pero no todos son iguales. Un rígido sistema de castas, **más perfecto** aún que el de la India, separa a los Alfas, Betas, Gammas, Deltas y Épsilons

They are all happy, but they are not all equal. A rigid system of castes, **even more perfect** that the one in India, segregates the Alpha, Beta, Gamma, Delta and Epsilon.

Quizás el proyecto incluía la fabricación de un ejemplar **más perfecto** que los existentes hasta la fecha en el mercado.

Maybe the project included the making off of an individual **more perfect** than those who existed up to that time in the market.

Eduardo Mendoza, *La verdad sobre el caso Savolta*, 1975, pág. 412

¿Quién sostiene que la tiniebla es un estado absoluto? No estoy de acuerdo. Difícilmente existe tiniebla **más total** que ésta y sin embargo veo, adivino, invento [...]

Who maintains that the darkness is an absolute state? I don't agree. It is difficult to find a more total darkness than this one and however I see, I guess, I invent [...]

José Donoso, *Casa de Campo*, 1978, pág. 354

Finally, when these adjectives appear graduated, the speaker interprets them in a different way, associating them with a different conceptual meaning or interpreting them in a metaphorical sense, in an instance of coercion. Consider the interpretation of *único* as 'selected' in this text, and where it appears graduated, as an example of coercion.

(75)

María estaba convencida de que lo único esencial era quererse, lo único que al final vale la pena y resuelve toda singularidad en su mejor, **más único** acorde.

María was convinced that the only thing essential was to love herself, the only thing that in the end is worth the effort and resolves every singularity in its best, more unique chord.

Álvaro Pombo, *El metro de platino iridiado*, 1990, pág. 51

We believe that we have shown that these adjectives are not really examples counter to our proposal.

Relational adjectives are the second class of adjectives that disallow degree morphology; we will study them in detail in chapter three, so we will not address them now.

### 2.3. A semantic difference between the properties denoted by nouns and adjectives.

Both nouns and adjectives express properties, and, as such elements, can be used in syntactic contexts where they are used as predicates (cfr. chapter four). However, there is a difference between the properties when they are expressed by nouns and when they are expressed by adjectives. Consider the two sentences in (76).

- (76) a. Juan es [inteligente]<sub>a</sub>.  
Juan is intelligent.  
b. Juan es [médico]<sub>n</sub>.  
Lit. Juan is doctor (Juan is a doctor).

Let us consider in particular the assignment of a truth value to the two propositions in (76). (76b) must be either true or false; if, in the world considered in the particular

discourse context, there is an individual referred to by the constant *j* who is included in the set of the individuals from which it can be said that they are doctors, the sentence is true. If there is no individual referred to by *j* in that set, the sentence is false. One of the two truth values must be assigned to the sentence, forcefully.

However, (76a), out of context, is neither true nor false. To know if the constant *j* is included in the set defined by the predicate *intelligent*, we have to determine the standard of intelligence in the context of discourse. Juan will be considered intelligent or not depending on whether we are taking as a standard of intelligence a set of three-year old children, Nobel Prize winners or patients with Down's syndrome. This differs from the case of properties expressed by nouns. We determine if *j* is included in the set defined by the predicate *doctor* regardless of the other referents in discourse.

To our knowledge, the first scholar that gave a formal account of this difference between the properties expressed by the noun and those expressed by the adjective is Kamp (1975). This scholar observed that nouns are sharp predicates, that is, predicates that semantically act as functions that assign a truth value exhaustively to any constant in the discourse context. Adjectives, on the other hand, are vague predicates, because, out of a proper context, they do not assign truth value to any constant in the world. There would always be some set of constants whose truth value is undefined<sup>56</sup>.

We have observed that, to assign a truth value to every constant, that is, to determine if a proposition such as (76a) is true or false, it is necessary to determine in that particular context the referents to which the subject is compared. The set of referents that play this role are called 'the class of comparison'. What they do is give the standard value that, in that context, the adjective is going to have. Once this standard value has been fixed, the constants that have a value of the property which is less than the standard will be considered to be out of the set defined by the predicate. In other words, when the speaker decides if (76a) has to be evaluated with respect to Nobel Prize winners, little children or patients with cognitive handicaps, (76a) receives a truth value. Adjectives, expressing variable properties, always require a class of comparison, either explicit or implicit in the context.

We propose, then, the following semantic difference between the functional heads *n*<sup>o</sup> and *a*<sup>o</sup> (77).

- (77) The head *a*<sup>o</sup> denotes sets of properties of variable value (variable properties), and the head *n*<sup>o</sup> denotes sets of properties of fixed value (fixed properties).

Therefore, in the semantic interface, the concept expressed by the root dominated by a head *a*<sup>o</sup> will be interpreted as a set of variable properties, but if it is dominated by a head *n*<sup>o</sup> it will be interpreted as a set of fixed properties. We expect that some root-functional category combinations won't be possible by virtue of the impossibility of interpreting the concept denoted in the root in the manner forced by the functional projection.

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<sup>56</sup> Since Kamp (1975), many other scholars have addressed the problems that arise from the semantics of adjectives. Klein (1980, 1982) follows Kamp's (1975) analysis of considering adjectives functions from individuals to truth values (<*e*,*t*> in Montaguean semantics); Cresswell (1976), Bierwisch (1989) and Kennedy (1999) analyse adjectives as functions from individuals to degrees; Zwarts (1992) considers an adjective a predicate with an open variable which needs to be linked by a proper operator. We will not review these proposals here, for they agree in the fact that an adjective denotes in some way a set of values.

Specifically, we propose that a root that can combine with little *a* conceptually can express a notion that can be expressed – or must be expressed – through a scale. A scale denotes a set of values, instead of a single value. Semantically, the variable behaviour of adjectives with respect to the truth assignment is a result of the existence of different values that can be taken to determine which elements of the world are included in the set defined by the predicate. By contrast, nouns have only one value, which is used once and for all to distribute exhaustively the elements of the world inside or outside the set.

From this characterisation of nouns and adjectives, it follows a consequence that will be crucial in our analysis of conversion, presented in the next section. An adjective can be turned into a noun if one of the values of the set of values denoted by the scale is selected, that is, if the scale is fixed. In this way, the property is not variable anymore, but becomes fixed, and can assign a truth value to any referent in the world.

There is a correlation between the characteristics of the properties denoted by *a*<sup>o</sup> and *n*<sup>o</sup> and the characteristics of the projections that dominate them. As *a*<sup>o</sup> denotes variable properties, it is understandable that it combines with a head such as *Deg*<sup>o</sup>, that selects some values from a scale. At the same time, *a*<sup>o</sup> cannot be used to express referentiality, because it is not possible to assign an index of identity to a property which is variable, because from one class of comparison to the other the truth value may be different. On the other hand, *n*<sup>o</sup>, denoting fixed properties, can express referentiality, because there will be no variation in the truth assignment from one class of comparison to the other, and will not be combinable with *Deg*<sup>o</sup>, because there is no scale denoted.

With this semantic differentiation between adjectives and nouns we finish our characterisation of the two nominal categories. In the next pages, we will address the phenomenon of conversion from adjectives to nouns and we will show how the syntactic properties of nouns and adjectives can explain the properties of this morphological phenomenon.

### 3. A syntactic account of conversion.

In the literature, conversion has been considered a process through which a lexical item that belongs to a certain grammatical category is turned into another grammatical category without visible addition of any morpheme. Therefore, conversion can be characterised as change of the category specification of a lexical item without overt marking. Cases such as those in (78), where the same lexical item is used in different grammatical categories, are considered instances of conversion by every author<sup>57</sup>.

- (78) a. Dutch: [fout]<sub>N</sub>, de [foute]<sub>A</sub> tafel  
Lit. mistake, the wrong table  
b. English: [wrong]<sub>A</sub>, the [wrong]<sub>N</sub>, to [wrong]<sub>V</sub>  
[Don, Trommelen & Zonnenveld 2000: 943]  
c. Spanish: [compra]<sub>V</sub>, [compra]<sub>N</sub>

<sup>57</sup> Some other authors, among them Pena (1991), consider that conversion also includes those cases where the lexical item changes its subcategory, as, for example, when a mass noun becomes a countable noun (i).

- (i) a. el café  
coffee -mass noun-.  
b. un café  
one (cup of) coffee -countable noun-.

	Lit.	buy	shopping
d.	Spanish:	[joven] <sub>A</sub> ,	[joven] <sub>N</sub>
	Lit.	young	youngster

The first reference to conversion in the linguistic literature comes, as far as we know, from Sweet (1900). This author notes that many words change their category without overt marking: “The test of conversion is that the converted word adopts all the formal characteristics (inflection, etc...) of the part of speech it has been made into”. Let us illustrate this with a clear case of conversion, like the lexical item [compra] as noun and as verb. When this element appears as a word that belongs to the nominal category, it can trigger gender and number inflection and can play the role of argument in the sentence, as in *trajimos la compra*, ‘we brought the boughts’. On the other hand, when it realises as a verb, it can take only verbal inflection and plays the role of predicate, as in *compramos las cosas*, ‘we bought the shopping’. Marchand (1969: 359-390) also refers extensively to conversion, characterising the process in the same way as Sweet.

First of all, we will make explicit our criteria to differentiate adjective to noun conversion from noun ellipsis. In a second section, we will consider the existence of two different classes of conversion in Spanish. Thirdly, we will consider how conversion can be dealt with in a Distributed Morphology framework, paying particular attention to the questions that, to our mind, an analysis must explain. In fourth place, we will present our analysis in detail. In fifth place, we will present other analysis of conversion from different frameworks in order to show in which sense our analysis is preferable to them.

It is necessary to note that we are not going to address conversion from nouns or adjectives to verbs. This is due to several reasons. In the first place, every research has to select a well defined subset of the instances of the phenomenon that is being analysed. In this case, the natural choice is to select conversion from adjectives to nouns, which are the two categories that our dissertation addresses. Secondly, in the languages of the world, usually conversion from nouns or adjectives to verbs behaves more systematically (cfr. Clark & Clark 1979) than conversion from adjectives to nouns. It is legitimate to think that if it is possible to explain in a principled way the irregular case, it will be possible to extend that explanation to the more systematic cases. In any case, in chapter six, section 2.1.1., we make some reference to conversion cases which involve verbs. In this chapter, however, we will concentrate only on conversion from adjectives to nouns.

### 3.1.Criteria for identifying adjective to noun conversion.

In this section, we will make explicit our criteria to determine if an adjective that acts as a noun is actually a case of conversion or an instance of a noun phrase with ellipsis of the head noun. We reject semantic criteria such as the fact that the speaker may supply a generic noun, such as *persona*, ‘person’, or *cosa*, ‘thing’, as an implicit head noun which the adjective modifies, or the fact that the speaker may feel that the structure is synonym to a construction with any noun and the overt adjective as modifier. The well-known grammarian Bello (1847, §56 y 57) doesn’t establish this difference, because he considers the problem from an exclusively semantic perspective. He addresses all cases of adjectives in a nominal position with the comentary that

[...] sometimes, the noun which the adjective modifies is elided, as when we say ‘the rich’, presupposing ‘men’; ‘the neighbour’, presupposing ‘woman’. [...] [the adjective] seems to acquire the force of the tacit noun and it is said that it becomes nominalised.

We believe that semantic criteria are not precise enough, and instead we will follow two formal criteria. The first one is *un* apocopation and the second one is morphological gradability.

A. *UN, ALGÚN, NINGÚN* AND *CUALQUIER* APOCOPATION.

The sequence in (79) is ambiguous and can lead to two readings. In a first possible reading, it can be understood as a noun phrase with an elliptical head, that can be recovered through the formal context, and which is modified by an adjective, *gordo*, ‘fat’ (80a). In (80a), the elliptical head may be any noun that has been previously mentioned, provided that it triggers masculine agreement, and is interpreted as having the property of being fat. In a second reading, the head of the noun phrase is *gordo* itself, which now denotes an obligatorily human entity characterised by its physical size (80b).

- (79)    *ese gordo*  
           lit. this fat
- (80)    a. *ese nP [gordo]<sub>a</sub>*  
           lit. this fat one  
           b. *ese [gordo]<sub>n</sub>*  
           lit. this fat

The same ambiguity arises in any version of this same noun phrase when it is combined with the definite article *el*, ‘the’, a quantifier such as *dos*, ‘two’, another demonstrative, such as *este*, ‘this’, or the plural form of the indefinite article. However, when the noun phrase in (79) is combined with a determiner that has a possible apocopated form, with elision of the desinence, -such as *uno-un*, ‘a’, *cualquiera-cualquier*, ‘any’, *ninguno-ningún*, ‘none’, or *alguno-algún*, ‘some’-, the ambiguity disappears. The reason is that the apocopated form of these determiners cannot appear before an empty category such an elliptic head noun; in front of an empty noun, these determiners must show the desinence. Evidence of this comes from the pair in (81). In the first phrase (81a), whose head is the noun *caballo*, ‘horse’, apocope takes place. In the second phrase, where there must be an elided noun –for prepositional phrases do not combine with determiners- apocope is impossible (81b).

- (81)    a. {*un*(\*o), *ningún*(\*o), *cualquier*(\*a)} *caballo* de Luisa.  
           lit. {*an*(DES), *none*(DES), *any*(DES)} horse of Luisa.  
           b. {*un*\*(o), *ningun*\*(o), *cualquier*\*(a)} *e* de Luisa  
           lit. {*an*(DES), *none*(DES), *any*(DES)} *e* of Luisa

This contrast provides us with a criterion to determine if there is elision or not. The reading with an elided noun head is available only in those cases where the determiner is not apocopated (82a), while the reading where the adjective is now a noun is possible only with the apocopated determiner (82b).

- (82)    a. {*uno* / *cualquiera* / *alguno*} *nP [gordo]<sub>aP</sub>*  
           b. {*un* / *cualquier* / *algún*} *[gordo]<sub>nP</sub>*

Throughout this chapter, we will use the examples analysed in combination with one of these apocopated determiners in order to guarantee that we are considering nouns with no possible elision.

## B. MORPHOLOGICAL GRADATION WITH –ISIM–.

Our second criterion is the possible combination of the word with the superlative morpheme *–isim–*, ‘-est’<sup>58</sup>. Let us observe that parallel to the possibility of having apocopated morphemes, there is the possibility of having a superlative morpheme (83).

- (83) a. {uno / cualquiera / alguno} *nP* [gord-ísim-o]<sub>aP</sub>  
b. \*{un / cualquier / algún} [gord-ísim-o]<sub>nP</sub>

Adjectives are dominated by DegPs, which are responsible for the appearance of the degree morphemes and phrases. Nouns cannot combine with degree phrases, as we have already discussed. In consequence, when the word has been categorised as a noun, it will be unable to combine with degree morphology<sup>59</sup>.

### 3.2. Two types of conversion in Spanish.

In the bibliography on the Spanish language it has been established the existence of two classes of conversion (cfr. Fernández Ramírez 1951). Among the conversion cases that have been studied, scholars have found instances where the converted adjective refers to obligatorily animated referents (84), and cases where the referent must be obligatorily non animated (85), as, for example, physical dimensions or circumstances.

- (84) un viejo, un inútil, un valiente, un inválido...  
*an old man, a useless man, a valiant man, a cripple...*  
(85) un inconveniente, (el) ancho, (el) alto, (el) grueso...  
*an inconvenience, the width, the height, the thickness...*

It could be proposed that the difference is not relevant to the syntax, and is kept in the encyclopedic entries of the vocabulary items inserted. In our opinion, however, this difference cannot be analysed entirely on semantic grounds, because it is correlated by a difference in the grammatical behaviour of the items that belong to each of the two classes.

Fernández Ramírez (1951) clearly distinguishes between the adjectives used as nouns referring to people and those referring to things. This author notes some relevant properties of these elements. Personal nouns (1951, §67: 24-26) usually appears morphologically with the morphemes *–nte* o *–al / ar*, as in *ayudante*, ‘helper’, *contendiente*, ‘contentend’, *intelectual*, ‘thinker’ or *militar*, ‘army man’. Ethnic adjectives and gentilices also usually produce related personal nouns, as in *griego*, ‘Greek’, *alemán*, ‘German’, or *esquimal*, ‘Eskimo’. It is also worth noting, for this author, that some of these person nouns must manifest themselves in a generic plural context, as in *los humanos*, *los humildes*, *los pobres mortales* and *los mayores*. However, we would like to observe that some of these personal nouns, though they appear more frequently in such a context, can also appear in a singular context (86).

- (86) a. Vi a un humano.

<sup>58</sup> We take precisely this degree marker as a criterion because syntactic degree markers, when they appear with nouns, may be interpreted as quantifiers: *bastante*, *suficiente*, *más*, *menos*...

<sup>59</sup> However, in Spanish there is a small amount of nouns that appear with the superlative morpheme *–isim–*: *generalísimo*, ‘highest general’, *hermanísimo*, ‘most beloved brother’ and *cuñadísimo*, ‘most beloved brother-in-law’. Other combinations may be possible with nouns similar in meaning to these three bases. We think that, despite the existence of these cases, we can maintain the generalisation that the morpheme only combines, keeping its usual degree meaning, with adjectives.



*I saw a human being.*  
 b. Necesito encontrar a un humilde.  
*I need to find someone humble.*  
 c. Necesito encontrar a un mortal.  
*I need to find a mortal.*

As for non personal nouns, Fernández Ramírez (1951, §68: 26-28) points out that many of them are abstract nouns, and, when that happens, they are usually nouns denoting dimensions, physical orientation or relative nature, as in *extremo*, ‘edge’, *máximo*, ‘maximum’, *común*, ‘common’, *derecho*, ‘right’, *hondo*, ‘depth’, and so on. This author also observes the tendency of this type of substantivations to acquire a demotivated idiosyncratic meaning, as in *el metálico* – lit. ‘the metal thing’- or *la tajada* – lit. ‘the part which has been cut’-, which don’t refer to any metallic object, or to any object that has been cut, but specifically to money in cash and a percentage of profit that corresponds to someone in an economical transaction.

To our knowledge, it is true that one of the main properties of inanimate nouns converted from adjectives is that they have an idiosyncratic meaning. We observe that, when the adjective is converted to noun, in many cases, it seems to take place a process of semantic specialisation: the noun does not denote any physical object that could have been described with that adjective, but only a very specific subset of these objects. It is usually also the case that the expression can only be interpreted as a noun when it appears with a certain morphological number and gender (87).

(87) unos rápidos, un bajo, un alto, un dulce...  
*some streams, a bass, one upper floor, something sweet*

We believe that in cases such as these, the change of category of the adjective does not only imply the syntactic structure. If this were the case, we would expect the resulting substantive to denote the whole class defined by the property expressed by the adjective. In that hypothetical case, we could use *unos rápidos* –lit. ‘some fast’- to refer, for example, to a set of people that are distinguished by their great velocity, for they would be included in the case defined by the property ‘quickness’.

Instead, the substantive *rápidos* is restrained to a special subclass of streams of water. The same can be said about *un bajo*, -lit. ‘a short’, ‘a bass’-, which cannot be used to refer to anything short, but only to a certain instrument similar to the violin. *Un dulce* -lit. ‘a sweet’- is not any sweet entity, as for example a glass of water with sugar, but it is exclusively used to describe some baked goods that are made out of flour and sweeteners. Similar precisions must be done about *alto* –lit. ‘tall’-, which is an apartment on the upper floor of a building.

In these cases what has happened is a process of lexicalisation from a common root, in such a way that the substantive has acquired a meaning of its own that is not present in the adjective with which it establishes a relationship. This makes it plausible that the noun may be restricted to some contexts of appearance that must obligatorily contain a given number or a given gender, such as the case of ‘rápidos’, that must appear in the plural form, or ‘bajo’, that must appear in the masculine form. Hypothetical substantives such as ‘rápido’ and ‘baja’, if they were created, wouldn’t have the same meaning as their plural and masculine counterparts.

This property of non animate converted nouns is reminiscent to the properties of other lexicalised expressions, such as idioms. Idioms are typically restricted to a specific formal construction, that, when altered, makes the demotivated meaning

disappear. Consider for example the idiom in (88a) and its counterpart with an indefinite object (88b). While the first sentence can mean – in addition to its compositional meaning – ‘to die’, the second sentence cannot.

- (88) a. Luis estiró la pata.  
 Lit. Luis stretched his leg, Luis kicked the bucket.  
 b. Luis estiró una pata.  
 Lit. Luis stretched a leg (only compositional meaning)

A way to understand –but not to explain– why the adjective has acquired those semantic features, that are clearly conceptual, as a result of the nominalisation is to observe that the non-animate noun comes historically from a complete noun phrase where it was used as an adjective modifying the head noun. In a second phase, the noun phrase is abbreviated taking only the adjective, which plays the role of acting as head of the phrase. We think that this historical development cannot be used to seek an explanation for the grammatical processes involved in contemporary Spanish –which we will propose later–, although the process is traceable in some cases, as *un alto* < *un piso alto*.

Bello (1847, §58) adds to these data a series of nominalised adjectives that only have a literary use, which he, a poet himself, marked as uncommon: *el sublime*, *el patético*, *el necesario*, *el superfluo*, *el sumo posible*... The meaning of all these forms implies demotivation of meaning, and in most cases the converted noun is taken in a metaphorical sense, which also implies the modification of conceptual semantics associated to the word.

Going back to the basic difference between animate and inanimate noun conversion, let us note that in general animate conversion is easier than inanimate conversion. This can be shown considering the case of quasi-synonym adjectives, one used to refer to animate subjects and the other restricted to inanimate subjects. While the animate adjective can be converted to refer to every entity to which the property can apply, the inanimate adjective cannot be converted into a substantive, or, if it can, it has a demotivated meaning.

- (89) a. delgado, flaco vs. fino: #un hombre fino, \*un lápiz delgado.  
 [both adjectives meaning thinness]  
*thin, skinny vs. sharp: #a sharp man, \*a skinny pencil*  
 b. gordo vs. grueso: #un hombre grueso, \*un camino gordo  
 [both adjectives meaning fatness]  
*fat vs. wide: #a wide man, \*a fat path*  
 c. viejo vs. antiguo: #un hombre antiguo, \*una catedral vieja.  
 [both adjectives meaning oldness]  
*aged vs. antique: #an antique man, \*an aged cathedral*  
 (90) a. un delgado / un flaco<sup>60</sup>  
*one skinny / one thin*  
 b. #un fino (a particular class of wine, ‘a dry sherry’)  
 (91) a. un gordo  
*one fat*  
 b. #un grueso (only as dimensional adjective, ‘a width’)  
 (92) a. un viejo

<sup>60</sup> Particularly in Argentinean Spanish.

*an old man*  
 b. \*un antiguo  
 \*an ancient

The other piece of evidence that shows that animate conversion has a wider range of application than inanimate conversion can be found in those adjectives that express a property that can be applied, with different nuances of meaning, both to animate and inanimate referents. When conversion is applied to this adjective, it is very frequent that the result can only mean ‘a person that is X’, and not ‘a thing that is X’. Consider for example *viejo*. As an adjective, it can refer to people, but also to cheese (‘queso viejo’), to wine (‘vino viejo’) or even to a collections of poems (‘romancero viejo’). When it is converted into a noun, it can only express a person that is old, never a cheese, wine or collection of poems.

- (93) a. un hombre viejo → un viejo  
       *lit. a man old → an old*  
       b. un queso viejo \*→ un viejo, but ‘uno nP viejo’  
       *lit. a cheese old \*→ an old, but one nP old*  
       c. un vino viejo \* → un viejo, but ‘uno nP viejo’  
       *lit. a wine old \*→ an old, but ‘one nP old’*

Therefore, the grammar must be somehow different in the case of animate and inanimate conversion, as the difference between them doesn’t seem one of pure world knowledge. If it was just this type of difference, we would expect them to behave the same in grammatical respects, which is not the case. We think that an accurate analysis of conversion must address this problem and explain why these particular differences exist.

### 3.3. Other accounts of conversion.

In this section we will give account of previous analysis of conversion in different frameworks. We will start with Marchand (1969).

Marchand proposes to analyse conversion as a case of derivation with a phonologically empty morpheme. According to this view, conversion is plain derivation, with the only special characteristic being that the morpheme involved lacks phonological information.

Marchand’s analysis<sup>61</sup>, which we will refer to as ‘the zero morpheme analysis’, has several problems. This view is following the Overt Analogue Criterion (OAC) of Bloch

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<sup>61</sup> Other authors have presented versions of the zero-morpheme analysis after Marchand. Paying more attention to the formalisation of the process, in the Lexicalist Paradigm Allen (1978) proposes that conversion is also performed by phonologically vacuous word formation rules, and also proposes that the relative ordering of the different affixes constitutes evidence in favour of her theory. Allen follows Siegel (1974) in her proposal that Word Formation Rules do not constitute a unique block; they are distributed in two blocks which can be defined by their different phonological and semantic properties. The determination of the level on which an affix is contained can explain its interaction with other affixes, because the order of the blocks determines the order of the rules, in such a way that a rule of the first block cannot be applied after a rule of the second block.

According to this author, there are only two ordered levels; on level I there are affixes such as *-al* and *-ive*. This makes it possible to create ‘conditional’ from ‘condition’. However, if the noun is converted from a verb, such as the case of [respect]<sub>N</sub>, from [respect]<sub>V</sub>, the WFR cannot create \*‘respetal’. This is easily explained from Allen’s theory if the affix that performs verb to noun conversion is a level II affix; the output of a level II rule cannot be input of the level I rule. This is also Kiparsky’s (1982) explanation of conversion.

(1947): “it is possible to assume a zero affix only if there is at least one overt analogue of the zero affix in the language in question”. For example, in the case of noun to verb conversion, the OAC would make it possible to refer to the presence of a zero affix that derives verbs from nouns, because there is an overt affix *-ize* that is the manifestation of this derivative rule (94).

(94) [custom]N – [customize]V

However, it can be noted that the OAC is insufficient in describing the properties of conversion, because it doesn't allow us to determine the directionality of the rule in every case. It would be necessary to determine on independent grounds whether the conversion process takes a noun and gives a verb as a result or if it is the other way round. Accepting the existence of zero affixation automatically implies that conversion is a directional process, because there is a base to which some information is added, but the OAC doesn't provide the means to determine the base. Following this theory, it is possible to claim that there is a zero affix that turns verbs into nouns, just like the affix *-tion* (95).

(95) [destroy]V- [destruction]N

The criterion that can be used to determine the directionality of the rule is semantic or pragmatic inferences: if the meaning of a certain word presupposes the meaning of another word, we can suppose that this last word is more basic and is the base from which the other word has been derived. Sanders (1988:174) observes that “a more serious problem with this type of semantic-pragmatic dependency criterion, though, is the difficulty of determining in all cases a unique direction of dependence. This typical situation, in fact, at least for instrumental cases like ‘saw’, seems to involve mutual dependence. Thus, while it is true that ‘to saw’ is to cut with a saw, it is equally true that

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The last of the zero morpheme theories that we would like to address is Don's (1993). In his dissertation, this author proposes the differentiation of affixes as bundles of morphosyntactic features, ‘AFFIXES’ in uppercase, from affixes as phonological material ‘affixes’ in lowercase. He argues that the two sets of affixes are contained in two different levels, one for the morphosyntactic information and another one for the phonological information. The role of morphology is to process the two levels at the same time and to pair morphosyntactic information with phonological information. To perform these operations, according to Don, the morphology must have the properties of a Finite State Transducer (FST), that is, an automaton able to read and process information from two different tapes at a time, performing the operation of pairing elements from one tape with elements from the other tape.

The FST can be programmed in a special way, so that it reads information from one tape, but skips the information from the other tape, and, as a result, it pairs information from one level with a zero in the other level. Imagine that we do program the FST stipulating that it reads information on the morphosyntactic level (an ‘AFFIX’) without pairing it with information on the phonological level (an ‘affix’). The result of this is what we call ‘conversion’.

Don's theory has, in our mind, some problems that make it less accurate than other analysis with zero morphemes. Don's analysis makes it possible for conversion to exist in a morphological model, but it doesn't explain why conversion is used and what it means for a word to be converted. As everything is programmed in the FST, there is no reason why it has to be restricted to certain words instead of others. Secondly, the FST characterisation actually doesn't give account of the order of morphological segments, for the FST is reading information of a very different nature. If AFFIXES are morphosyntactic representations, there is no linear order between them: they are just hierarchical trees which need to be linearized, so there is no way to compare them with an already linearized sequence, as an entity on the phonological level. Finally, the theory just stipulates that conversion is programmed in the FST, and gives no explanation of its differences compared to other processes. Moreover, when different languages are compared, the author has to state that some languages are more programmed than others for conversion, as it is the case of Chinese vs. English vs. Spanish.

a saw is a kind of instrument that is prototypically used for sawing things". The same thing happens in Spanish with pairs such as [compra], as noun and as verb, where it is virtually impossible to differentiate the base from the derivate employing semantic features<sup>62</sup>.

Scalise (1984: 129-130) shows that an analysis of conversion as zero affixation would lead us in the case of the participle to an unnecessary proliferation of zero affixes. If we allow a participle such as *muerto*, 'dead', to turn into an adjective by means of a zero affix, we will encounter the problem that, when it is converted into a noun, another zero affix will be necessary (96).

$$(96) \quad [[[\text{muerto}]_V \quad \emptyset]_A \quad \emptyset]_N$$

We think that what this shows is that to analyse conversions as instances of zero derivation is not accurate, because this theory lacks enough empirical coverage and implies a proliferation of empty elements. Moreover, the theory is unfalsifiable, because every counterexample could be explained, following the internal logic of the proposal, as the result of applying another zero morpheme to the output of a rule that has already added another zero morpheme.

Pena (1991) gives account of some theories that analyse conversion without reference to zero affixes, as alternative to Marchand's classical view.

The first one is Mel'cuk's (1982: 102). This author proposes that conversion is a possible operation, different from derivation, which can affect the base. Specifically, conversion affects only the syntactic combination of the significant. Mel'cuk groups conversion with reduplication and substitution, because they are all rules that only affect the formal aspects of the signifier of the word without affecting its content. It seems that Mel'cuk understands conversion like metabasis of an element, this is, as change of syntactic distribution without any change in the other properties of the element.

Along this same line, functionalist theories have developed the concept of metabasis, which refers to a change of function –not of category– of an element in a given syntactic context. For example, in *los buenos*, 'the good', following an analysis of metabasis, the adjective bueno is still an adjective, even though it performs the function of a noun; the function is licensed by the determiner which combines with it.

One reason not to accept an analysis of metabasis is that, to our knowledge, it has not been a proposal to constraint the circumstances under which metabasis is possible; on the contrary, metabasis is invoked in those cases where a word which has been classified in one category acquires some properties of another one. Therefore, the theory is not truly explanatory, but descriptive in a deep sense.

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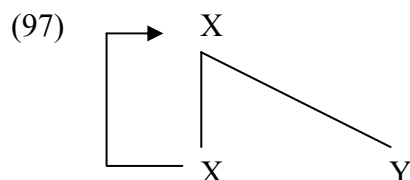
<sup>62</sup> Against the presence of zero affixes, Pena (1991: 69-124) adds three arguments. First of all, Pena discusses the restrictions of conversion as a WFR. If conversion was a usual affixation process, we would expect it to specify in a clear manner its restrictions on the base and the meaning of the new word formed. However, it is typical of conversion cases that they are applied to bases of different type and that the possible outputs are also very different. For example, if we determine, through semantic periphrasis, that the noun 'doubt' has been converted from the verb 'to doubt', we would characterise this WFR as one that takes V and produces N. However, in the case of the verb 'to group', which is converted from the noun 'group', the result is just the opposite. Secondly, considering the systematic aspects of language, Pena observes that it is meaningless to say that the lexical pair 'group' (N) and 'to group' (V) contrasts in the absence vs. presence of a zero morpheme. Finally, this author points out that the result of a zero-morpheme analysis would be that in every language we would have a set of different zero affixes, all of them homonyms, with different meanings and different restrictions on their bases.

The second option is Matthews' (1974: 121) and Lyons' (1977: 523) theory. These authors propose that conversion is a non affixal process. Conversion is an operation of identity that relates two words specifying that the form of the derived word must be identical to the basic form in the derivation.

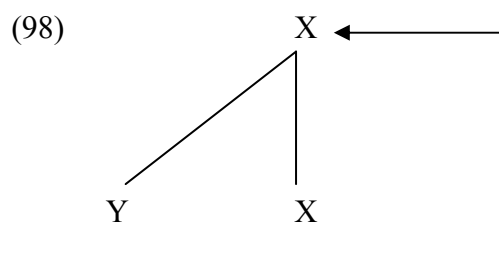
The third theory mentioned by Pena is Lieber's account of conversion (1980). We will speak a little more about this theory, which is a reply to the proposal by Allen (1978, cfr. footnote 43). This author proposes that conversion is performed in the Lexicon, that is, in the list of possible words of a language, and therefore conversion is not an operation performed in the morphological component. Her proposal is that the word is relisted in another place of the Lexicon, with a new category label. For example, the word [cover]<sub>V</sub> is relisted into the group of words that are defined by their nominal nature, as [cover]<sub>N</sub>. Then, a redundancy rule is established to let the two words share all the information that has not been changed as a result of this relisting process –which is most of the phonological information, and usually most semantic information-.

Note that these last two characterisations of conversion, the Matthews/Lyons' theory and Lieber's theory, have an inherent non directional nature, because it is not possible to determine which of the two occurrences of the word in the lexicon must be counted as more basic: neither the redundancy rule nor the identity rule mark one of the elements as the base of the other. To our mind, this result is welcome, for, as Sanders noted, there are cases where the determination of which of the members of the converted pair is more basic is purely stipulative and not motivated.

However, there are also non affixal theories which are directional. Williams (1981) proposes that conversion is a non affixal directional rule. Williams notes that morphological derivative processes are defined by the presence of a head that selects the other member of the structure and that percolates the features that define it as a morphosyntactic object to the upper node. In (97), X is the head, so it selects Y and their features are inherited by the upper X, so that they become features of the whole structure.

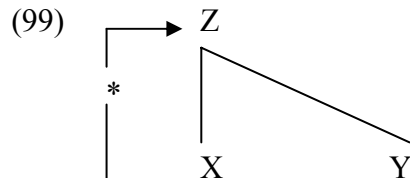


Williams notes that converted words are never morphologically irregular; a converted verb always takes the unmarked inflection. Williams proposes the following explanation: irregularities in inflection must be morphological features that are contained in the morphological constituent. If this constituent is the head of the structure, it can percolate this morphological information to the whole word, so that the whole word is irregular. This is what happens with the verb 'understand', whose past is the irregular 'understood', just like the past of the head 'stand' is the irregular 'stood' (98).



under                      stand  
                                     [Irregular]    —

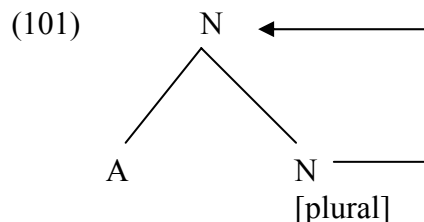
In the case of conversion, this cannot happen because the base of the converted word is not the head. Conversion is the result of a headless affixation rule. When a word is subject to a process of conversion, the base word is dominated by a label of another category, in such a way that syntax reads that the word pertains to that particular category and ignores the category information contained in the base word. Percolation of morphological features is impossible, as the base word cannot be the head of the structure, for heads project their labels to the whole structure (99).



This analysis is maintained in DiSciullo & Williams (1987). Williams' characterisation of the phenomenon provides a coherent explanation of why converted words do display the morphological property of being obligatorily regular. However, the way in which this is implemented technically does not have a place in a system of syntax where the label of a projection must be the label of one of the two elements merged within the projection, as it is the case in the Minimalist Program (Chomsky 2004). In his analysis, Williams' implies that converted words are assimilable to exocentric constructions. The problem is that exocentric morphological rules are very unproductive processes, such as the compounds in (100); conversion is much more productive.

- (100) matalascallando, correveidile, hazmerreír...  
       lit. kill-her-shuting.up, run-go-and-tell-him/her, make-me-laugh...

To finish this review of the previous analysis of conversion, we will refer to syntactic accounts, in which conversion is not a process that takes place in the lexicon – there may even be no lexicon– but a formal process that must be explained only in syntactic terms. Myers (1984) proposes that conversion is performed by inflectional affixes that dominate a particular word in the syntax in such a way that syntactic rules read that particular word as a member of the category of the inflectional morpheme (101).



As Don (1993: 21-59) notes, the problem with this characterisation of conversion is that inflectional morphemes are clearly specified as selecting only one lexical category. For example, tense morphemes such as *-ed* select only words that belong to the category verb. Myers' theory would force to give up the restrictive characterisation of inflection and to accept that virtually any inflectional morpheme can select virtually any

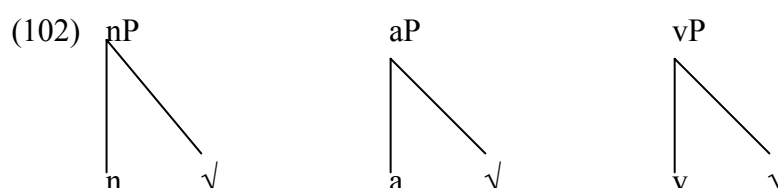
lexical category. There is here, thus, a clear danger of overgeneration, because what we would expect is that every word, whatever its lexical category, can appear as every category, because it should be combinable with every set of inflectional rules possible.

The theory that we are adopting in this work is also syntactic in nature, as we are assuming that the morphological operations can be generated without a lexicon. However, as will be seen, our theory can be restricted in such a way that overgeneration is avoided, because we do not use inflectional morphemes to categorise a word, but functional projections, which correspond to derivative morphemes in the Lexicalist terminology.

### 3.4. An analysis of conversion in DM.

As we will see in the next section, we propose that the categorisation of an item is a syntactic process which is restrained by the semantic characteristics –structural and conceptual semantic characteristics- of the Vocabulary Items and the syntactic structures involved.

In Distributed Morphology, conversion is expected, because there are roots without category and functional projections that assign a category to them when they combine in the syntax. Therefore, what is expected is precisely that the same root will be combinable with more than one functional projection -maybe with the three functional projections that correspond to the main lexical categories (102)-, with the result that the same lexical item will appear in different grammatical categories.



The representations in (102) are bundles of syntactic features. When the structure is transferred to Morphology and Phonology, a particular Vocabulary Item may be inserted in the terminal nodes, or not. It is possible that the language lacks a Vocabulary Item that realises a certain position of exponence; it is also possible that there is a Vocabulary Item but the grammar chooses not to insert one. The structure in (102) is logically independent of a phonological representation, for they belong to different levels intermediated by operations.

Let us note that this is different than proposing the existence of zero affixes. In a Lexicalist system, due to the fact that the lexicon is previous and determinant to the syntax -each lexical item bears with it a set of properties-, an element that lacks phonological information must be specified as a zero affix in the lexicon. From this perspective, a zero affix must be ontologically different from an overt affix, because its lexical entry must be different. In the DM framework, however, there is no need to posit the existence of zero affixes different from overt affixes. As it is a framework with Late Insertion, a ‘zero affix’ and an ‘overt affix’ may correspond to the same bundle of syntactic features. The difference between the two situations, with and without affixes, would come only postsyntactically, and would affect the level of Phonology. This difference doesn’t affect the structural properties of the functional category, which is basically the same element, but rather only its morphophonological properties.

The problem with conversion in the Distributed Morphology framework is that at first glance it seems that it predicts that every root will be combinable with every functional projection, as the syntax is taken to be fully productive. In brief, it would



seem that it predicts that every lexical item will be converted to every category, but this means to overgenerate the data predicting unrestricted conversion of every category in every category. Obviously, however, the data shows that it is not the case at all that every lexical item can be converted into a word of any category.

Therefore, to make our account plausible it is necessary to determine the way to restrict syntactic combination between roots and functional projection. This is a question that, as far as we are concerned, has not yet received the deserved attention in the framework of Distributed Morphology. Answering to this question means to find an answer to how subcategorisation is performed in a system where roots have no category. In a Lexicalist system, the restrictions of a Word Formation Rule are very clearly explained, with a great amount of empirical adequacy, because among their properties in the lexicon there are selectional features that make them compatible just with a particular type of bases. This way of restricting morphological productivity is only possible if the lexicon is presyntactic and every base has category and argument structure information. None of these two characteristics is present in Distributed Morphology.

The rest of this chapter will be devoted to the explanation of how conversion is restricted to certain roots, and, therefore, constitutes indirectly a tentative answer to the question of how subcategorisation is explained in a system without lexical categories.

The properties of conversion which an account of this process must address and try to explain are the following, to our knowledge:

i) Why conversion is more restricted than ordinary morphological derivation?

Consider for example the case of conversion of adjectives to nouns. With an overt affix, the number of adjectives that can be transformed into nouns is very high (103a); however, if we use conversion, a process without overt affixation, the number of adjectives that can be transformed into nouns is much smaller (103b).

- (103) a. bello – belleza; rojo – rojez; útil – utilidad; elegante – elegancia; largo – largura; sucio – suciedad...  
b. \*un bello; un rojo; \*un útil; \*un elegante; \*un largo; un sucio...

ii) Why only some words show conversion?

The fact is that some words belonging to the same category do not behave the same with respect to conversion processes. Sometimes, the words are morphologically very similar and are differentiated only by semantic nuances. Consider the pair of (104); *antiguo* and *viejo*, ‘old’, are quasi-synonyms, but one of them can be converted, while the other cannot. Consider also (105); the same adjective cannot be converted alone, but when it is combined with a negative prefix, it can be converted.

- (104) a. antiguo -- \*un antiguo  
b. viejo – un viejo

- (105) a. capaz - \*un capaz  
able - \*one able  
b. incapaz – un incapaz  
unable – one unable

To answer this question, actually, means to explain how conversion can be restricted in a way able to give account of the data. Note that, from the theories that we have considered, all of them tried to give an analysis of conversion but none of them addressed the question of why a word can be converted and another word cannot. We believe that this is a *conditio sine qua non* to motivate a theory of conversion.

iii) Why converted words are regular and never irregular?

As Williams noted, converted words are never irregular. What happens seems to be that a converted word receives the default set of morphological marks available in the category to which it has been converted. Don (1993) confirms this situation in Dutch; converted verbs are regular and converted nouns receive a neuter gender by default. In fact, in Dutch (Geert Booij, p.c.) there are two homophonous verbs *prijzen*. One of them means ‘to put price’ and comes from the noun *prijs*, ‘price’, whereas the other one has not been derived from another word and means ‘to praise’. The past tense of the verb *prijzen* which is created by means of conversion is the regular form *prijdsde*, but the past tense of the underived *prijzen* is the irregular form *prees*.<sup>63</sup>

In Spanish the case seems to be the same. Underived nouns can have whatever word marking, regardless of the gender agreement that they trigger (106); however, nouns converted from adjectives always manifest *-a* in feminine and *-o* in masculine (107), which can be considered the default correlation in Spanish.

(106) artist-a (‘artist’, masc. or fem.), man-o (‘hand’, fem.), pared (‘wall’, fem.), puente (‘bridge’, masc.)

(107) un viejo (not \*un vieja) (but note: *un idiota*, ‘an idiot’, masc. or fem.).

iv) Why derived words cannot be converted?

It has been proposed (cfr., among many others, Borer 1999) that a word which has been derived with an overt affix cannot be converted. For example, in English, an overtly derived verb such as *formalise* cannot become a noun through conversion, nor can an overtly derived noun such as *formation* become a verb (108, cfr. Borer 1999, example 51)

(108) \*a formalise, \*to formation

If this is the case in a language such as Spanish, it is also necessary to find an explanation for this property.

### 3.5. The Analysis.

In this section I will provide a formal analysis to explain how conversion can be restricted in the framework, without categories in the lexicon. First, I will briefly present the outline of my proposal.

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<sup>63</sup> However, there are some historical exceptions, even though they are unfrequent. According to Geert Booij (p.c.), in Dutch, the verb *melken*, ‘to milk’, which comes by means of conversion from the noun *melk*, ‘milk’, uses to have an irregular past tense *molk*, which is still attested, although now it competes with the regular form *melkte*. There are, then, some irregular instances of conversion, but we believe that it is still true that most words obtained by means of conversion have regular morphology.

We have proposed that adjectives are semantically different from nouns in the sense that, to be assigned a truth value to the proposition where they are, adjectives denote sets of values and nouns denote only one value of a property or set of properties. As a result, a predicate headed by an adjective is not true or false *per se*, but needs to have its value fixed first in order to be assigned a truth value. In contrast, nouns partition the set of entities in the world in two subgroups, those that produce a positive truth assignment and those that produce a negative one when they are the subjects of predication. This is the reason why Kamp (*op. cit.*) called them ‘sharp predicates’.

From here it follows that a root with the semantics of an adjective can be turned into a root with the semantics of a noun by fixing the value denoted. One value must be chosen inside the scale, in such a way that the root denotes a fixed value.

Remember also that we have proposed that what limits generation of words in a DM framework is the combination of the semantic information present in the syntactic functional projections with the conceptual semantics of the root. Therefore, an ‘adjectival’ root, that is, a root that is combined with the functional projection little *a*, can also be dominated by little *n* provided that the combination of the semantics of the root and the semantics of the functional projection is licensed.

There are two different ways to reach this result. In this dissertation, we follow a number of scholars (cfr. Harley & Noyer 2000, Mateu 2002, Lieber 2004, Borer 1999, 2004) in the proposal that semantic information must be divided in two classes (105), structural semantics and conceptual semantics:

- (109) a. structural semantics: the part of semantics that is a result of the syntactic structure that a certain linguistic sequence has.
- b. conceptual semantics: the rest of semantic notions associated with a certain linguistic sequence.

Structural semantics is the result of the syntactic structure, that is, it follows deterministically from the translation in Logical Form of the interpretable features contained in the lexical items merged and of the syntactic relationships that those lexical items maintain with each other. Therefore, they are predictable from the syntactic structure. This class of semantic information cannot be altered by contextual information and is blind to the semantics that follows from knowledge of the world (cfr. chapter one, 2.4.).

Conceptual semantics, on the other hand, is idiosyncratic, and must be associated with each particular Vocabulary Item and is contained in an expandable list whose information the speaker of a language cannot predict: the Encyclopedia. This list is accessed after syntactic information has been parsed –by pragmatics, for example-, because its nature is postsyntactic and is subject to the insertion of phonological information. Therefore, conceptual semantics comes logically after structural semantics.

We propose to give account of the different nature of the two types of semantic information as a relation of preponderance: structural semantics can modify the information contained in conceptual semantics, but conceptual semantics cannot modify the information contained in structural semantics. We state this as the Structural Priority Principle (SPP) in (106).

- (110) Structural Priority Principle: The interpretation of conceptual semantics is determined by the interpretation of structural semantics.

In other words, what we predict with the SPP is that the structural information present in the syntax can force a certain interpretation of the encyclopaedic entry of an element present in that syntactic structure. If structural semantics does not force another interpretation of an encyclopaedic entry, the speaker must limit himself / herself to use the encyclopaedic entries available in his / her own list.

The SPP allows two ways in which the semantics of a root can be affected in such a way that it is combinable with a nominal projection in syntax. First of all, structural semantics may change the semantic interpretation of the root, and in that case the conceptual interpretation is forcefully altered. If structural semantics doesn't change the semantics, then the only remaining possibility is that in the Encyclopaedy of the speaker the entry of that particular Vocabulary Item contains an interpretation that is compatible with the new category.

In the case of adjectives and nouns, the previous discussion of section two in this same chapter has made it clear in which respects they differ from a semantic perspective. What we need, semantically, to get a noun from an adjective is to transform a (set of) variable properties into a (set of) properties with a fixed value. As we will see, this can be reached through structural means, or, in the absence of this, the Vocabulary Item in question may be associated to a specific encyclopaedic entry which is compatible with a property with a fixed value. If neither the structure nor the Encyclopaedia make the fixed value property reading, the root will not be able to be categorised as a noun.

We propose that there are two structural means to convert the adjective into a noun.

- (a) The variable value denoted by the adjective can be fixed by certain comparative quantifiers that can be present in the structure of the word.
- (b) The root can be dominated by a KiP in whose matrix of features is a feature [animate]. This feature forces in LF an interpretation of the root as a fixed value property.

In the absence of these strategies, the only possibility available is to employ conceptual semantics. This implies that the encyclopaedic entry of the Vocabulary Item that expresses a property with variable value also contains an entry where it expresses a property with fixed value; this second strategy is closely associated with lexicalisation.

Some analysis of conversion propose that it is a process which is restricted entirely by non grammatical requisites, such as cultural information in a certain language. Bosque (1989: 107 and folls.) proposes that the process of substantivation of these adjectives finds an explanation in cultural causes related with the pragmatics and the different way in which each culture conceives the differentiating traits of things in the real world. Following Wierzbicka (1986), Bosque notes that nouns denote kinds of elements, while adjectives denote properties. Consequently, the only adjectives that can be converted into nouns will be those that express properties that can define by themselves kinds in a given culture. From this it would follow the different grammaticality of the conversion of the same adjective in different languages (111), as the culture associated to those languages is also different.

(111) un joven (Spanish), \*un jeune (French), \*a young (English)

In the next few pages, we will show that there exist some regularities that admit a grammatical analysis and that are not accounted for in a pragmatically oriented analysis like the one proposed by Bosque. Pragmatic or cultural factors are always less

predictive, and, therefore, are less solid for building a linguistic analysis. However, as we will see, pragmatics –understood as the part of grammar that has access to conceptual semantics– does play a role in some cases of conversion, and, even though it is not the only explanation, it still plays a role in this phenomenon. Our analysis of conversion differentiates the factors that are related to structural semantics, and therefore to syntactic information contained in the tree, and those that are related to conceptual semantics, consequently to pragmatic properties of the Vocabulary Items present.

In the following pages, we will argue that –even though the general observation by Bosque is correct- there are some regularities that can be accounted for in a morphosyntactic analysis. Pragmatic or cultural factors are usually less predictive than grammatical requisites, and, therefore, an analysis that only uses pragmatic factors tends to be less solid. However, as we will see, pragmatics, understood as the part of the grammar that has access to conceptual semantics, does play a role in conversion, although it is not the only factor. Our analysis of conversion makes a difference between structural semantics –and therefore between the syntactic information contained in the tree diagram- and conceptual semantics, which has to do with the properties that the items involved have due to our knowledge of the world. Structural factors should be shared by all the languages that define formally nouns and adjectives as in Spanish; on the other hand, we expect that conceptual factors will change idiosyncratically from one language to the other, in such a way that they will be a major source of language variation.

We will begin our exposition of the analysis with the structural factors that play a role in this word formation process.

### 3.5.1. An analysis of conversion I: the role of the syntactic structure.

If a certain element is a noun in the syntax, this is because it can bear a referential index and is, therefore, potentially referential. A previous requisite for this is that the element denotes a property with fixed value. However, not every root can denote a fixed value, because some of them express a scale of values. Our proposal is that for a scale-denoting root to become a noun, one of the values of the scale must be selected in such a way that it becomes an entity that denotes a fixed value.

That value in the scale is fixed by the standard of comparison, which determines the value that must be taken as the reference to evaluate if a given entity has the property denoted by the adjective or not.

The root by itself expresses a set of values, a scale. In (112) we represent the denotation of the root  $\sqrt{\text{ALT-}}$ , ‘tall’, -which becomes an adjective in syntax- as a set of values.

$$(112) \quad \sqrt{\text{ALT-}} = \{ \dots v_{n-1}, v_n, v_{n+1} \dots \}$$

In a scale such as the one in (112), every entity can be tall or not, because every possible value along the scale, including zero, is active. However, in a given context, the adjective does not denote a whole scale, because a standard of comparison is selected with the result that the value of the predicate gets fixed.

There are two types of scales: non-finite scales, that is, those that denote properties which do not have a maximum value –such as *alto*, ‘tall’- and finite scales, which express properties which can have a maximum value –such as *borracho*, ‘drunk’-. Evidence that these two classes exist is that adjectives that denote finite scales can be

modified by an adverb such as *completamente*, ‘completely’, (113a), whereas non-finite scales reject it.

- (113) a. *completamente* {borracho / solo / lleno / seguro}  
 lit. completely {drunk / alone / full / sure}  
 b. \**completamente* {alto / guapo / bajo / rápido}  
 lit. completely {tall / beautiful / small / quick}

Finite scales do not have a fixed value. They also denote a set of indefinite values – even though the set is finite-, even though these values can only be conceived, on the level of pragmatics, until a certain point of saturation. In fact, those adjectives that are associated with finite scales are gradable, which proves that they denote sets of values.

- (114) {muy / bastante / suficiente / poco/ algo} borracho  
 lit. {very / quite / enough / a little bit / some} drunk

When these adjectives are combined with degree modifiers, it is also necessary to determine a standard value of comparison to assign a truth value. We should not confuse, then, the fact that there are properties whose scales contain only a finite set of values with the fact that the property may have a fixed value: every scale –finite or non-finite– expresses, by definition, a set of values, and, therefore, they express variable properties.

Scales can be fixed by those degree modifiers that presuppose a standard of comparison, because the standard signals a reference value in the set of possible values in which a property can be manifested. This value is used to determine whether the entities possess the property or not. In this way, the degree modifiers that have a comparative meaning operate on the set of values by presupposing the existence of a standard of comparison which is determined. The quantifier *más*, ‘more’, selects only the set of values that are higher than a reference value, fixes by the presupposed standard of comparison, which is used as a reference to determine if other entities have the property or not. If the standard of comparison is not explicit, a contextually established value  $v_{cont}$  is selected (115).

- (115)  $\text{más alto} = [ \{V\} > v_{cont} ]$   
*taller*

Another quantifier, such as *poco*, selects only the values that are minor to the established reference value. The essential point here is that these classes of quantifiers fix the value of the property denoted by the root because they select a standard of comparison. When that value is selected, the adjective becomes a sharp predicate, because it will distribute exhaustively the elements of the world into those that give a positive and a negative truth value. In this way, the semantics of the root is compatible with a nominal projection.

Of course, not every degree modifier can delimit the adjective, because not every degree modifier presupposes a standard of comparison. This is the case with superlative or relative degree. It is known that relative gradation only denotes that the property expressed is shown in a high degree, without fixing a reference value. When we interpret a predicate such as the one in (116), we are not setting a value of the scale as the reference value to evaluate every other degree by reference to it. There is no

reference value established, and therefore it is syntactically impossible to combine the predicate with a term of comparison<sup>64</sup>.

- (116) Este libro es larguísimo (\*que *El Quijote*).  
*This book is longest* (\*than *El Quijote*).  
(cfr. ‘este libro es más largo (que *El Quijote*)’, ‘this book is longer (than *El Quijote*)’)

In the next sections we will review the ways in which a root can be combined with comparative degree modifiers in such a way that the scale gets delimited and can be combined with a nominal projection.

### 3.5.1.1. The fixing of properties through negation.

It is easy to identify a large number of morphologically related adjectives whose only difference consists of the fact that one of them contains a negative prefix that the other lacks (117). Systematically, the adjective that bears the negative prefix can be converted into a noun and the one that lacks the negative element cannot (118).

- (117) *tratable* / *intratable*, ‘friendly / unfriendly’, *eficaz* / *ineficaz*, ‘efficient / unefficient’, *válido* / *inválido*, ‘valid / invalid’, *útil* / *inútil*, ‘useful / useless’, *conveniente* / *inconveniente*, ‘convenient / inconvenient’, *fértil* / *infértil*, ‘fertile / sterile’, *hábil* / *inhábil*, ‘skillful / unskilled’, *apto* / *inepto*, ‘apt / inept’, *obediente* / *desobediente*, ‘obedient / unobedient’...
- (118) \*un *tratable* / un *intratable*, \*un *eficaz* / un *ineficaz*, \*un *válido* / un *inválido*, \*un *útil* / un *inútil*, \*un *conveniente* / un *inconveniente*, \*un *fértil* / un *infértil*, \*un *hábil* / un *inhábil*, \*un *apto* / un *inepto*, \*un *obediente* / un *desobediente*...

It has been proposed that behind this regularity what we have is the pragmatic tendency of the human being to classify other people according to their defects or dissabilities, in such a way that only adjectives that express pejorative notions can become nouns. However, this proposal proves to be false when we consider that not every pejorative adjective can become a noun (119):

- (119) \*un *vil*, \*un *rudo*, \*un *burdo*, \*un *turbio*, \*un *confuso*...  
*a vile, a rude, a coarse, a blurred, a hazy*...

Our proposal is that there is a structural reason for this pattern. Negative adjectives can become nouns because the negative prefix combines with the root and fixes the scale that it denotes because it is comparative in nature. The negation selects the values of the scale that are lower than a certain contextually determined standard of comparison: an inapt person, in the absence of an overt standard of comparison, is a

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<sup>64</sup> What is called traditionally ‘relative superlative’ doesn’t delimit the set of values, because it does not select a particular value. Although a reference set is established, it is not the case that one of the values is selected to use it as the reference value. The only thing that we know from a sentence like the one in (i) is that, from all the elements in the set defined by those boys that are in the classroom, the subject is the one that shows the property of tallness in a higher degree; however, it is impossible to determine if that value is bigger or smaller than any value. Consequently, relative quantifiers don’t delimit.

- (i) Este chico es el más alto de la clase.  
*This boy is the tallest from his class.*

person whose abilities are lower than the abilities of the average person. One possible value selected by negation is zero, and this is also a fixed value that delimits the scale.

Observe that negation has been considered a quantifier since, at least, the work of Jespersen:

(120)

“Not means ‘less than’, or, in other words ‘between the terms qualified and nothing’. Thus ‘not good’ means ‘inferior’, but does not comprise ‘excellent’. [...] This is particularly obvious if we consider the ordinary meaning of negated numerals: ‘He does not read three books in a year’ / ‘the hill is not two hundred feet high’ / ‘his income is not 200 pounds a year’... – all these expressions mean less than three, etc...”

[Jespersen 1924: 325-326]

In more recent analysis, negative elements have been convincingly argued to be quantifiers and analysed as such (Rizzi 1990, Haegeman & Zanuttini 1991, Haegeman 1995)<sup>65</sup>. When negation manifests itself as part of a determiner, its quantifier-like character becomes evident, for it denotes that the set of entities for which a given state of things can be predicated equals zero: the sentence in (121) is true only if the set of entities which are students and the set of entities that are singing are not intersective.

(121) a. Ningún estudiante canta.

b.  $\neg \exists x [\text{estudiante}'(x) \wedge \text{canta}'(x)]$

In other words, negation is a quantifier that may denote a particular set, the empty set.

If this is true, negation, when it is applied to a property, delimits its denotation to a value that is less than a standard of comparison, possibly zero. The negative operator identifies, then, a fixed value. This fixation allows the adjectival root to express a kind, but, in the absence of negation, this is not possible, because the scale is not fixed.

In other cases, the relation that is established between the property in a negative and a positive degree is not morphologically evident, for they are expressed by two different Vocabulary Items (122). However, in the group of (122) we find the same regularity as in (117), that can also be seen in (123).

(122) bueno / malo, bonito / feo, servicial / grosero...

*good / bad, beautiful / ugly, helpful / rude...*

(123) \*/?? un bueno / un malo, \*un bonito / un feo, \*un servicial / un grosero...

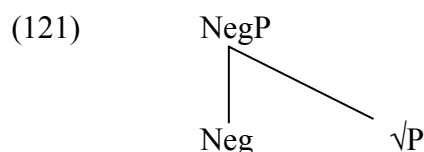
Our proposal is that in these cases the structure is the same that we find in the cases in (117), that is, a root with which a negative modal is merged (124). The only relevant difference in this case is that there is a unique Vocabulary Item that materialises the features of the negative prefix and the root. Therefore, in this case we have an instance

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<sup>65</sup> Rizzi (1990: 17) observes that negative elements are operators, as they act as potential A' binders in relativised minimality effects. Being operators, negative elements must bind variables and are subject to LF movement, with Island effects. This makes negative elements equal to interrogative constituents and quantifiers such as 'three' or 'some'. In the same way that interrogative elements have to raise to a A' position associated with a head that contains an interrogative feature –the Wh-criterion (May 1985)–, negative elements have to move to the specifier of a functional head with the feature [Neg]. This has been called the Neg-criterion (Haegeman & Zanuttini 1991). In fact, to unify the Wh-criterion and the Neg-criterion under a single principle, Haegeman (1995: 93) proposes the Affect-criterion, that claims that some constituents, the so-called 'affective operators', among them interrogative and negative operators, require a spec-head configuration to be licensed.



of Fusion of two syntactic nodes in the same position of exponence, and in the Vocabulary there are entries such as those in (125), where a VI can license the same features that two different VIs can license in a different situation.



- (125)
- a.  $\text{Neg}^0 \leftrightarrow \text{IN-}$
  - b.  $\sqrt{}^0 \leftrightarrow \text{BON-}$
  - c. Fusion  $(\text{Neg}^0 + \sqrt{}^0) \leftrightarrow \text{MAL-}$

The proposal that these adjectives are inherently negative comes from the classical studies of Givón (1978, 1979, revised in 2001), where it is argued in a convincing way that negative elements are presuppositional, because they are not conceived as judgements about the world, but as judgements about their affirmative counterparts. That is the reason why they are formally and semantically marked elements. If the positive pole of the scale is neutral with respect to the possession or not of a given property, the negative pole presupposes that the property expressed is manifested in a certain degree. (126a) doesn't suppose that the book is big or little, but (126b) presupposes a certain degree of physical littleness.

- (126)
- a. ¿Cómo de grande es este libro?  
How big is this book?
  - b. ¿Cómo de pequeño es este libro?  
How little is this book?

Givón also notes that, due to parsing reasons, in enumerations, the positive element usually precedes the negative. This is due, again, to the fact that the negative element is understood as a judgement about the affirmation, so the appearance of the positive item makes accessibility easier and makes it possible to parse the negative with more efficacy.

- (127) grande o pequeño vs. ? pequeño o grande; alto y bajo vs. ? bajo y alto...  
*big or little vs. ?little or big; tall and short vs. ?short and tall...*

Moreover, the adjective that expresses the negative pole does not accept an explicit negative morpheme, while some of the adjectives that express a positive pole can. Thus, we have *infeliz*, but never *\*intriste*, *\*impequeño* or *\*imbajo*. In our proposal this is due to the fact that, in these elements, there is already a negative quantifier present, operating over the root. The insertion of another negative element is impossible because the negative feature has already been checked by insertion of the root, as was proposed in (125).

We believe that this proposal of analysis can shed some light on another group of adjectives that can become nouns in a systematic way. Nominalisation of the adjectives in (128) has been frequently explained as an instance of the tendency to use pejorative properties to characterise other people. However, all these adjectives have a privative meaning, for they denote the lack of an otherwise inalienable part of the human being, or the lack of an inherent capacity.

- (128) *ciego, sordo, manco, cojo, tuerto, mudo...*  
*blind, deaf, one-armed, lame, one-eyed, dumm...*

It is evident, from a semantic point of view, that these roots include a negative component. One linguistic piece of evidence is the fact that no privative adjective admits a negative prefix in Spanish (129).

- (129) \**inciego, \*insordo, \*inmanco, \*incojo, \*intuerto, \*inmudo...*

Some of the privative adjectives, indeed, overtly show a negative component. This is the case of *desdentado*, ‘toothless’, which shows the negative prefix *des-* (cfr. chapter five, section 1.2.). The possessive counterpart, *dentado*, ‘with teeth’, is also used to refer to objects such as saws, tree leaves or zippers, which may have components that look like teeth.

There are two possibilities when analysing this type of roots. One possibility is to propose that the negative meaning is the effect of a modal lexical item that is merged with the basic root, as in the structure in (124). The second possibility is that the root itself is negative, and therefore has the feature [Neg], so that the negative meaning is inherent to it. The data seem to favour the second possibility. In the negative adjectives in (124), such as *bueno*, usually the root without a modifier emerges as a well-formed word in Spanish. In the case of the privative adjectives in (128), however, there is no affirmative counterpart that can be realised as an independent word in Spanish. It is not only the case that the positive counterpart doesn’t emerge as a noun –for this would be expected in the analysis– but also that we do not have, either, equivalent adjectives with only a possessive meaning. The equivalent affirmative terms are usually lexicalised, conveying a meaning different from what we would expect if they just denoted the possession of a physical property, as it is the case of *vidente*, or they are not applied to non human entities, such as *dentado*, that applies, for example, to saws, but never to human referents. There are no adjectives in Spanish to describe a person that, simply, has hands, eyes or legs, as we see in (130).

- (130) \**manado, \*ojado, \*pernado*  
*\*handed, \*eyed, \*legged*

Consequently, we think that it is empirically adequate to propose that privative adjectives are constructed with a single root inherently specified as a negative element, and not through the merging of two independent roots, one of them negative. The question that naturally arises is why it should be the case that languages in the world have inherently negative roots that express the lack of some parts of the body and some general human capacities, while there are no inherently positive roots that express the possession of these notions. The reason is, probably, pragmatic, as suggests –in a different framework– Varela (1990a): it is impossible to describe a human being by his or her possession of two hands or the ability to see, because this is the general rule and doesn’t help to distinguish that particular person from the rest of humans; however, the privation of these properties can be used in a helpful way to differentiate that entity from the rest of members of its same class (cfr. Givón 1979), which makes it understandable that languages have inherently negative roots.

### 3.5.1.2. Quantificative adjectival suffixes.

Some quantifiers delimit also the scale denoted by the root, because, being comparative in character, they presuppose the existence of a standard of comparison.

First of all, we will refer to those quantifiers that cannot delimit the scale, because they don't have a standard of comparison. We expect –as we noted– that elative quantification doesn't make it possible to turn an adjective into a noun, for elation doesn't delimit the properties expressed by adjectives (cfr. Leonetti 1999).

This prediction proves to be true, for no intensificative adjective can be nominalised (131).

- (131) \**un diminuto*, 'a diminute', \**un gigantesco*, 'a huge', \**un escuálido*, 'a scraggy', \**un maravilloso*, 'a marvellous', \**un excepcional*, 'an exceptional', \**un espantoso*, 'a dreadful'...

Secondly we expect that certain adjectives that cannot be nominalised would become nominalised when combined with a special type of morpheme with quantificative value. As is known, appreciative morphemes (Eguren 2002) are related from a semantic point of view almost always with quantification. If an entity is called an *hombrecillo*, 'little man', what is meant –apart from possible pragmatic implications– is that the entity in particular has in a lesser degree one of the characteristics that define a man. Therefore, appreciative morphoplogy is comparative in its semantic properties. This is the reason why appreciative morphemes can delimit a scale, so we expect them to help an adjective to turn into a noun (132), as happens with negative elements.

- (132) \**un delgado* / (?) *un delgad-ito*, \**un bueno* / *un buen-azo*...  
lit. a skinny / a skinny.DIM, a good / a goof.AUGM.

More in general, we expect that any adjectiviser suffix that adds a meaning of inherent quantification to the adjective, because it denotes possession in a high or small degree, or typical repetition of certain actions, will produce words that can be nominalised. The reason is that these suffixes imply repetition of excess with respect to a standard value, which is the comparison class. Someone that can be called *narizotas*, 'big nose', is called so not because he or she has a nose, but because its nose is bigger than a standard nose, so it is inherently compared. Therefore, such a suffix delimits the scale. This prediction is verified with convincing results.

As far as active adjectivisers –those morphemes that give as a result adjectives that express the capacity to be agents or causers of a certain event, cfr. Rainer (1999)– are concerned, not all of them allow nominalisations. Only those suffixes that Rainer calls 'predispositional' can be nominalised. A predispositional suffix is one that is not limited to denoting the capacity that a certain entity has to be useful for a certain function; predispositionality denotes that the entity takes part in a certain event in a repeated and insistent manner. The term *ahorrador* –'saver of money'– cannot be applied to an individual that has participated in a unique event of saving some money; we will only refer to someone as *ahorrador* if he or she has participated in a long series of events of saving. On the contrary, we could say that something that has produced a single event of affecting someone's emotions is *conmovedor*, 'moving'. *Ahorrador* is an example of the predispositional use of –*dor*, while the adjective *conmovedor* illustrates the pure agentive use, not quantified. Consistently, *ahorrador* can be nominalised, while *conmovedor* cannot: *un ahorrador*, but \**un conmovedor*. We do not address here some participles, such as *aburrido*, 'boring', which may seem to have a predispositional use. We will address participles in detail in section 3.5.1.4.

Predispositional uses of the participle (133), the morpheme *-dor* (134), *-üeño* (135), *-oso* (136) and *-izo* (137) all produce adjectives that can be nominalised. This nominalisation is not possible with their pure agentive counterparts (*\*un necesitado*, *\*un conmovedor*, *\*un halagüeño*, *\*un huidizo*). To these set of suffixes we must add *-az*, *-ín* and *-ón* (134), whose value is almost exclusively predispositional.

- (133) *atrevido*, ‘daring’, *entrometido*, ‘interfering’, *agarrado*, ‘mean’, *aprovechado*, ‘thrifty’, *aplicado*, ‘industrious’, *comedido*, ‘moderate’, *confiado*, ‘trusting’, *desconfiado*, ‘suspicious’, *creído*, ‘conceited’, *descreído*, ‘incredulous’, *decidido*, ‘resolute’, *entendido*, ‘skilled’...
- (134) *seductor*, ‘seducer’, *soñador*, ‘dreamer’, *trabajador*, ‘hard-working’, *emprendedor*, ‘tackling’, *hablador*, ‘talkative’...
- (135) *pedigüeño*, ‘begger’.
- (136) *apestoso*, ‘stinking’, *tartajoso*, ‘stuttering’, *mimoso*, ‘affectionate’, *estudioso*, ‘studious’, *envidioso*, ‘jealous’...
- (137) *enamoradoizo*, ‘prone to fall in love’.
- (138) *mordaz*, ‘scathing’, *parlanchín*, ‘loose-tongued’, *bailarín*, ‘prone to dance’, *andarín*, ‘prone to walk’, *empollón*, ‘swot’, *besucón*, ‘prone to kiss’, *burlón*, ‘mocking’...

In consequence, in Spanish we find lexical pairs like those in (139). In (139), we have an adjective that expresses a resulting state, which cannot be nominalised, and an adjective that expresses the predisposition to reach that state, which can be turned into a noun.

- (139) *\*un dormido* / *un dormilón*

Let us now consider those suffixes that express similarity or possession. Only those suffixes that express an inherently quantified possession can be turned into nouns. Like it was the case with agentive suffixes, that can be inherently quantified or purely agentive, possessive suffixes may be inherently quantified or purely possessive. The suffix *-oso* is particularly noticeable in this respect. Some adjectival derivatives with *-oso* have an inherently quantified meaning, as *vergonzoso* –*shameful*, which can only be said of a person that has a lot of shame-, *escandaloso* –someone or something that produces a lot of scandal-, *revoltoso* –that causes trouble-, *vicioso* –that has many vices and practise them intensively-, and so on. Other adjectives derived by *-oso*, however, only denote possession without a quantifier nuance, as in *venenoso*, ‘poisonous’. Something is poisonous when it has poison in it, and not necessarily a lot of poison. This contrasts with what is a shameful person, which is necessarily someone that suffers a lot of shame, not only someone that has shame-. As *venenoso* we have *ponzoñoso*, *arenoso* and *rocoso*, among many other cases of purely possessive uses of the suffix. Our prediction is upheld: only those adjectives that belong to the inherently quantified group can be turned into nouns (140).

- (140) a. *un vergonzoso*, ‘someone prone to blush’, *un escandaloso*, ‘someone prone to cause scandals’, *un vicioso*, ‘someone who has many vices’, *un empachoso*, ‘someone prone to cause problems’, *un revoltoso*, ‘someone who causes trouble’...
- b. *\*un venenoso*, ‘a poisonous’, *\*un ponzoñoso*, ‘a venomous’, *\*un arenoso*, ‘a sandy’, *\*un rocoso*, ‘a rocky’...

The possessive suffix *-udo* also produces the meaning that the part of the body denoted by the noun with which it is combined is uncommonly big or noticeable; in consequence, all derivatives in *-udo* can be substantivised (141). There are no purely possessive instances of this suffix.

- (141) *un barbudo*, ‘a man with a big beard’, *un bigotudo*, ‘a man with a big moustache’, *un cabezudo*, ‘a man with a big head’, *un ventrudo*, ‘a man with a big belly’, *un narigudo*, ‘a man with a big nose’, *un corajudo*, ‘a man of great courage’, *un concienzudo*, ‘a man of great care’...

The same can be said about an adjectiviser as *-ón*, that, as a possessive suffix, adds the notion that the physical property alluded to by the noun base is shown in excess (142).

- (142) *barrigón*, ‘a man with a big belly’, *narigón*, ‘a man with a big nose’, *pechugón*, ‘a woman with a big breast’, *cabezón*, ‘a man with a big head’, *tripón*, ‘a man with a big stomach’, *orejón*, ‘a man with big ears’, *pelón*, ‘a man who has less hair than usual’...

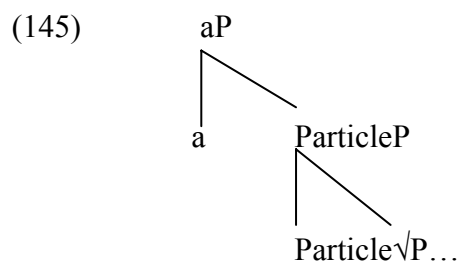
It is noticeable that a subset of nominalisable possessive adjectives refer to cardinal quantifiers (143), (cfr. Pujol 2001 for a systematic account of word formation over numeral adjectives).

- (143) *cincuentón*, ‘someone in his fifties’, *cuarentón*, ‘someone in his forties’, *veinteañero*, ‘someone in his twenties’, *sietemesino*, ‘baby born in the seventh month’...

Adjectives that only express similarity with a certain entity are not quantified, and therefore are unlimited. Consequently, they are not nominalisable (144):

- (144) \**un sedoso*, ‘a silky’, \**un pajizo*, ‘a straw’, \**un negroide*, ‘a blackish’, \**un jamesbondiano*, ‘a James Bond-ish’, \**un servil*, ‘a servile’, \**un arenisco*, ‘a sandish’...

All the cases mentioned can be formally analysed as a structure such as the one in (145), where the suffix selects a particle which denotes a quantity, which in turn selects the root. The meaning of quantity which can be found in the root is due to the presence of this particle.



In Spanish, the particle does not manifest itself. However, the prediction is that in some language of the world some adjectives that can be turned into nouns will explicitly show the particle with a quantity meaning that we propose is contained in the adjective.

We find an example of this type of language in Quechua. In Quechua lexical formations with a possessive meaning are possible (146a), and also some with a meaning of similarity (146b), which are created by addition of the suffixes *-yuh* and *-masi*, respectively. However, when the lexical formation denotes a quantificational meaning, neither *-yuh* nor *-masi* are used, and the only suffix that can derive the noun is *sapa* (147). Note that formations with *sapa* in Quechua strictly correspond to adjectives that can be nominalised in Spanish.

- (146) a. wawu-yuh  
babty-POS  
'that has a baby'
- b. iskuylicu-masi  
school-SIM  
'that is a school-mate'
- (147) a. uma sapa  
cabeza-SAPA  
'cabezón', 'big head'
- b. sinqa sapa  
nariz-SAPA  
'narizotas', 'big nose'
- c. sim sapa  
boca-SAPA  
'bocazas', 'big mouth'
- d. siki sapa  
nalgas-SAPA  
'culón', 'big butt'
- e. qulqi sapa  
dinero-SAPA  
'adinerado', 'wealthy man'
- f. yadnay sapa  
saber-SAPA  
'sabio', 'wise man'.

Interestingly, *sapa* is used in Quechua as the distributive quantifier *cada*, 'each one', or the universal *todo*, 'every', when it accompanies a noun. In consequence, in Quechua, quantified possessives are marked with a different suffix. Spanish is similar to Quechua in that it differentiates some suffixes that are inherently quantified, as *-ón* (*cabez-ón*, 'big head') or *-azas* (*boc-azas*, 'big mouth'). However, Spanish does not differentiate quantified possessives –neither quantified agentives– with different affixes. There are some cases, such as *-oso* and *-dor*, where identical Vocabulary Items are associated to the suffix and the sum of the suffix plus the quantifier.

For the rest of the adjectival suffixes, it is predicted that they will never produce nouns, because they do not fix any value inside the scale. This is the case of adjectival suffixes associated to passive semantics. This is the case of the suffix *-ble*, which also implies a deontic meaning, and sometimes a meaning of possibility. The meaning of an adjective in *-ble*, in fact, is similar to a verbal middle voice, in the sense that neither of them imply that the event they refer to actually takes place. Something can be *utilizable*,

‘usable’, without having been ever used, in the same way that we can say *estas camisas se lavan en agua fría*, ‘these T-shirts are washed in cold water’, even though they have never been washed; actually, what we are predicating from a thing which is called *utilizable* is that it has a certain property, and that it can or must reflect a certain state of things. The state of things need not be real. The meaning of the adjective, then, is not delimited in any sense. We expect, then, that no adjective in *-ble*, can produce nominalisations<sup>66</sup> (148).

- (148) \**un temible*, ‘a fearsome’, \**un navegable*, ‘a navigatable’, \**un risible*, ‘a laughable’, \**un variable*, ‘a variable’...

The same happens with potential and deontic uses of *-dero* and *-izo* (149). These adjectives denote a possible state of being, such as *arrojadizo*, ‘which can possibly be thrown’, and are therefore not delimited:

- (149) \**un arrojadizo*, ‘a throwable’, \**un pagadero*, ‘something that has to be paid’, \**un abridero*, ‘something that can be open’, \**un perecedero*, ‘a perishable’...

### 3.5.1.3. The role of animacy.

As Fernández Ramírez (1951) observed, some cases of adjective to noun conversion are only possible when they are interpreted as animate nouns. We proposed that the animate interpretation is due to the presence of the feature [animate], whose main reading is the human interpretation (cfr. 2.1. in this same chapter). That animacy is interpreted by default as humanness can be shown in generic contexts. In generic contexts, such as the one in (150), even verbs that express animal activities are interpreted metaphorically referred to human beings.

- (150) Aquí ladran mucho.  
Lit. Here bark.3<sup>rd</sup>.pl. a lot

This sentence, even though to bark is predicated from dogs, cannot be understood as ‘there is a place, here, and here every dog barks’, but must be understood metaphorically as ‘there is a place, here, and here every person makes a noise similar to barking’. This is due to its genericness.

As we expect, the same situation arises with animate adjective to noun conversion. The noun in (151) must be interpreted as a human characteristic, even though the adjective is more reasonably predicated from animals, which may have horns.

- (151) cornudo, lit. ‘horned’, ‘husband who has been cheated on’

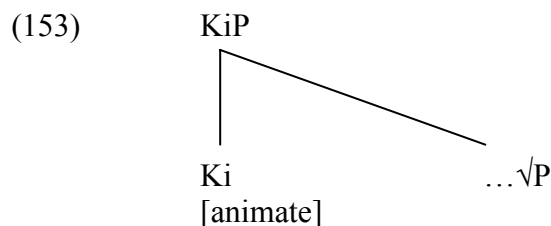
Among the adjectives that can only be converted when they are interpreted as animated, we have the following examples:

- (152) dependiente, liante, gordo, delgado, muerto, creído...  
Lit. dependent, confuser, fat, thin, dead, believed  
*salesman, liar, fat man, thin man, dead man, arrogant man*

<sup>66</sup> We will not take into account here exceptions with a demotivated meaning, such as *notable* (a B in an exam) or *dirigible* (a type of flying object), which are licensed as nouns by means of their conceptual semantics, like the nouns that we will study in 3.5.2.

The reason that animate conversion is easier than inanimate conversion is the presence of the syntactic feature [animate], that is contained in KiP. Following the SPP, the feature [animate], contained in the structural representation of the element, must be interpreted in LF and forces a reading where the referent is animate and, in the absence of other evidence, human.

The presence of [animate] has other implications. Only classes can be animate, because there are no animate properties. The more profound explanation for this pattern is not clear for us, but seems to be a necessary cognitive implication in the human mind: only classes of entities, not scales, show signs of being animated. Given the SPP, then, the presence of [animate] forces an interpretation of class in the root that is merged with it.



The explanation, then, as it was in the case of plurality, is that in the presence of [animate], the SPP determines that the root will be coerced so as to express a predicate with a fixed value; in the absence of this feature, the SPP does not force this coercion and the conceptual semantics depends entirely on the existing Encyclopedic entries.

The relevant question now, then, is why every adjective cannot be turned into a noun with an animate interpretation. The answer is to be found, in our mind, in the conditions of insertion of Vocabulary Items, which we addressed in chapter one, section 2.4. As proposed by Harley & Noyer (2000), some roots may be specified not to be inserted in a context dominated by [animate], which is one of their idiosyncratic pieces of information, and this prevents them from becoming nouns with an animate interpretation (154).

(154) GRUES-  $\leftrightarrow$  [( \*[+animate] ), \_\_\_\_\_ ]

Although the conditions of insertion are idiosyncratic and may have no explanation apart from purely historical accidental reasons, one possible attempt to explain it is that some roots express notions that cannot be compatible with an animate interpretation.

This is the reason why those adjectives that refer to non animate entities and which are quasi-synonyms with other adjectives cannot be converted into nouns, because they cannot be inserted in contexts dominated by [animate] (155):

- (155)
- a. gordo vs. grueso  
un gordo vs. \*un grueso
  - b. delgado vs. fino  
un delgado vs. \*un fino
  - c. viejo vs. antiguo  
un viejo vs. \*un antiguo

A caveat is in order here. In Spanish, the three examples in (156) are possible.



- (156) a. un hombre grueso  
           *a wide man*  
        b. un hombre fino  
           *a fine man*  
        c. un hombre antiguo  
           *an antique man*

However, the interpretation is not one in which the adjective is predicated from the man as an animate entity; the adjective is understood as one of the constituents of the man, which, in turn, are not animate entities. In the case of (156), the adjective *grueso*, wide, is understood as predicated from the physical dimensions of the man, not from the man himself. In consequence, (156a) may be used to refer from a man who is not fat, but whose legs, shoulders, etc., are wide.

In (156b), the adjective *fino* is understood as in reference to the manners or education of the man, not to the man himself, so in English the adjective should be translated as ‘fine’, not as ‘thin’. Therefore, it is possible to say about a fat man that he is *fino*, in the sense just mentioned.

Finally, in (156c), the adjective *antiguo*, ‘antique’, is not understood as qualifying the man himself, but some of his beliefs, which are also non-animate entities. The expression is used to refer to persons who are not open-minded and extremely conservative in their thoughts. Again, it is possible to use (156c) in reference to a young man, so the adjective does not mean ‘old’.

This implies that, even in those cases in which these adjectives combine with an animate noun, they are semantically interpreted as referring to non-animate elements associated with the animate noun, physical dimensions, manners or beliefs and thoughts. We would like to say a few words about how to represent this in a theory of grammar.

The appropriate way to give account of this difference is, we would like to suggest, to analyse these adjectives as binding different parts of the qualia structure<sup>67</sup> of the noun (Pustejovsky 1995). In our mind, it is reasonable to suppose that thought or beliefs of a man are part of the things that he can produce, and therefore are associated with the telic quale. In contrast, the physical dimensions of a person seem to be clearly part of the constitutive quale. Finally, whether the man is old, fat or intelligent, characteristics that distinguish the man from other men, is a matter of the formal quale.

In consequence, in (156a), the adjective binds the constitutive quale, while in (156b) and (156c), it binds different parts of the telic quale. The formal quale is bound by the adjectives *gordo*, ‘fat’, *delgado*, ‘thin’, or *viejo*, ‘old’. Thus, the adjectives in (156) are predicated from non-animate entities inside the qualia structure of an animate noun, and therefore are not examples counter to our analysis.

#### 3.5.1.4. The case of participles.

In this section, we will revise the case of adjectives with a participial origin, including the so-called truncated participles, such as *bizco*, ‘cross-eyed’, *descalzo*, ‘bare-foot’, or *contento*, ‘happy’.

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<sup>67</sup> Pustejovsky (1995) proposes that a noun may have four dimensions of meaning which refer to different properties. The constitutive quale denotes the component parts of the entity denoted (in a book, for example, written information); the agentive quale denotes the origin of the entity denoted, the element that created it (in a book, the writer); the telic quale denotes the function of the entity (in a book, to be read); the formal quale denotes the particular properties that distinguish the entity among the other members of its class (if the book is red, old, round...).

As is known, participles are words whose ascription into a single category is not entirely clear in every case; however, there are some clear instances of participles which are adjectives. From this set, only a subset of adjectival participles can be dominated by little *n* and therefore can be converted into nouns.

As we expect, there are no participles with meaning of resultative state that can be nominalised, unless they are interpreted as animate entities, as *un muerto*, ‘a dead man’. We use as evidence that a participle is resultative the fact that it can be combined in a periphrasis with the verb *quedarse*, that denotes precisely the resultative state in which the subject stays indefinitely. Following this criterion, the participles in (157) belong to the class of resultative states, and none of them can be nominalised (158).

- (157) *quedarse* {*descalzo*, *atónito*, *despierto*, *dormido*, *agotado*, *molido*, *estupefacto*, *dolido*...}  
to remain {bare-foot, astonished, awake, asleep, exhausted, drained, thunder-struck, hurted}
- (158) \**un descalzo*, ‘a bare-foot’, \**un atónito*, ‘an astonished’, \**un despierto*, ‘an awake’, \**un dormido*, ‘an asleep’, \**un agotado*, ‘an exhausted’, \**un estupefacto*, ‘a thunder-struck’, \**un molido*, ‘a drained’, \**un dolido*, ‘a hurted’...

Participles that denote the change of state itself can be nominalised. This is due to the fact that changes of state define a point in which the entity taken as subject acquires or loses a property (Dowty 1979). The transition from the non-possession to the possession of a property marks by itself a defined point inside the scale, which fixes the value of the property and therefore makes it possible that the word is projected as a noun. We take as evidence that a participle expresses a change of state that it can be combined with the verb *ponerse*, ‘to turn’, in a periphrasis. The participles in (159), that denote changes of state, following the mentioned criterion, can be turned into nouns (160).

- (159) *ponerse borracho*, *ponerse bizco*, *ponerse pesado*...  
Lit. to turn drunk, to turn cross-eyed, to turn heavy...
- (160) *un borracho*, ‘a drunkard’, *un bizco*, ‘a cross-eyed man’, *un pesado*, ‘a bore’

Some of the participles in (159) are also able to denote results and therefore may be combinable with the periphrasis *quedarse*, ‘to remain’; however, what is crucial is that they can denote changes of state and are thus combinable with *volverse*, ‘to turn’, while the participles shown in (157) can’t denote changes of state and are thus uncombinable with *volverse*.

Let us now address psych-predicates. There is a set of participles, some of them truncated, which belong to the group of resultative states, and that, as we expect, cannot be nominalised (161).

- (161) \**un {enfadado, preocupado, molesto...}*  
Lit. an angry, a worried, a puzzled...

Let us now consider those participles of psychological verbs with agentive meaning (Varela 2003, 2004, in press). In change of state events, agents are unrelated to the acquisition or loss of a property; this role is exclusive of affected internal arguments and

some prepositional phrases (Tenny 1986). Consequently, agentive participles cannot be turned into nouns, unlike those that denote a change of state.

- (162) un libro entretenido → \*un entretenido, un trabajo cansado → \*un cansado...

As we expect, however, if the agentive participle develops a predispositional meaning, implying quantification of an event, it can be turned into a noun. This is the case with *aburrido*, ‘boring’, which can only be said of a person that has predisposition to causing boredom. Therefore, *un aburrido* is possible for the same reason that *un ahorrador*, ‘someone who has a predisposition to save money’, is possible (cfr. 3.5.1.2.).

We expect also that a participle can be nominalised, also, if it is associated with a modifier that quantifies it temporarily or modally (Varela, *op. cit.*). The nominalisation of the participles in (163a) is not possible (163b); the situation changes if the elements are modified by modal or aspectual prefixes, such as *mal*, *bien*, *super* and *recién* (164).

- (163) a. nacido, hablado, educado, dotado  
 b. \*un nacido, \*un hablado, \*un educado, \*un dotado
- (164) a. recién-nacido, malnacido, malhablado, bienhablado, maleducado, superdotado...  
 b. un recién-nacido, un malnacido, un malhablado, un bienhablado, un maleducado, un superdotado...

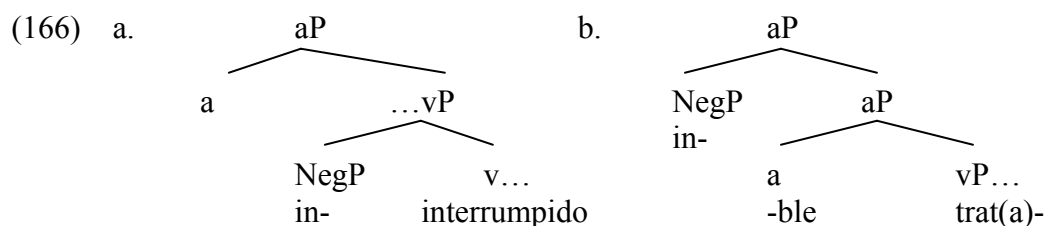
The reason is that elements such as *mal*, *bien* and *super* act as elements of degree which impose a comparison, for they qualify the state which has been reached as higher or lower than a standard value, and, therefore, they presuppose a standard of comparison. The aspectual prefix *recién*, as happens with those participles that express a change of state, selects a temporal limit, and therefore also presupposes a point in which the property is acquired or lost. Formations with *recién* are grammatical as nouns for the same reasons as change of state participles are.

Participles can be used additionally to give further evidence that a syntactic account may explain categorisation. If the requisites that make it possible for a certain element to belong to one category or the other are structural, we expect that the same constituent, merged in different positions, may have different roles. This seems to be the case with participles. Varela (*op. cit.*) argues that participles are verbal forms which may be categorised as adjectives if the eventivity associated with a verb disappears. This is, in order to get an adjective from a verb it is necessary to cancel the eventivity and the associated notions, such as agent. Varela has observed that one way to cancel eventivity is through negation. The data are the following: the negative prefix *in-* makes it possible for the two verbal participles in (165) to be turned into adjectives, and therefore to be able to produce adverbs in *-mente*.

- (165) a. interrumpido (\*interrumpidamente), opinado (\*opinadamente)...  
*interrupted* (\**interruptedly*), *estimated* (\**estimatedly*)  
 b. ininterrumpido (ininterrumpidamente), inopinado (inopinadamente)  
*uninterrupted* (*uninterruptedly*), *ineffective* (*ineffectively*)

Now, Varela explains this pattern in the following way: the negative element refers to the eventive component, canceling it, with the result that the agent and the verbal meaning disappear. In consequence, the participle can become an adjective.

Let us remember that we have given evidence in favour of the argument that the negative prefix may help to turn an adjective into a noun (cfr. 3.5.1.1.), as in *tratable* / *intratable*. Now we see that the same element is able to transform a verb into an adjective. We propose that this difference is the result of the different structural position in which the prefix is merged. In cases such as *interrumpido* – *ininterrumpido*, where the prefix cancels the eventive meaning, it is merged with little v, and in that position it does not affect the head little a; in cases such as *tratable* – *intratable*, it is merged with little a, and in that position it manipulates the scale denoted by this head, selecting a value in it, with the result that the adjective can become a noun (166).



The different role of the negative element would be impossible to explain without reference to the different position of merge; therefore, we take this pattern to be further evidence for a syntactic analysis of categorisation.

### 3.5.2. Analysis of conversion II: the role of conceptual semantics.

Some roots can, by themselves, denote notions that are compatible with scales and also with fixed values. This is a matter of the conceptual semantics associated with the particular Vocabulary Item inserted in a position of exponence and therefore independent of the structural properties of the construction. Our proposal is that some roots contain an entry in the Encyclopedia that allows them to be interpreted as nouns. This depends entirely on the information associated to the particular Vocabulary Item that is inserted in a certain position.

The conceptual information is contained in an idiosyncratic list. This means that there is some unpredictability, and, as it is impossible to determine *a priori* which conceptual meanings will be associated to a Vocabulary Item, this means that some cases of adjective to noun conversion will be subject to cultural information, as Bosque (*op. cit.*) observed.

Among the examples of pieces which undergo this process and can be converted into nouns because of their conceptual semantics we include all the cases discussed in 3.2. which refer to very definite classes of objects which appear always in a particular inflectional form. We repeat here some of the relevant examples.

- (167) unas bravas, un bajo, un alto, unos rápidos...  
 lit. some brave.fem.pl, a low.masc.sg., a tall.mas.sg., some fast.masc.pl.  
*a type of fried potatoes, a type of musical instrument, a type of apartment, a type of stream*

However, there are some semantic tendencies in the behaviour of the conceptual meanings associated with the Vocabulary Items, that, even though they are not regular, must be described. The meaning of some particular roots is such that it makes it

possible for them to be combined with little *n* and little *a*. In this section we will revise the groups of Vocabulary Items that are expected to have, due to their conceptual semantics, an adjectival and nominal behaviour.

### 3.5.2.1. Professional activities.

Roots that denote a professional activity have the property of being able to be dominated by both adjectival and nominal projections (Bosque 1989: 109). When the roots are dominated by *a*, they denote the function attributed to the professional group; when they are dominated by *n*, they denote the professional group itself (168).

- (168) vigilante, administrativo, cazador, domador...  
*care-taker, manager, hunter, tamer...*

From here it follows that lexical formations that contain morphemes such as *-dor* or *-nte*, which are productively used to express functions and jobs, will be good candidates for nominalisation. This prediction is upheld, as we see in (169). The majority of lexical formations in *-dor* / *-nte* express agents, while the other part refers to instruments. That a certain adjective belongs to one of these two big semantic groups can be predicted in a reasonable way depending on whether the original adjective can take as a subject animate entities. If this is so, we will obtain the agentive reading (169a); however, if it can only refer to non-animate entities, the noun will only be able to have an instrumental interpretation (169b). This seems to be a pragmatic restriction that depends on the functions that human referents supposedly may fulfill. For example, it would be strange to expect from a human being that he or she has the power to tan something or someone, when it follows that the only possible reading of *bronceador* is one where it designates an instrument.

- (169) a. escritor, rector, mentor, visitante, cesante, durmiente...  
*writer, rector, mentor, visitor, redundant worker, sleeper,*  
 b. bronceador, fertilizante, lubricante, tranquilizante, sedante...  
*sun-tanner, fertiliser, lubricant, soother, pain-killer...*

Gentilices, elements that describe the provenance of the entities denoted (170), act like Vocabulary Items that denote activities or jobs, as they can be used to express the group of people that is defined by a certain property, or the property itself. In other languages, such as English or Dutch (Booij 1986), there are two different words for the gentile as an adjective and as a noun (170b).

- (170) a. británico, italiano, español, portugués, irlandés...  
 b. Britton / British, Spaniard / Spanish...

### 3.5.2.2. Dimensions and physical magnitudes.

Adjectives that express dimensions and physical magnitudes, such as *alto*, 'high-height', *hondo*, 'deep-depth', *ancho*, 'wide-width', o *largo*, 'long-length', productively produce nouns that express the magnitude itself (171):

- (171) a. dos metros de alto  
 two meters height  
 b. tres metros de hondo

three meters depth  
c. tres centímetros de ancho  
three centimeters width  
d. cuatro metros de largo  
four meters length

We will describe the meaning of these elements with more precision. A dimensional adjective expresses a scale that defines a set of possible values that characterise a physical magnitude. In this way, *ancho*, ‘wide’, as an adjective, expresses the value with which the physical magnitude of width is manifested; as a dimensional noun, it expresses the magnitude as a whole. In this case the kind denoted is the class that is formed by the set of every value expressible in that particular physical dimension. As not every value possible is contained in the class denoted by the noun, the abnormality of (172) follows:

- (172) # tres litros de ancho, #cuatro horas de largo...  
three liters width, four hours length

The value determined by *tres litros* or *cuatro horas*, as can be seen, cannot be expressed in the dimension of width or length, respectively.

It has been noted (Givón 1978) that only dimensional adjectives that occupy the positive pole of the scale can be taken as nouns that denote the abstract notion of dimension. Therefore, nouns such as *#el estrecho*, ‘the narrow’, *#el bajo*, ‘the small’, or *#el corto*, ‘the short’, are impossible as dimensional nominalisations. This phenomenon is related by Givón with the fact that the negative elements on a scale is cognitively marked, so it cannot be used to denote the whole set of values of the scale.

### 3.5.2.3. Colour terms.

Roots that express colours are another noticeable case of elements that can be nominalised or adjectivised (173).

- (173) a. una falda roja, un zapato verde, un coche amarillo...  
a red skirt, a green shoe, a yellow car...  
b. un rojo oscuro, un verde amarillento claro, un amarillo rojizo...  
a dark red, a light yellowish green, a reddish yellow...

The cause of the capacity of colour roots to manifest themselves in two different categories must be traced back to their cognitive character, which determines some aspects of their conceptual semantics. Colour terms inherently express defined notions, for each colour noun determines a specific point inside the tridimensional solid that denotes the colour space where these terms are grouped (Jackendoff 1983). In that sense, every colour term refers deictically to a determinate value inside a cartesian axis space, and therefore it is not surprising that they can act as substantives.

In the same sense, the notion of colour itself is understood by speakers not as a property of the substance, but as a part of the substance itself. We say that an object is red, for example, even though the only red thing may be its surface. In the same way as it happens with the notion of shape, the speaker interprets that the colour defines the individual that possesses it, in such a way that there is a natural tendency to define the entities of the world by the colour that they manifest. In effect, races, political adscriptions and human attitudes are defined by a more or less metaphorical relationship

with a colour term (174). From here it follows that the colour is a good candidate to define a class and, therefore, to manifest itself as a noun.

- (174) a. los blancos, los negros, los amarillos, los verdes, los rojos, los colorados...  
 b. the white (people from Caucasian race), the black (people from black race), the yellow (people from Oriental race), the green (environmental activists), the red (comunist supporters), the coloured (a certain Argentinian political party)...

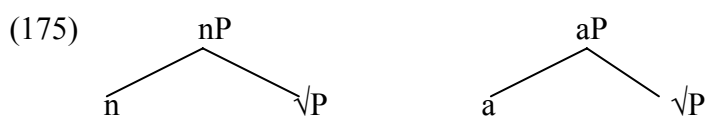
### 3.6. An explanation of the characteristics of conversion.

In this section we will offer an explanation of some of the properties of conversion, which have been described in the bibliography, in order to show that our explanation is more explanatory than the previous accounts and does not have to face some problems that affected them.

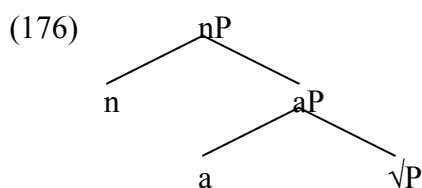
#### 3.6.1. Directionality.

The previous approaches that we have revised have to choose between a directional or a non directional perspective, which is determined by the procedure used to explain conversion. In our mind, there are clear directional cases in which it is possible to identify a word which can be used to construct the other, but also cases where it is not possible to find a more basic word and both members of the pair seem to be equally basic, such as the pairs formed by instrumental verbs and nouns of instrument, or verbs and nouns such as Spanish *compra*.

In brief, in the DM framework, conversion is the situation where the same vocabulary item appears dominated by two or more different functional projections, which are not realised by any phonological item. Let us observe that, from this perspective, conversion may be directional or not. Two different situations are possible. In the first one, the same root, an element without category, is dominated alternatively by two different Vocabulary Items. In this case, there is no directionality, because none of the two combinations is in any sense more basic than the other, and none of the two combinations is the base for the other.



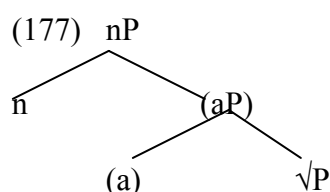
This configuration explains non directionality. However, there is another logical possibility, and it is that the set formed by the root and one functional projection is dominated by another functional projection, which is not produced phonologically. In this second case, we have directionality, because there is a more basic form –the set formed by the root and the first functional projection- which is used to derive another word, by merging with a new functional projection.



### 3.6.2. Additional restrictions to conversion.

The first property is restrictiveness. Conversion is more restricted than overt derivation. A lexical item can change its grammatical category with an overt affix more easily than without it. This fact is explained in a simple manner in the Lexicalist framework, considering derivation and conversion different processes. It is necessary to show how these data are predicted in the DM framework. We will argue that DM, rather than assuming that conversion and overt derivation are different and therefore may not be equally productive, actually predicts that conversion will be more restricted than derivation.

Our proposal is that restrictiveness is a result of the conceptual semantics associated with the Vocabulary Items. Structurally, conversion and overt derivation are the same construction (177), so the differences cannot lie in the morphosyntactic tree:



The difference is due to the different behaviour in the PF branch of the grammar. In conversion there is no Vocabulary Item inserted in the position defined by the higher functional projection –in this case, little *n*-. In overt derivation, on the other hand, a certain Vocabulary Item occupies that position. For example, one possibility is that the position is occupied by the Vocabulary Item -(I)DAD, ‘-ity’; let us assume this for the sake of the exposition.

Vocabulary Items, in the Encyclopedia, are associated with particular entries where the conceptual information is defined. Let us assume that the conceptual information of the item -(I)DAD is the one illustrated in (178).

(178) -(I)DAD → Class that denotes the property of being X

This conceptual information is added to the representation of any structure where –(I)DAD is inserted. Therefore, any root inserted in a position dominated by a node where -(I)DAD is inserted will be interpreted conceptually as a property X, independently of its own conceptual properties, by virtue of conceptual coercion. Moreover, as -(I)DAD is associated with a conceptual entry of its own, and this entry specifies that it is a class, every structure dominated by a node where this particular Vocabulary Item is inserted will be able to express a class. Pensalfini (1998) notes that suffixes are Vocabulary Items which seem to be associated consistently with some abstract conceptual notions. This is what an overt Vocabulary Item does with the base: provide conceptual information that changes the denotation of the base.

Imagine that there is no Vocabulary Item inserted in the position of the functional projection. In this case, the only conceptual information available is that which is contained in the Vocabulary Items inserted in the root and / or the intermediate functional projections. If the conceptual semantics associated with those Vocabulary Items doesn’t allow the construction to denote a certain notion, there is no additional information to use in order to save the structure: conversion will be impossible due to semantic reasons, because the conceptual semantics of the elements inserted is not compatible with the structural semantics imposed by the morphosyntactic structure.



The prediction of this theory coincides with the data, that show that bases without an explicit VI corresponding to a derivative head express more ductile concepts than those bases with an overt derivative VI (Lieber 2004).

The same situation also offers a simple explanation about why conversion between some categories is more straightforward than conversion between others. Some conversions are easier than others because, conceptually, there are more similarities between different conceptual semantic notions. Conversion between two categories will be possible to the extent that the meaning of the same root will be able to relate two different conceptual notions. For instance, Bosque (1989) notes that it is relatively easy to reinterpret properties, which are the conceptual notion associated with adjectives, as kinds, which are the conceptual notion associated with nouns. Therefore we expect that noun to adjective conversion, or the other way around, will be more straightforward than verb to adjective or verb to noun conversion, and this seems to be the case to a certain extent.

### 3.6.3. Regularity.

Another property of converted words is that they are obligatorily regular. Verbs that are not converted can be regular or irregular, but converted verbs must be obligatorily regular.

The answer to this question in the DM framework is also related with the properties of the Vocabulary Items. Remember that the Vocabulary is a list of idiosyncratic information, among which is found the formal information associated with the strictly morphological features, as for example the particular theme vowel or word marker that, independently of any syntactic feature, a certain base has to be combined with. This means that any formal irregularity must be present on this list and associated with a particular Vocabulary Item. Consider for example an irregular verb such as English 'sing'. In the entry of this element there must be present the information that the past tense feature associated with the node of Tense contained in its word structure won't be satisfied through insertion of *-ed*, which is the regular Vocabulary Item for past tense in English, but through a special Vocabulary Item, which in this case seems to be a partial set of phonological features that change the vowel of the root. Assume, for the moment, that this information is formalised as a mark [irregular] present in some Vocabulary Items.

(179) SING [irregular]  
CONSTRUCT  
REFER  
SPEAK [irregular]

Once that vocabulary insertion has taken place, the hierarchical structure defined through syntactic merging is transformed in a linear structure with a relation of precedence imposed by independent requisites of the PF interface. If there is a particular Vocabulary Item associated with a particular functional projection, the fact that the word is irregular will depend on the fact that the Vocabulary Item inserted has the feature [irregular]; however, if there is no Vocabulary Item inserted, the feature [irregular] will not be present in the immediate context of insertion of the next Vocabulary Item, so the regular element will be inserted.

If a Vocabulary Item is inserted, there is a possibility that the resulting word will be irregular, because it is possible that some formal idiosyncrasies are present in the string due to the requisites of the particular Vocabulary Item that has been inserted in that

position, as in (180). The sign  $\wedge$  expresses a relationship of linear adjacency (Embick & Noyer 2001).

(180)  $VI \wedge VI[\text{irregular}] \wedge VI$

Now imagine the situation where there is no Vocabulary Item inserted in the position of exponence defined by the functional projection. In this case, irregularities are impossible, because there is no VI to bear the feature [irregular] in the functional projection position and the root itself is not in the immediate context of insertion of the Tense element. The result is that there is no indication that the formal elements associated with that Vocabulary Item must be different, and in consequence the grammar will insert the elements by default. In the case of Spanish, where the first adjacent element that the verbal head finds is a Theme Vowel, the theme vowel inserted is /a/, which is the unspecified theme vowel (Oltra 1999).

(181)  $VI \wedge [\text{Zero}] \wedge VI$

The prediction is again that a converted word must be regular, because the absence of a Vocabulary Item in the sequence disallows the presence of irregularities, which must be specified in the entries of particular VI's.

#### 3.6.4. Further derivation.

We have seen that in Spanish, against what Borer (1999, 2004) proposed for English, which is shown in 3.4., a word with an explicit affix can be converted into another category, in such a way that conversion can take as input underived and derived words.

(182)	a. [transform] <sub>n</sub>	-	[transform] <sub>v</sub>
	b. [[transform]-ation] <sub>n</sub>	-	*[transformation] <sub>v</sub>
	c. [viejo] <sub>a</sub>	-	[viejo] <sub>n</sub>
	Lit. old	-	old man
	d. [[empalag]-oso] <sub>a</sub>	-	[empalagoso] <sub>n</sub>
	Lit. cloy-ing	-	someone cloying

In contrast, it is true that in Spanish is not possible to further derive a complex word which has been converted into another category.

(183)	[empalagoso] <sub>n</sub>	-	*[empalagosear] <sub>v</sub>
	someone cloying	-	*to act like someone cloying

In Lexicalism, this characteristic can be explained if conversion, unlike derivation, is a terminal process after which no other word formation rule can be applied. The answer that we will provide from our perspective is that grammar allows formations such as those in (182b) and (183), but they are ruled out because the speaker is not able to parse them, for he or she cannot identify the functional category which is not phonologically expressed.

Let us assume a general principle which seems to be quite plausible: it is possible not to express phonologically a constituent in a grammatical structure, but, crucially, only if that constituent can be identified by the speaker. This is, we expect that it will be

possible to use conversion in those cases in which the empty functional head can be identified.

Let us remember also that Spanish, unlike English, has overt morphemes that materialise the different inflectional features, such as agreement in the adjective or in the verb. The paradigm of the Spanish verb, adjective or noun is much more complex than in the case of English. The VI's that manifest these morphological constituents can be used to identify the category of the empty functional head. For example, the speaker will know that *empalagoso* in (182d) is an adjective or a noun because of the inflectional endings that it takes; equally, he or she will know that a form such as *compra*, lit. 'buy', is noun or verb because he or she identifies the category thanks to the inflectional endings that attach to this base. In Spanish, this is always possible if conversion is the last step in the derivative process, because the functional projection is recognised through the phi features associated to it.

English lacks in most cases VI's to manifest inflection. Due to this, we expect that if a word ends in an affix such as *-ation*, with a recognisable category, it won't be possible to convert the word into another category, because there are no overt inflectional features which make it possible to identify the new category, phonologically empty. The relevant principle is, therefore, the one stated in (184):

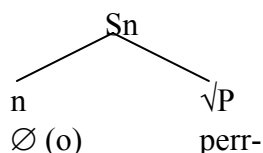
- (184) A phonologically empty functional projection must be identified by the inflection associated to it.

Following this principle, we expect that Spanish behaves like English in those cases in which inflection cannot identify the functional projection. We propose that this explains the ungrammaticality of the pair  $[empalagoso]_n - *[empalagosear]_v$ . In the grammatical formation  $[empalagoso]_n$ , the little *n* is identified by the inflection associated to the functional projection, which is the head of the word. In contrast, in the ungrammatical  $*[empalagosear]_v$ , the last functional projection is a little *v*, which is phonologically realised, but the little *n*, which is not phonologically overt, cannot be identified by the inflection, because, being inside a word, it cannot have inflection of its own. Therefore, the speaker does not identify the projection and is unable to parse the word.

The principle just stated also predicts that we cannot have two consecutive processes of conversion, because the inflection only identifies the outer functional projection.

There is, though, another case to explain. As roots lack any category, cases such as *perr(o)*, lit. 'dog', are in a strict sense instances of conversion (185a). However, this converted word can be derived with an overt affix, as can be seen in (185b).

- (185) a.



- b. perruno, perrera, perrear...  
*doggish, kennel, to act like a dog...*

In principle, this seems to go against the principle stated in (184). However, let us observe that the functional projection which is not phonologically expressed is the first functional projection dominating the root, and therefore is the one which assigns a

grammatical category to it. In chapter five, we will argue that the combination of the root and the first category-assigning functional projection has a special status in morphology. The problem which formations as those in (185b) posit will be discussed in chapter five, section 3.6.4.

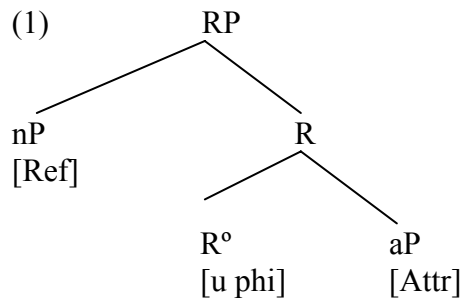
### **Chapter Three**

#### **ADJECTIVES AS ARGUMENTS: RELATIONAL ADJECTIVES**

##### **1. Introduction: adjectives as arguments.**

As has been made explicit in the previous chapter, we propose that the difference between grammatical categories is due to the presence of the formal features that appear in the different functional projections in the syntax. From here it follows that the behaviour of a syntactic item is determined by its feature matrix.

In the case of adjectives, we have proposed that one of their basic characteristics is that they are a predicative category. Predication is determined by the matrixes of features contained in the functional projections that define this category. The feature matrix  $a^0$  contains the interpretable feature [Attr], which will be read in logical form as attribution of a property, and the feature matrix  $R^0$  licenses a specifier position for the subject of predication and provides a matrix of phi features which establishes a formal relationship between the predicate and the subject (1). When these two projections are combined, we obtain a syntactic adjective in a language such as Spanish.



Consequently, we are committed to the idea that adjectives are predicates. As for nouns, they function as arguments of predicates, and this is also due to the set of features contained in their functional projections.

One potentially problematic case for our theory is that in which an adjective is the argument of a predicate, instead of being the predicate itself. In structures such as those in (2), the morphological adjective is the argument that satisfies one of the open positions that the deverbal noun, the predicate, has (2a, 2b and 2c). Some nouns –such as *guerra*, ‘war’, *fiesta*, ‘party’ and *clase*, ‘class’- are also eventive, even though they are not morphologically derived from verbs. These elements can also have adjectives as arguments, as (2d) reveals.

- (2)
- a. la producción pesquera china  
The Chinese fishing production
  - b. la importación sedera francesa  
The French silk import
  - c. la decisión presidencial  
The presidential decision
  - d. la guerra rusa  
The Russian war

(2a) is interpreted as the nominal counterpart of the sentence *China produce pesca*, ‘China produces fishing’, where *pesquera*, ‘fishing’, is the patient and *china*, ‘Chinese’, is the agent. In (2b), *sedera*, ‘silk’, is interpreted as the theme and *francesa*, ‘French’ is the agent. In (2c), *presidencial*, ‘presidential’, is interpreted as the agent that takes a decision, and in (2d) *rusa*, ‘Russian’, is interpreted as one of the agents that intervenes in the process expressed by the noun *guerra*, ‘war’.

For the sake of the exposition, consider the following imperfect representation of the sentence in (2a) in lambda notation (Chierchia & McConnell-Ginet 2000).

- (3)  $\lambda y \lambda x [\text{producción}'(x, y) \wedge \text{pesquera}'(x) \wedge \text{china}'(y)]$

This class of adjectives, which express arguments and not predicates, are known in the literature as Relational Adjectives or Referential Adjectives. Their argumental nature has been observed in the most relevant papers that study these elements. Kayne (1981) is, in our mind, the first classical reference in Generative Grammar that analyses these elements as arguments of a predicate, expressed by the noun. This author is more precise and notes that a relational adjective can only express the external argument of the noun if there is another argumental expression in the phrase (4). If the arguments are expressed with nouns or PPs, there are no restrictions to the expression of the external argument.

- (4) a. The Italian invasion of Albania (where *Italian* is agent)
- b. \*The Albanian invasion by Italy (where *Albanian* is patient)
- c. Italy's invasion of Albania.
- d. Albania's invasion by Italy.

Giorgi & Longobardi (1991) also observe that relational adjectives must be predicates of an argument and note that Kayne's data in English is found also in Italian (5).

- (5) a. L'invasione italiana dell'Albania.
- b. \*L'invasione albanese da parte dell'Italia.
- c. La sua invasione dell'Albania.
- d. La sua invasione da parte dell'Italia.

Bosque & Picallo (1996) also observe that relational adjectives are arguments of a noun, and present similar data to those of Kayne and Giorgi & Longobardi. As Bosque & Picallo's data is immediately relevant to our analysis, we will postpone its discussion for another section (cfr. 4.1.1).

Let us note that relational adjectives cannot realise any thematic role. The only thematic roles that they can express are those typical for external arguments, experiencer and agent (6) and for internal arguments, theme and patient (7). Datives cannot be expressed by relational adjectives in Spanish (8a), although there is one single adjective, *mariano*, 'referred to the Virgin Mary', that can be used as such (8b). We suggest that *mariano* is an exception which comes from Latin.

- (6) a. el interés francés por el estilo.  
lit. the interest French for the style  
The French interest for the style
- b. la invasión francesa de Indochina  
lit. the invasion French of Indochine  
The French invasion of Indochine
- (7) a. la importación textil española  
lit. the import textile Spanish  
The Spanish textile import
- b. la producción sedera china  
lit. the production silk Chinese  
The Chinese silk production
- (8) a. \*la donación española (as 'X gives Y to Spain')  
lit. the donation Spanish, 'the Spanish donation'.
- b. ofrendas marianas (as 'X offers Y to the Virgin Mary')  
lit. offers to-Mary, 'Marian offers'.

Going back to the semantic representation in (3), we would like to point out that it is imperfect, among other reasons, because it doesn't take into account the fact that relational adjectives, unlike qualitative adjectives, do not denote gradable properties, but express properties with fixed value, and are semantically interpreted as denoting the kinds that are expressed with the nouns that are their morphological base. Observe in

the glosses of (2) that in many cases, a Spanish relational adjective is correctly translated in English as the corresponding bare noun. In consequence, a representation that gives a more accurate account of the semantic intuition of the speaker with respect to a phrase such as (2a) would be (9), instead of (3).

- (9)  $\lambda y \lambda x [\text{'producción'}(x, y) \wedge \text{'pesca'}(x) \wedge \text{'china'}(y)]$ <sup>68</sup>

This characteristic of the semantic interpretation of a relational adjective is to be related to another relevant property. As we have discussed extensively, a qualitative adjective denotes a property which has to be expressed in a certain degree, because it is a variable predicate. Relational adjectives, as they have the same denotation as nouns, are stable predicates. Consequently, a relational adjective is not gradable (10).

- (10) a. altísimo, muy alto, bastante alto, poco alto, demasiado alto...  
*tall-SUP, very tall, quite tall, a little bit tall, too tall..*  
 b. \*electricísimo, \*muy eléctrico, \*bastante eléctrico, \*poco eléctrico...  
*electric-SUP, very electric, quite electric, a little bit electric...*

As relational adjectives are not variable predicates, their denotation cannot be understood as a scale. An immediate consequence of this is that relational adjectives are not polar adjectives. Polarity is a characteristic of some pairs of qualitative adjectives which denote values of the same scale, but occupy opposite positions on it. One of them is used to denote the values that are smaller than the standard value and the other, those values which are higher or equal to this standard (11, cfr. chapter two, 3.5.1.1.).

- (11) alto ... bajo; gordo ... delgado; limpio ... sucio  
*tall ... short; fat ... thin; clean ... dirty*

There are no polarity phenomena with relational adjectives. In fact, the negation of a relational adjective is different from the negation of a qualitative adjective. The negation of a qualitative adjective expresses the lower part of the scale denoted by it (12b, cfr. Kennedy 1999), but the negation of a relational adjective expresses the set complementary to that which is expressed by the affirmative expression (12a). That is, the negation of a relational adjective expresses everything which is not included in the kind that the relational adjective expresses.

- (12) a. una intervención no-bélica  
 a non-bellicose intervention  
 (= *an intervention that has to do with anything which is not war*)  
 b. una intervención in-útil  
 a use-less intervention  
 (= *an intervention whose success is lower than what would be enough to be considered useful*)

Another semantic property of relational adjectives is that they usually cannot occur in predicative position, as for example in nominal predicate sentences with the verb *ser* / *estar*, 'to be'. The exception are sentences such as those in (13), taken from Demonte (1999: 158).

<sup>68</sup> In this representation we are ignoring that deverbal eventive nouns are also expressing events, not individuals, and therefore 'producción' should be represented as 'producir'.

- (13) a. La revista es mensual.  
Lit. The magazine is monthly.  
b. La comedia es musical.  
Lit. The comedy is musical.  
c. La primera elección de la que salió vencedor fue municipal.  
Lit. The first election she won was municipal.  
d. La zona sur es industrial.  
Lit. The south zone is industrial.  
e. La medida es política.  
Lit. The measure is political.

These constructions are quite limited, in fact. Observe that none of the relational adjectives in (14) are true arguments of the noun they modify. If we consider relational adjectives such as those in (2), which express theta roles of the predicate, we observe that the construction is completely ungrammatical.

- (14) a. \*La producción es pesquera / china.  
Lit. The production is fishing / Chinese.  
b. \*La decisión es presidencial.  
Lit. The decision is presidential.  
c. \*La importación es sedera / francesa.  
Lit. The importation is silk / French.  
d. \*La guerra es rusa.  
Lit. The war is Russian.

Relational adjectives such as those in (13) constitute a particular subclass of relational adjectives which do not express thematic roles, but denote kinds which establish a certain relationship, contextually underspecified, with the noun that the adjective modifies. Bosque (1993) distinguishes this subclass with the distinctive of Classificative Relational Adjectives (from now on, Classificative-R). Adjectives that saturate thematic roles are called by this same author Thematic Relational Adjectives (from now on, Thematic-R)<sup>69</sup>.

As Demonte (1999) observes, Classificative-R's can be considered arguments in a wide sense. If an argument saturates a variable position which is open in the semantic representation of a predicate, Classificative-R's saturate open positions in the representation of the *qualia* structure of nouns (Pustejovsky 1995). While qualitative

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<sup>69</sup> In any case, observe that the sense in which the expressions in (10) are said to be predicates is the same sense in which it is said that a noun is a predicate, because it appears in the predicative position in sentences such as (i). It seems to be the case that it is inappropriate to call the noun 'a predicate', because what is a predicate is not the noun by itself, but the noun accompanied by the verb 'to be' and most probably other elements (cfr. Baker 2003: 34 and folls.). We will discuss predicative nouns in detail in the next chapter.

- (i) a. Juan es médico  
b. Esto no es una pipa



adjectives generally express notions that have to do with the formal *quale* of the noun, Classificative-R express notions that define external properties of the entity denoted by the noun, such as its origin, function or the elements with which it establishes a constitutive relation. Technically, the origin of the entity expressed by the noun is denoted by the agentive *quale* (15a), the function is referred to by the telic *quale* (15b) and the components of the element are expressed by the constitutive *quale* (15c).

- (15) a. análisis microscópico  
Lit. microscopic analysis  
(*análisis con microscopio* = *analysis done by means of a microscope*)  
b. cartel publicitario  
Lit. publicitary poster, *advertising poster*  
(*cartel para publicidad* = *poster used for advertising purposes*)  
c. tren pendular  
Lit. pendular train  
(*tren con péndulo* = *train which contains at least one pendulum*)

Let us observe that this class of relational adjectives are frequently synonyms of PPs, as we have tried to show in the paraphrases in (15). As for Thematic-R, the phrases in (16) are synonyms of the phrases in (2).

- (16) a. La decisión **del** presidente  
*The decision of the president.*  
a. La producción **de** pesca **por** China  
*The production of fishing by China*  
b. La importación **de** seda **por** Francia  
*The import of silk by France.*  
c. La guerra **de** Rusia  
*The war by Russia.*

There is a big difference, though, between the two types of prepositional expressions that correspond to Thematic-R and Classificative-R in Spanish. In (15) the prepositions involved in the paraphrases are lexical prepositions with a clear conceptual meaning, whereas in (16) the preposition which is used is *de*, ‘of’, which has a very weak meaning to the extent that it is used both to express the patient and the agent (cfr. for example RAE 1973: 3.8.5., *a* and *d*). This preposition *de* without conceptual meaning is generally used to express genitive case in Spanish. It would seem, then, that there is a semantic and formal relationship between PP’s and relational adjectives<sup>70</sup>.

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<sup>70</sup> Let us observe incidentally that in some languages the morpheme that combines with a noun to produce a relational adjective is the same morpheme that marks genitive case in noun complements. A relevant example of this is Basque (all examples taken from Urquizu 1996). In this language, the suffix *-ko*, which is a case marker, is used to form relational adjectives from both vernacular and greco-latin stems (i).

- (i) politi-ko (politic), ekonomi-ko (economic), itsaso-ko (naval), kleri-ko (clerical), gizarte-ko (social), nazio-ko (national), fenomeno-ko (phenomenic).

Qualitative adjectives derived from the same bases are realised by different procedures. For example, if in Spanish the adjective *fenomenal* can be relational (phenomenal) and qualitative (great), in Basque it has two possible translations: as *fenomeno-ko* if it is a

It has been observed, also, that relational adjectives show noun-like properties with respect to the semantic interpretation of number. Levi (1978: 23-24) points out that qualitative adjectives –predicative adjectives in her terminology- cannot be combined with prefixes that quantify, such as *multi-*, *bi-* o *mono-*. On the other hand, relational adjectives can (17).

- (17) a. \*mono-alto, \*bi-rrojo, \*poli-cercano, \*tri-fuerte...  
 Lit. mono-tall, bi-red, poly-close, tri-strong...  
 b. mono-cromático, bi-rradial, poli-silábico, tri-argumental...  
 Lit. mono-chromatic, bi-radial, poly-syllabic, tri-argumental...

Levi observes that this property makes relational adjectives similar to nouns, for, as this author claims, only nouns –and noun phrases- can be counted.

Bosque (2002) also observes that relational adjectives have number properties of nouns. This author notes that the coordination of two adjectives in singular cannot modify a plural phrase (18a). In contrast, two noun phrases in singular can modify a phrase in plural, providing it with a cardinality value (18b).

- (18) a. \*los embajadores alto y bajo.  
 Lit. the ambassadors.pl. tall.sg. and short.sg.  
 b. los embajadores de Méjico y de Argentina.  
 Lit. the ambassadors.pl. from Mexico and Argentina.

Relational adjectives can be grouped with noun phrases, for they also provide the cardinality value of the construction. The number of ambassadors in (19) is determined by the number of relational adjectives that appear.

- (19) Los embajadores mejicano y argentino.  
 Lit. the ambassadors.pl. Mexican.sg. and Argentinian.sg.

Some languages reflect the difference between qualitative and relational adjectives in morphology. This is the case of Japanese. In this language, qualitative adjectives are characterised by the fact that they end in the phoneme /i/, preceded by the vowels /i/, /o/, /u/ (20). This can be interpreted as an adjectival Word Marker in the sense of Pazó (1989) and Harris (1991). This element, however, does not appear in the case of relational adjectives. On the contrary, relational adjectives are formed with the morpheme *-no* (21), which is the genitive postposition, and, incidentally, is also used to nominalise qualitative adjectives in Japanese (22) (all examples from Gonzales 1986).

- (20) takaj (alto), shiroj (blanco), oishij (sabroso), yawakaj (blando)...

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relational adjective referring to phenomena, and as *zorragarria* if it is a qualitative adjective meaning ‘great’, ‘fantastic’.

As additional evidence that *-ko* is a case marker, observe that it appears peripheral to other case markers. For example, it is added after the case marker *-nora* to express directions. This means, following standard assumptions about the placement of case markers, which are always after any other class of inflectional markers, that *-ko* expresses case.

- (21) a. t     – no  
 oriente – R.A.M.  
 ‘oriental’  
 b. sankaku – no  
 tri  ngulo – R.A.M.  
 ‘triangular’
- (22) a. nagai – no  
 largo – R.A.M.  
 ‘el largo’  
 b. yawarakai – no  
 blando – R.A.M.  
 ‘el blando’

Relational adjectives in Spanish, as we have seen, display many properties which would be expected from nouns. In some languages the nominal properties of relational adjectives are even clearer. For example, relational adjectives with possessive interpretation in Upper Sorbian, a Slavic language (Corbett 1987), are well-known because they can be modified by a determiner that agrees with them. As we have seen, regular adjectives cannot trigger agreement with other adjectives. Consider the sentences in (23).

(23)	[[Determiner	Relational Adjective]	Head Noun]
	a.mojeho my gen.sg.masc my brother’s children	bratow.e brother’s.nom.pl	dzeci children.nom.pl
	b.mojeho my.ge.sg.masc. my husband’s sister	muzowa husband’s.nom.sg.fem	sostra sister.sg.fem
	c.mojeje my.gen.sg.fem. my sister’s place	sotrine sister’s.nom.sg.neut	mestno place.sg.neut
	d. naseho our.gen.sg.masc. our teacher’s daughter	wucerjowu teacher’s.acc.sg.fem	dzowku daughter.acc.sg.fem
	e. w naseho in our.gen.sg.masc. in our father’s house	nanowej father’s.loc.sg.fem.	chezi house.loc.sg.fem

In these examples, the head noun is in the third column. It is modified by a relational adjective that agrees with it in gender, number and case and expresses a possessive. This adjective, which is in the second column, cannot be graduated and does not express a quality. What makes these constructions extraordinary is found in the first column: the relational adjective has a modifier -a possessive determiner- which manifests agreement in number and gender with the noun which is the morphological

base of the relational adjective. The modifier does not agree with the head noun. Instead, *mojeho* in (23a) agrees with *brat*, which is the base of the possessive adjective *brat-ow*, not with *dzeci*, although this last constituent is the only morphological noun in the expression. These constructions illustrate how relational adjectives are to nouns. In Spanish, there are no equivalent structures because, first of all, relational adjectives cannot have their own determiners.

In summary, relational adjectives are a class of postnominal adjectives that do not act like normal postnominal adjectives, because they are arguments. These elements are examples counter to our characterisation of the adjectival category. In addition to being arguments, relational adjectives show other noun properties, such as their semantic denotation, the fact that they cannot be combined with degree modifiers and the fact that they usually cannot be in a predicative position. They have other noun properties, but we will review them later on in this chapter.

We would like to observe now that the existence of relational adjectives can be taken as evidence in favour of a characterisation of grammatical categories which is different from our syntactic proposal. Relational adjectives, with their noun properties, can be analysed in a framework where grammatical categories are a label in the lexical signature of a lexical item, if there is an additional morphological operation that can change this label and nothing else in the lexical entry of the word. This operation is Transposition in the framework of Beard (1993, 1995).

Beard advocates for the Separation Hypothesis, which implies that the phonological realisation of morphemes is independent of the addition of syntactic or semantic features to the base. In Beard's view, morphology is a system of rules that take a base word and produce some change in it. This change can be operated on any grammatical level, and may not affect the other levels in any sense. Transposition is the situation in which a rule modifies only part of the syntactic label of a word, and its morphological shape, but not its semantic properties. It has been argued, from this theoretical point of view, that relational adjectives are transpositions that take nouns and alter their morphological appearance keeping intact their capacity to be arguments, which is claimed to be a semantic property in this framework.

In the next section, we will discuss Transposition and we will argue that it is an operation which is not well motivated and does not account for the nature of the phenomena that it is supposed to explain. We will propose a way to explain cases such as relational adjectives in the Distributed Morphology framework, to show in a third section that they are not real counterexamples to our grammatical categories proposal.

## 2. Transpositions.

The observation that some word formation processes change the semantics of the base, whereas others do not and only change the grammatical function of the word, has been made in the literature for the first time, to our knowledge, by Kurylowicz (1936). This author observed that some morphological rules do not have semantic content. Marchand (1969) proposed calling lexical operations that do not change the semantics of their bases 'transpositions'. This is the term that is also used in Beard (1988, 1993, 1995).

The idea that is behind the concept of transposition comes from the observation that most morphological processes add or change semantic features in the base word (cfr. 24, from Beard 1995: 166, 7.14). When the words in (24) are subject to a lexical process, the output has a different meaning, which implies notions such as Subject, Object, Instrument and Locus, which in Beard's terms are grammatical functions. The

crucial point is that the two words implied in the lexical derivation have different meanings.

- (24) a. recruit – recruit-er (subject)
- b. recruit – recruit-ee (object)
- c. mix – mix-er (instrument)
- d. bake – bak-ery (locus)

Let us consider for the sake of exposition an example from Spanish. The lexical derivation that is materialised phonologically by *-dor* does not only change the grammatical category of the base word from verb to noun, but also implies the addition of semantic features, such as Agent or Instrument, to the semantic information of the base (25).

- (25) broncear (to tan) – broncea-dor (tanner), bailar (to dance) – baila-dor (dancer)...

Other morphological processes do not change the semantics of the base. Beard calls them ‘asemantic reclassificatory rules’, because they are rules whose function is to classify an item from a certain class to another (26).

- (26) rare (A) → rarity (N)
- new (A) → newness (N)
- impress (V) → impressed (A)
- excite (V) → exciting (A)
- state (V) → statement (N)
- crystal (N) → crystallise (V)
- dry (A) → dry (V)

In all these cases, as Beard claims, we are dealing with a rule that changes the function of a word without introducing new semantic features. Occasionally, the rule is accompanied by the addition of phonological material, but this is not always the case, as the pair *dry* (V) – *dry* (A) shows.

Beard’s strong proposal is that the grammar is able to transpose a member of every major lexical category -noun, verb and adjective- to any other major lexical category. This requires the grammar to contain a set of rules which only provide the features responsible for the new grammatical category<sup>71</sup>. These features are called G-features in his terminology (1995: 46). When a transposition rule adds new G-features to a base, the previous G-features present in the base are neutralised, not erased. They acquire a value ‘zero’ which the grammar cannot recognise, but they do not disappear<sup>72</sup>.

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<sup>71</sup> For example, ‘any noun or adjective may be provided with the lexical features defining a verb and nothing more by the lexicon’ (1995: 178). The features that define a verb -[verb class] and [transitive], in Beard’s system- are added to a noun or adjective to transpose it into a verb, without any change in other properties. To transpose a category to the class of adjectives, it is necessary to add the feature [gradable], which defines any adjective in Beard’s system, and, finally, to transpose a category to the class of nouns, the features [number], [noun class], [gender] and [animacy] have to be added. Cfr. also Lieber (2004) from a purely semantic perspective.

<sup>72</sup> This implies that the grammatical features of the base word will still be present in the output of the transposition. They will be accessible to the grammar, which will recognise them, but will not respond to them, because they show a value which cannot be recognised (1995: 177).

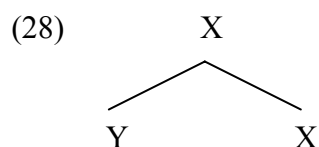
Relational adjectives are the obvious candidates to be an example of transposition from noun to adjective (1995: 187-190). Beard quotes Levi (1978) as being the first one to point out that a relational adjective is usually semantically equivalent to a noun modifying another in attributive position (27).

- (27)
- a. industry output – industrial output
  - b. cellular structure – cell structure
  - c. senatorial leadership – senate leadership
  - d. budgetary item – budget item

Even though the relational adjective can express a variety of different meanings in combination with the noun it modifies -among others, Cause, Have or Make (cfr. Levi 1978)-, this does not mean that the lexical rule that creates relational adjectives adds any meaning to the base, because, crucially, there is no single meaning chunk that can be paired with any relational affix (Beard 1995: 189). Therefore, the semantic interpretation is taken to be an indirect result of the addition of new G-features.

The theory of transposition can explain the semantic interpretation of the relational adjective as a kind, not as a set of properties, because this lexical derivation, by definition, does not add semantic information. It could be implemented also in such a way that it would explain why relational adjectives are arguments, because the G-features of the base word are still present in the output of the transposition process.

The existence of transpositions in a language could mean, *prima facie*, that syntax cannot give account for the morphological construction of a word. The reason is that in the syntax there is a principle of isomorphism between the structure and the semantics of an expression. The head that determines the grammatical label of a structure is also its semantic head. In the structure of (28) X is the head of the structure, so in any merging operation that implies (28) as a whole, the merged lexical item will read only the categorial and semantic information contained in X.



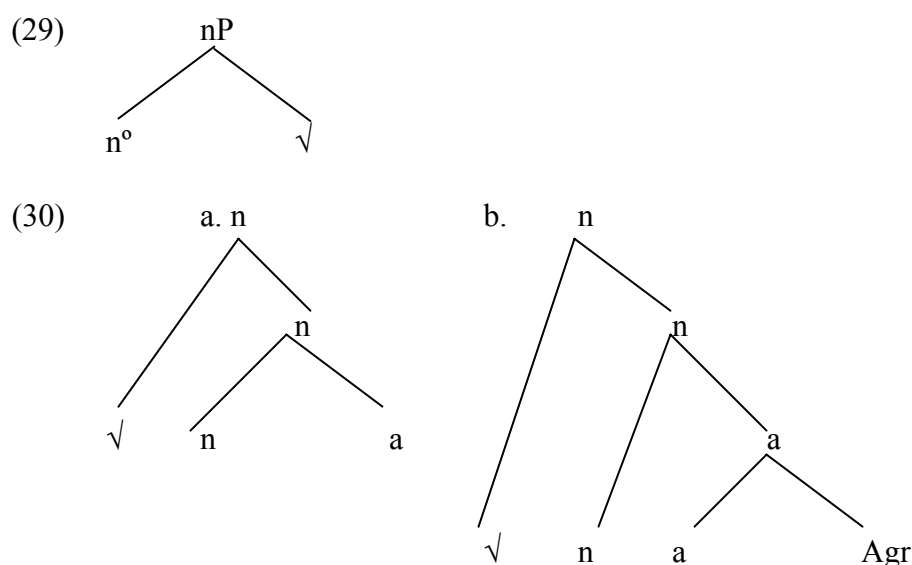
In the output of a transposition, on the other hand, from this perspective there should be two different heads for the same structure. One element will determine the categorial properties, as well as other grammatical characteristics of the set in the syntax, while a different constituent will determine its semantic information. Then, transpositions are an infraction of the principle of isomorphism between structure and meaning.

In this section we will discuss how the effects of transposition can be captured in a view of morphology such as Distributed Morphology, where syntax account for word formation. We will show that proposing the existence of particular morphological rules such as transposition to explain affixes that seem to imply only a change of function is an unnecessary and weakening step in the grammatical description. The behaviour of ‘transpositions’ can be explained in a syntactic theory, through independently motivated principles. The situation that is called ‘transposition’ in the literature seems to be actually a mismatch between the morphological shape of a linguistic expression and its semantics. In the particular case of relational adjectives, the situation is that these words contain adjectival morphemes and show agreement, but at the same time display

properties of nouns, both in their syntax and in their semantics, such as being an argument or denoting kinds and not gradable properties.

There are two ways in which a theory such as Distributed Morphology can deal with these kinds of mismatches in a principled way.

One possibility, which we will not pursue here, can be found in the set of post-syntactic operations that manipulate the terminal nodes of the syntactic hierarchical structure (cfr. chapter two, 2.2.). Let us imagine that syntax constructs an nP, such as the one in (29). Then the post-syntactic component, the ‘morphology’ in the DM sense, takes the syntactic terminals  $X^0$  and transforms them into morphological terminals  $M^0$ . In this mapping a new terminal is added, as can be seen in (30a). This morpheme does not correspond to any syntactic matrix of features, so its inclusion does not have semantic import in the structure. This dissociated morpheme added to the syntactic representation is then fissioned to host two Vocabulary Items, one for the adjectival suffix and another for the agreement morphemes (30b).



This solution is technically possible, but we will not pursue it here. One problem with it is that a dissociated morpheme has no syntactic value -such as the theme vowel: there is no syntactic property associated with belonging to any particular conjugation-. The node that would be added in (30a), in contrast, contains information that has a value when it appears in a syntactic derivation.

Another problem with this solution is that it is a technical solution which does not provide a principled explanation to the question of why it should be necessary to add an adjectival node to a nominal configuration. This solution does not produce a deeper understanding of the phenomenon which is being discussed.

Another approach to the problem of transpositions in the Distributed Morphology framework is a purely syntactic explanation. It can be proposed that the matrix which seems to be semantically inactive is already present in the syntax, not added in the Morphology.

The idea is that a feature matrix merged with a structure may have some properties that prevent it from projecting its label as the label of the whole set. Therefore, this feature matrix won't be the head of the structure, so the properties of the structure will not be the properties of this lexical item. The semantic properties of the lexical item won't be the semantic properties of the whole structure, and the categorial information of this lexical item will not determine the category of the structure.

For this analysis to be tenable, it is necessary first to determine which property of the lexical item prevents it from projecting its label.

Let us note also that, in a relational adjective, the adjectival morpheme appears in the right edge of the word. This implies that the lexical item must be prevented from being merged morphologically with the head. If this element was subject to morphological merger, the result would be that the lexical item incapable of being head would materialise before the root, as a prefix, and the fact is that it manifests itself as a suffix. Therefore, another requisite that the analysis must meet is to avoiding that the lexical item suffers morphological merging with the head.

The analysis will have to determine, also, which role is played by the lexical item which is unable to project its label, for it is introduced in the syntactic derivation and therefore has to fulfil a syntactic role. If this objective is met, we will have obtained a deeper insight into the nature of relational adjectives.

In this chapter we will try to prove that the syntactic approach is tenable and that, therefore, it is unnecessary to propose the existence of an *ad hoc* rule such as transposition to explain data such as relational adjectives. In the final paragraphs of this subsection we would like to point out some problems of a transposition account.

The main problem with transposition theory is that it is not clear why a language would need to have rules that only change the grammatical function of a word, leaving intact the rest of its properties. Beard's answer is that this type of operation is necessary because each category fulfils a certain function, and it may be the case that the same semantic expression needs to be used in a variety of functions. True as this may be, different syntactic constructions can make an element function as another without the need of introducing new lexical rules. This is a general observation in the functionalist literature (cfr. for example Croft 1991). For example, if a referential entity needs to be used as a modifier, there are prepositions which relate them to a noun. If a verb is to be used as a modifier, a relative clause can be used. So, from the functional perspective that Beard seems to adopt in his argumentation, it is not clear why the grammar should develop a morphological device when it already has independent syntactic constructions that carry out this function.

A second problem with transposition is that, since it accounts for a mismatch between semantics, category and morphology by proposing that there must be rules that change the category of a word without changing its semantics, it leaves room for a very unrestricted set of morphological operations. The natural question that comes to mind, once transposition is allowed into the grammar as an independent operation, is why some words are transposed and not others, and what the differences between the bases are.

With respect to particular analyses presented in Beard, we will discuss extensively the case of relational adjectives and their properties in the next section. In this section, we will refer to the case of transposition in verbs. This author proposes that verbs formed from nouns and adjectives such as those in (31a and 31b, respectively) are instances of transpositions of verbs (1995: 179-187, 191-194).

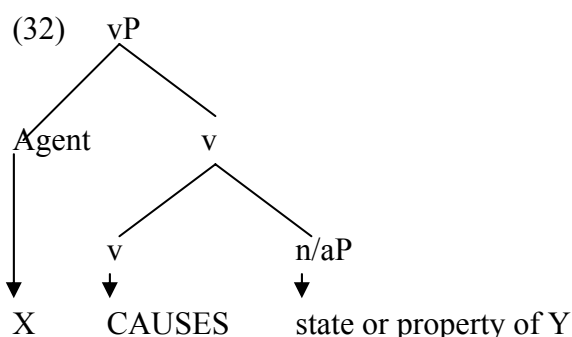
- (31) a. to crystallize, to scarify, to hammer...  
b. to narrow, to dry, to cool...

He claims that what is added to a word to transpose it into a verb is the feature [transitive]. A positive value for this value is semantically interpreted as the semantic function CAUSE (BECOME), while a negative value is interpreted as BECOME. In



this way, there is no semantic intervention of the morphological rule, but from the addition of the morphological material it follows a semantic distinction<sup>73</sup>.

The fact seems to be that, when a noun or an adjective is transposed into a verb, the semantics of the word changes, but the new meaning includes the semantic information supplied by the base word. This is nothing that the syntax cannot deal with. It is actually expected that in some cases the semantics of the element with which a verbal projection is merged does not change, but is included in a bigger semantic frame that is provided by the verbal projection. In that semantic frame, the element merged may play whatever role depending on the conceptual and pragmatic information (29). The same element that changes the grammatical category of the construction also changes the semantics of the structure, turning an individual into an event, and may add phonological material, depending on whether there is a Vocabulary Item that can materialise it or not. We believe that an analysis that follows these lines would be theoretically superior to Beard's, because it keeps isomorphism intact and introduces a series of related information with the same lexical head.



These arguments that we have presented are the general reasons that we have in order not to adopt transposition as an additional morphological operation in the grammar. In the next sections, relational adjectives will be analysed in detail and we will show that they can be explained in a syntactic framework without special morphological rules.

### 3. Relational adjectives.

#### 3.1. Internal morphological structure.

We will propose that what is called 'transposition' emerges from a syntactic structure where there is a defective matrix of features which is unable to assign a category to the structure to which it is merged. Therefore, there is a case of transposition when a matrix of features does not satisfy the conditions necessary to assign a category to an element.

We repeat here, for the sake of exposition, our assumptions about the grammatical categorisation of a linguistic expression, which were made explicit in chapter two (cfr. Marantz 1997 and subsequent work):

#### (33) CONDITIONS ON GRAMMATICAL CATEGORISATION

- (a) Lexical roots do not contain information about grammatical category.

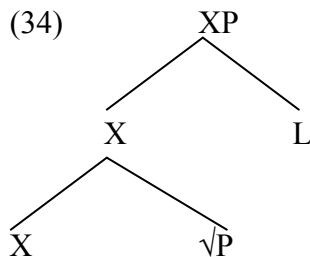
<sup>73</sup> It is not clear, in our mind, what the real difference is between proposing that the morphological features are added and as a result of their addition, new semantic features are interpreted and that the morphological features include semantic information. Let us observe additionally that there are transitive verbs which do not cause any change of state in their direct objects, such as *climb* in *to climb a mountain*.

- (b) Grammatical category is assigned to a root  $\sqrt{\phantom{x}}$  in the syntax by means of a functional projection F, which provides the formal features necessary.
- (c) In order to assign a grammatical category to  $\sqrt{\phantom{x}}$ , F must dominate it.

This theory proposes that a root  $\sqrt{\phantom{x}}$  is inserted from the Numeration in the syntactic derivation without specification of its grammatical category. The structural position where this root appears will determine this property. More exactly, the element that determines the category of the root is the first functional projection that dominates it. Suffixes are the manifestation of the different functional projections in a language such as Spanish.

Considering the particular case of relational adjectives, elements which do not allow gradation and are arguments, among other noun properties, let us note that morphologically they usually have a nominal base which reveals their close relation with the category of nouns. On the other hand, as adjectival properties, relational adjectives also manifest agreement and contain an adjectival suffix in their morphological representation. These elements are considered transpositions precisely because of this mixing of nominal and adjectival properties. In this section we will answer the question of how the effects of transposition can be explained in a system where the morphological structure of a word is the result of syntactic processes.

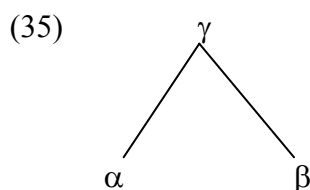
We will argue that a transposition-like behaviour is produced when one of the functional items – L in the diagram in (34) – that is merged in the syntactic structure of a word does not project its label.



In this way, L does not dominate any root or any other functional projection, so it is unable to assign category to any element. On the other hand, the structure has two different functional nodes, which will be spelled out as different morphemes linearly ordered when the structure is transferred to PF. Crucial to this account is the fact that the functional item L is defective and therefore unable to project its label.

The natural question, then, is what determines that a given lexical item projects its label or not when it is merged in the syntax. We will follow the common assumptions in Minimalist Syntax (cfr. Chomsky 2004; also chapter one, 2.1.) and therefore we will assume that the relation of merging itself determines which element dominates which.

In the following diagram (35), two elements from the numeration,  $\alpha$  and  $\beta$ , are taken and merged together. As a result of this merging operation a label,  $\gamma$ , is projected; this label counts as the label of the whole construction resulting from merging.



The Inclusiveness Condition make it necessary for  $\gamma$  to be identical to the label of one of the two elements merged, either  $\beta$  or  $\alpha$ . It is logically possible that the label of the complete set is neither of the two elements, but if this were the case, then minimality requisites would be violated.

It is necessary, secondly, to determine which of the two elements that take part in a merging operation will project its label. Chomsky's answer (2004: 110-111) is that the element which projects its label is the element that selects, in a semantic sense, the other element. If  $\alpha$  selects semantically  $\beta$ ,  $\gamma$  will be  $\alpha$ , and  $\alpha$  will dominate  $\beta$ . If it is  $\beta$  which selects  $\alpha$ , it will be the other way around.

It seems reasonable to assume that a complete functional item selects semantically the root with which it is merged, because it is an empirical fact that the semantic information of the root is coerced to fit the semantic information that is denoted by the functional item (cf, chapter two). It also seems reasonable to assume that a complete functional item also selects semantically a functional projection, because, when a word which already has a category is dominated by a functional projection, it is always the case that the semantic denotation of the lower functional projection is changed to fit the semantic denotation of the higher one. Given this data, it seems that the principle that determines the label of a structure is the one in (36), taken from Chomsky (2004).

- (36) In a merge operation, the element that projects its label is the one that semantically selects the other<sup>74</sup>.

Let us consider, as an illustration of complete functional items, some adjectival suffixes that are able to categorise their bases because they select them semantically. They combine with bases of a variety of semantic types, and consistently turn them into a property which is subject to gradation. For example, the adjectiviser *-bl(e)* takes events or substances and turns them into properties (37a), *-iz(o)* takes states or substances and turns them into properties (37b). As a predicate, the structure headed by the little *a* projection assigns a thematic role to the noun with which it agrees.

- (37) a. *navega-ble, utiliza-ble, comi-ble, papa-ble...*  
 Lit. *navigate-ble, use-ble, eat-ble, Pope-ble...*  
*navigatable, usable, edible, person who can become Pope...*  
 b. *huid-izo, resbalad-izo, paj-izo, cobr-izo...*  
 Lit. *run away-izo, slip-izo, straw-izo, copper-izo...*  
*Prone to running away, prone to slipping, straw-like, copper-like...*

We have proposed that the semantic feature that the adjectival projection has is [Attr], for attribution, and this is the semantic property that differentiates adjectives from the rest of grammatical categories. Remember that we proposed that the [Ref] role of the external argument of the adjective is coindexed in LF with [Attr], as a result of agreement satisfaction.

Another characteristic of the feature [Attr] is that it is able to select one or several of the properties denoted by the constituent in the base. Let us consider the case of *pajizo*, lit. 'straw-ish', *straw-like*. Apart from making predication possible, the suffixation with

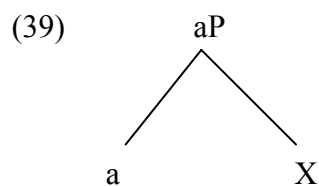
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<sup>74</sup> We keep in mind that in Chomsky (2004: 111) the existence of features of semantic selection is rejected, on the basis of both empirical and theoretical evidence; the requisite that makes the projection of the label possible is described, in general, as dependent on the semantic properties of the lexical head, represented as SEM (H). As Chomsky does in the mentioned article, we use informally the term of 'semantic selection' to refer to the set of semantic properties of the head that projects its label.

–izo has the consequence that, from all the properties denoted by the noun *paja*, ‘straw’, one of them is selected, usually the colour (38), in such a way that the subject of the adjective that results only has to possess that property, and not the rest of properties of straw, such as for instance being dry, being part of the vegetation, etc.

- (38) un jersey pajizo (= un jersey del color de la paja)  
Lit. a strawish jersey (= a jersey with the colour of straw)

Let us consider the role of this feature under the new light of label determination. When a head that contains [Attr] is merged in a structure, the presence of this semantic feature changes the semantic type of the structure, which is turned into a property. This semantic selection guarantees that the label projected will be the label of the adjective. In the diagram (39), X counts as a root or as a functional projection.



Now let us consider the possibility that there exists a head with characteristics similar to little *a*, but which lacks the feature [Attr]. The immediate result is that this head won't project its label, and therefore won't dominate the structure with which it is merged. We will designate this type of adjective-like matrix of features as  $a^{def}$ . We propose that it contains a matrix of uninterpretable phi features, those that are responsible for agreement, with an interpretable feature that we will discuss in the next pages. Lacking [Attr], this head won't be selected with the relational head  $R^o$ , because it doesn't have an external argument to select. The immediate result of the absence of  $R^o$  is that the adjective will be not gradable, because the feature that makes gradation possible is contained in *R*.

We propose that  $a^{def}$  has an interpretable feature, the defective version of the feature [Attr], which we represent as  $[Attr^{def}]$ . This feature is unable to select the semantic type of the projection with which it combines, but, however, plays a role in the semantics of the word. Its role will be addressed in section 3.3.

We would like to observe that a same Vocabulary Item can reveal both the matrix of features contained in little *a* and those contained in  $a^{def}$ . There exist some pairs of homophonous adjectives, the one displaying all the properties of relational adjectives, and the other being a qualitative adjective, so it can be modified by degree adverbs and used as true predicates (40). The adjectives in (40) are phonologically identical to some qualitative adjectives, but their syntactic and semantic behaviour is very different.

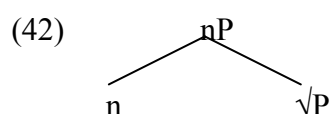
- (40) a. Juan se comporta muy españolamente cuando está en Francia.  
Lit. Juan behaves very Spanish-ly when he is in France.  
*Juan behaves in a Spanish way when he is in France.*  
b. la español-idad de Juan cuando está en Francia.  
Lit. the Spanish-ity of Juan when he is in France  
c. Juan es bastante español cuando está de vacaciones.  
*Juan is quite Spanish when he is on vacation.*  
d. El muy español de Juan se ha comprado un capote.  
Lit. The very Spanish of Juan REFL has bought a *capote*.

*That very Spanish of Juan has bought himself a bull-fighting cape.*

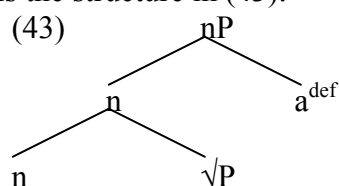
It is not necessary, then, to invoke psychological principles such as metaphorisation to explain why relational adjectives are ‘used’ as calificative ones. Relational adjectives are never used as qualitative adjectives. The situation is actually that they are two semantically and formally different structures that happen to be identical in the surface<sup>75</sup>. This situation can be compared, then, to phrases such as those in (41), which are structurally ambiguous, for they admit two analysis, with different readings in each case (41b, 41c).

- (41) a. El profesor de Historia de Francia.  
Lit. The teacher of History of France.  
b. El profesor [de Historia [de Francia]] (*the teacher teaches History of France*)  
c. El profesor [de Historia] [de Francia] (*the teacher is from France and teaches History*)

Let’s be completely explicit about the syntactic derivation that gives as a result the internal structure of the word. The morphological base of the relational adjective is a little *n* projection which selects a root, and therefore categorises it. Therefore, in the first syntactic operation of merging, the noun selects the root and determines its grammatical category. The label that dominates the construction is little *n*.



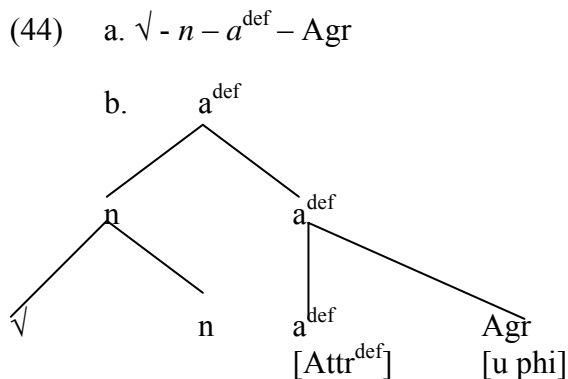
In the second operation of merging, the set of uninterpretable phi features that is contained in *a*<sup>def</sup> is merged with the construction. Lacking semantic selectional features, this lexical item cannot project its label and, thus, does not dominate the structure. The result is the structure in (43).




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<sup>75</sup> An interesting fact is that, when there is a process of semantic drift between relational and qualitative adjectives, the process only has one direction. The structure of a relational adjectives can be reanalysed as a qualitative adjective, but not the other way around. This can be motivated by a general semantic principle. It seems easy to reinterpret relationships –which are expressed by relational adjectives– as qualities, because, through metonymy, it is possible to assume that establishing a relationship with an entity implies to possess some properties. The opposite direction is not so easy, because to reinterpret a quality as a relationship would be to suppose that, for instance, saying that something is beautiful is the same as saying that the entity establishes a relationship with the abstract entity of beauty, which seems to be counterintuitive.

Considering now the linearisation of the particular Vocabulary Items that is associated with the matrixes of features, observe that morphological merger will only apply to the root and the lexical head  $n$ , while it will be unable to apply also to the node  $a^{\text{def}}$ , because it contains phi features, so it will have to stay in the periphery of the word (cfr. chapter two, 2.2.1.1.) Therefore, the root and  $n$  will interchange their positions, but not the  $a^{\text{def}}$  matrix and the head, with the result that  $a^{\text{def}}$  will materialise as a suffix. From here it follows that the matrix  $a^{\text{def}}$  will be spelled out at the end of the word, because it cannot intervene in the operation of morphological merging. This head is expressed by two different Vocabulary Items, because morphological fission applies, one to spell out the feature  $[\text{Attr}^{\text{def}}]$  and another to spell out the matrix matrix  $[u \text{ phi}]$  with an assigned value. As a result of this, the structure of the word is as follows.



Let us observe that, coherently, if the insertion of the adjectival affixes in Spanish is motivated by the presence of a feature  $[\text{Attr}]$ , the diagram (39) predicts that so-called relational adjectives will materialise themselves with an adjectival affix, for there is a feature  $[\text{Attr}]$ , though defective.

Some of the properties of relational adjectives follow from our analysis. In this section we would like to point out these properties.

One obvious morphological consequence of our structure is that, as the structure is not dominated by an adjective, it is not possible to project the extended functional projections of little  $a$ , such as DegP. Therefore, degree will not be shown by relational adjectives. This characteristic follows nicely from the structure that we have proposed. Qualitative adjectives allow syntactic and morphological degree modifiers, sometimes suppletive (45), but relational adjectives can never be combined with morphological (46) or syntactic modifiers (47).

(45) mejor, pésimo, largu-ísimo, roj-ísimo...  
*better, worst, long-SUP, red-SUP...*

(46) \*electricu-ísimo, \*deductiv-ísimo...  
*electric-SUP, deductive-SUP...*

(47) \*más televisivo que..., \*tan lácteo como..., \*menos vivíparo que...  
*more television than..., as lactic as..., less viviparous than...*

Of course, the homophonous qualificative adjectives can be modified by degree modifiers, but in this case they are clearly not relational adjectives, as can be shown by the fact that they are not argumental (48).

(48) Esta programación tan televisiva me produce náuseas.  
*Such a made for television programming makes me sick*

In addition, in this example it is interpreted that what disgusts the speaker is not something related with the television, but something that has the prototypical properties of television events. Therefore, the denotation of the adjective is not that of a kind, but the denotation expected from adjectives.

A property which is closely related with this one is that relational adjectives cannot produce the same lexical derivatives as normal adjectives. For instance, relational adjectives cannot produce derived words with the suffix *-idad* (49), unlike qualitative adjectives, which often use this suffix (50), in competition with other suffixes such as *-ura*, *-ez* or *-or* (51).

- (49) *clar-idad, procliv-idad, generos-idad, verbos-idad...*  
*clar-ity, procliv-ity, generos-ity, verbos-ity...*
- (50) *anch-ura, blanc-ura, larg-ura, pesad-ez, roj-ez, verd-or...*  
*wide-ness, white-ness, leng-th, heavi-ness, red-ness, green-ness*
- (51) *\*politic-idad, \*adverbial-idad, \*aleman-idad...*  
*politic-ity, adverbial-ity, german-ity*

The reason should be clear at this point. We assume, following DiSciullo & Williams (1987), that suffixes are associated to semantic functions which take as input a semantic type and give another semantic type as output. Their semantics is completed by the encyclopaedic entries, which add to the structural semantics a conceptual representation of the particular Vocabulary Item. Let us assume for convenience that the conceptual representation of the suffix *-(I)DAD* is the one in (52).

- (52) Encyclopaedic entry of *-(I)DAD*  
*-(I)DAD*  $\leftrightarrow$  Abstract conception of a property X, X = base of the suffix.

In a relational adjective, the suffix *-idad* is merged with an nP, not an aP. The semantic function which the suffix represents is not satisfied, because it takes as input a not variable predicate, an nP, when it should take a variable predicate, an aP. In the conceptual meaning, the base should be interpreted as a property, but, being a noun, it would be interpreted as a kind, so the result is again ungrammatical<sup>76</sup>.

Another property of relational adjectives that follows from our analysis is that we predict that they will be subject to a special type of bracketing paradoxes. Bracketing paradoxes are morphological structures where the only possible formal structure of the word comes into conflict with its semantic interpretation. The particular case of bracketing paradox we refer to is that in which there is a constituent which affects only

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<sup>76</sup> There are apparent counterexamples to the generalisation that *-idad* does not take nouns as bases. Words which could be exceptions can be classified in two different groups. In one group, we find words such as *vecinalidad*, ‘neighbourhood’ or *municipalidad*, ‘municipality’, which despite their appearance as abstract nouns that express properties, are instances of the collective use of the affix *-idad*, and, consequently, do not constitute a counterexample to our generalisation, because the encyclopaedic entry is different. In order to express the meaning of collectivity of elements, this Vocabulary Item needs as a base an element that denotes an individual entity. The second group of apparent exceptions is constituted by words such as *españolidad* and *poeticidad*, where the suffix expresses an abstract quality; however, in these cases the only possible reading that the base has is not relational, but expresses a gradable property that is predicated from the noun it modifies.

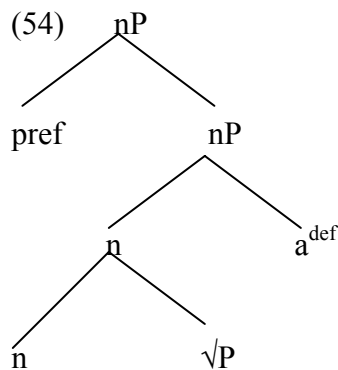
In fact, the word *humano*, ‘human’, that may be a relational adjective (‘being that belongs to the species *homo sapiens*’) or a qualificative adjective (‘being a nice person’) has two different nominalisations with this suffix: *humanidad*, from the relational adjective, means the collective of human beings; *humanidad*, from the qualificative adjective, means the quality of being a nice person.

part of the base with which it combines. This phenomenon has been called ‘narrow sacope’. The English compound *hard worker* illustrates this kind of paradoxes, for the adjective *hard* does not refer to the noun *worker*, but only to the base of it, *work* –a *hard worker* is not a worker who is hard, but rather someone that works hard -. Geert Booij (p.c.) also observes the case of Dutch *graage keuker*, lit. ‘liking cook’, where *graag* refers to the verb in the base of *keuker*, in such a way that the meaning of the expression is someone who likes to cook. A great number of this bracketing paradoxes contains relational adjectives with prefixes. Let us consider the cases in (53), which imply relational adjectives and the prefixes that combine with them (cfr. Beard 1991).

- (53) post-concili-ar, pre-universit-ario, ante-diluvi-ano...  
lit. post-concili-ar, pre-university-ary, ante-heavy.rain-an...

It would seem that the prefix is added to the relational adjective, not to the nominal base, because words such as *\*post-concilio*, *\*pre-universidad* and *\*ante-diluvio* simply do not exist and do not seem possible. The problem is that the semantic interpretation of the words in (53) leaves the suffix outside of the scope of the prefix, which only affects the nominal base of the relational adjective. Consider for example *antediluviano*, with the prefix *ante-*, ‘before the time of X’ and the base *diluviano*, ‘related to heavy rain’. Something that can be called *antediluviano* is not something which is characterised by ‘being previous to the property of being related to heavy rain’, or anything similar. The correct meaning of *antediluviano* is something that is characterised by the property of being related to the time previous to heavy rain. From the paraphrase it becomes clear that the prefix *ante-* only has scope over the base *diluvio*, heavy rain. The problem is that this reading, the only possible one, goes against the formal structure of the word.

The answer to these cases can be found if we consider the structure in (54), which represents the relational adjective in our proposal. Observe that the prefix is added to the relational adjective, whose label is nP.



This structure explains the fact that the base noun and the prefix do not form a possible word in Spanish: the prefix is merged above little *n* and *a<sup>def</sup>*, so it is added to the complete relational adjective, not to the noun in isolation.

The semantic properties follow also from this structure, from the fact that the adjectival head *a<sup>def</sup>* does not dominate the structure, and it cannot change the nominal projection into an adjective. Therefore, the semantics of the prefix is associated with the



semantics of the nominal base, and has nothing to do with the matrix of  $u\ \phi$  that  $a^{\text{def}}$  contains<sup>77,78</sup>.

Let us now consider another morphological property of relational adjectives, this time related to the Vocabulary Items that realise phonologically the  $a^{\text{def}}$  matrix. Observe that  $a^{\text{def}}$  is unable to assign a grammatical category to the structure, because it is a defective constituent. It is merged with nP, which dominates it. Remember that Vocabulary Items are inserted in morphological positions depending, among other things, on the label that dominates that position. The position  $a^{\text{def}}$  is dominated by a nominal label, so the Vocabulary Item will be inserted in a position dominated by a noun. We expect, then, that the Vocabulary Item inserted in this position won't be a prototypical adjectival one. We expect that the Vocabulary Items used to manifest referential adjectives are also used to materialise nominal heads, because in the context where they will be inserted, the dominating node is a projection of little *n*.

This prediction is confirmed with almost every suffix that is used to create relational adjectives. For example, *-ista*, that creates relational adjectives such as *tremendista*, 'tremend-ist', *dieciochista*, 'eighteen.century-ist' or *intimista*, 'intimist', gives also nouns (55). The same happens with *-ivo* (*abortivo* 'abortive', *legislativo*, 'legislative', *abrasivo*, 'abrasive'...) (56), with the suffix *-il* (*pueril*, 'puerile', *caciquil*, 'relative to a political abuser', *borriguil*, 'relative to sheep'...) (57). Another relevant case is the suffix *-ario* (*patibulario*, 'patibulary', *urinario*, 'urinary', *doctrinario*, 'doctrinary'...), which usually produces collective nouns or names for jobs (58). The same happens with *-ano* (*ovidiano*, 'Ovidian', *euclidiano*, 'Euclidian', *craneano*, 'cranean'...), which produces gentilices (59); with the suffix *-ico* (*heráldico*, 'heraldic', *arábico*, 'arabic', *telegráfico*, 'telegraphic'...) (60), and with *-al/-ar* (*umbilical*, 'umbilical', *provincial*, 'provincial', *ministerial*, 'ministerial'...), which produces collective nouns (61). The only exception to this tendency seems to be the suffix *-oso* (*contagioso*, 'contagious', *cartilaginoso*, 'cartilaginous', *bituminoso*, 'bituminous'...), that does not produce nouns. This may be related with the fact that *-oso* more productively produces qualitative adjectives.

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<sup>77</sup> There are some cases that could be problematic to our proposal. Some counterexamples (i) seem to give evidence that some relational adjective structures are not obligatorily bracketing paradoxes.

- (i) antimarxista, prohegeliano...

Someone who is *antimarxista*, 'anti-marx-ist', is not a person that is against Marx, but a person who is against Marxism, to the same extent that someone who is *prohegeliano*, 'prohegelian', can hate Hegel, but argue in favour of Hegelian thought. However, if we take a closer look we will see that they are only apparent counterexamples. Observe that this class of relational adjectives which are not bracketing paradoxes have proper names as bases. Proper names, in principle, are purely referential entities which do not denote sets of properties of any kind. Inside a word, however, the proper name cannot be referential because there is no DP dominating it, and referentiality is dependent on D's. We propose that these words are bracketing paradoxes in which the prefix only affects the proper name, but, given the incapacity of the proper name to denote a referential entity, a pragmatics is activated in such a way that the proper name is interpreted as the set of beliefs or claims attributed to the particular person designated by the proper name; these beliefs are contained in the encyclopaedic entry associated with the proper name.

<sup>78</sup> If the relational adjective is actually a noun, another kind of bracketing paradox can be better understood. There is a type of narrow scope bracketing paradox in which there is an adjective which refers only to a part of the base, as in *altoaragonés* (something from the High Aragón), *bajomedieval* (something from the Low Middle Ages), *granducal* (something of the Great Duke), etc. (Rainer 1993b: 118). These constructions must be left outside from the phenomena studied in this dissertation, because they contain prenominal adjectives; however, we would like to observe that, if the relational adjective is in fact an nP with the structure proposed, it is not a problem that the adjective refers only to part of the base. Moreover, it is not unexpected that an adjective can modify the relational adjective.

- (55) hacendista, socialista, imperialista, colonialista, marxista...  
*Owner of a big house, socialist, imperialist, colonialist, Marxist...*
- (56) locativo, vomitivo, benefactivo, superlativo...  
*locative, hemetic, benefactive, superlative...*
- (57) gentil, reptil...  
*gentile, reptile*
- (58) presidiario, mandatario, devocionario, vecindario, parbulario...  
*presidiary, mandatary, devotionary, neighbourhood, kindergarden*
- (59) ciudadano, aldeano, marciano, cristiano, americano...  
*citizen, villager, martian, Christian, American...*
- (60) parapléjico, nórdico, espasmódico, químico, alcohólico...  
*paraplexic, Nordic, spasmodic, chemical doctor, alcoholic...*
- (61) algarrobal, rosas, lodazal, concejal, industrial...  
*place full of algarrobas, place full of roses, place full of mud, major, owner of an industry...*

We also expect that the conceptual semantics information associated to these suffixes in the Encyclopaedia admit readings as adjectives and nouns, something which explains the fact that this type of adjectives can be converted easily into nouns, a fact which we observed in the chapter two, section 3.5.2.1.

There is another property of relational adjectives, which in our mind has not been observed in the existing literature, which finds an explanation in our proposal. As it is well known, suffixation is not a recursive operation, so a suffix cannot be added to a word ending in a suffix of the same type. This can be explained because these elements are heads with a category that select a certain category. When one suffix is merged with a structure, it changes the category and the semantic type of the structure. The immediate consequence is that the same structure cannot be selected again by the same suffix. Prefixes, on the other hand, as they do not change the grammatical category and are not the heads of the construction, can be recursive, as in *anti-anti-anti-missile*.

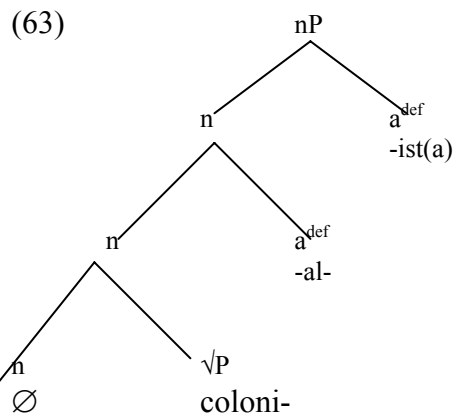
The suffix of the relational adjective, since it does not change the categorial type of the word, is expected to act as a prefix and therefore should be able to be iterated. It should be possible, then, for the same nP to have more than one relational adjective suffix. This prediction is borne out. Consider (62).

- (62) [[[coloni]al]ista]  
coloni-al-ist

In Spanish there are two different suffixes *-al* and *-ista*, which are independent of each other and appear in different contexts and situations. The relational suffix *-ista* in (62) is added to a base that already has been suffixed by another relational adjective, *-al*. However, the semantic scope of *-ista* affects only the noun ‘colonia’, for the meaning of *colonialista* is that person who has something to do with colonies, not with colonial entities. Note, moreover, that *-ista* always selects nominal bases. This example is not exceptional, and there is a list of some examples where the relational suffix is iterated. Among other cases we have *cremat-íst-ico*, ‘referred to money’, *carácter-íst-ico*, ‘characteristic’, *vit-al-ic-ista*, ‘vitalist’, *presidenci-al-ista*, ‘presidentialist’, *ofici-al-ista*, ‘officialist’, *estet-ic-ista*, ‘aestheticist’, *industri-al-ista*, ‘referred to industries’, *gremi-al-ista*, ‘referred to worker associations’, *centr-al-ista*, ‘centralist’, *sindic-al-ista*, ‘referred to syndicates’, *verb-al-ista*, ‘verbalist’, *existenci-al-ista*, ‘existentialist’,

*monopol-íst-ico*, ‘referred to monopolies’, *suburb-ic-ario*, ‘referred to the down-town’, *apostol-ic-al*, ‘referred to the apostles’, *angel-ic-al*, ‘referred to angels’ or *heret-ic-al*, ‘referred to heretics’. A noticeable case is *minimalista*, ‘minimalist’, which normative grammarians condemn as inappropriate in Spanish, proposing without much success the alternative *minimista*, without double adjectiviser. In our proposal, *minimalista* is not a direct loan from English, but a word which can be generated in Spanish due to the properties of relational adjectives.

Scalise (1984: 150) notes that this kind of phenomenon constitutes a problem for the Binary Ramification Hypothesis, so it is necessary to assume that we have a single suffix which results from the reanalysis of two independent suffixes. Scalise analyses in this way the Italian suffix *-istico* (*semplisticico*, ‘simplistic’). This analysis, though, finds a problem in the fact that, even though there are more frequent combinations of suffixes, *-ístico* is not the only sequence that can be found. It would be necessary to propose that also *-ical*, *-alista* or *-icario* are special suffixes. In contrast, in our analysis these data is expected if the structure of these formations is the following:



In this structure, both *-al* and *-ista* are merged with the noun, none of them changes the category of the structure and therefore none of them is merged with an adjective. As the category of the base remains intact after the first merging operation, it is possible to add the same item a second time.

Finally, we would like to consider another relevant property of relational adjectives, their cardinality. As we observed in section 1 in this same chapter, Bosque (2002) observes that the coordination of two relational adjectives in singular can modify a plural noun with a distributive reading. In (64), it is interpreted that there are two different ambassadors, one from Mexico and another from Argentina. This property is shared by relational adjectives with appositions and Prepositional Phrases (65), but cannot characterise any qualitative adjective whatsoever (66).

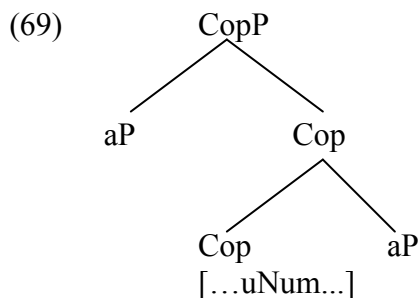
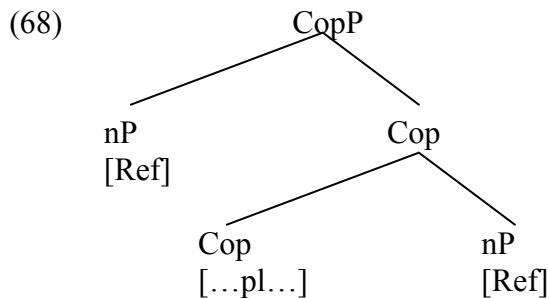
- (64) los embajadores mejicano y argentino  
Lit. the ambassadors.pl Mexican.sg and Argentinian.sg
- (65) a. las calles Alcalá y Mayor  
Lit. the streets.pl Alcalá.sg and Mayor.sg  
b. los embajadores de Méjico y Argentina  
Lit. the ambassadors.pl. from Mexico.sg and Argentina.sg
- (66) \*los embajadores alto y delgado  
Lit. the ambassadors.pl tall.sg and slim.sg

Although the examples considered up to this moment involve only classificative relational adjectives, Thematic-R also have this property:

- (67) las invasiones alemana y rusa de Polonia.  
Lit. the invasions.pl German.sg and Russian.sg of Poland

Bosque notes that an immediate consequence of this phenomenon is that relational adjectives must be associated to an interpretable number feature. Otherwise it would be impossible to transform, by aggregation, two singular constituents into one plural constituent.

We disagree with a part of Bosque's explanation for the phenomenon, because we have shown that nP's lack phi features, at least number phi features. Our proposal is that the interpretable number feature, which we will call [pl], is contained in the copulative conjunction y, 'and', but only appears when this head selects nouns (68) –maybe because this head is sensitive to the presence of the feature [Ref] in the selected constituents-. When the copulative construction selects a qualitative adjective, as there is no noun in this structure, there is no interpretable number feature in the head (69). The immediate consequence of this situation is that, when the noun phrase modified by the relational adjectives has plural number also, it is possible to have a distributive reading in which each relational adjective identifies one individual. On the other hand, when two aP's are coordinated, this reading is unavailable because CopP does not have an interpretable number feature. This explains the contrast between (66) and (64) / (67).



The structural position where the structures in (68) and (69) are merged is the one where a singular Classificative-R or Thematic-R merges. We will analyse the position of these elements in the diagram in sections 3.2.1, 3.4.1 and 4.2. in this same chapter.

In the next section we will analyse what the function of  $a^{\text{def}}$  is and why when it does not appear the utterance is ungrammatical.

### 3.2. Thematic assignment.

Let us consider the two noun phrases in (70). Both constructions contrast minimally in the presence or absence of the adjectiviser suffix *-ar*. Consequently, in the first nP there is a relational adjective; in the second, there are two nouns in apposition.

- (70) a. viaje **estelar**  
 Lit. trip star-R.A.M.  
 ‘trip around the stars’  
 b. viaje **estrella**  
 Lit. trip star  
 ‘the best trip in a group’

In the first case, the noun *estrella* is interpreted as an argument, and expresses an entity with which the adjective establishes an external relationship, in this case locative. In the absence of the relational adjective (70b), this argumental interpretation is impossible and the only available reading is that in which *estrella* acts as a predicate that assigns a set of properties to the noun *viaje* -namely that it is the most important journey in a given group-. This second class of constructions will be studied in the next chapter, while in this section we will only concentrate on (70a).

We will relate the presence of  $a^{def}$  in the derivation with the licensing of theta role assignment to the base noun. In the absence of the  $a^{def}$  matrix, manifested in the form of the adjectival suffix, thematic assignment is not possible, and the structure is only grammatical in a predicative reading.

Longobardi (1994: 620), from previous suggestions by Stowell (1989), states the following grammatical principle to license theta-assignment (71):

- (71) A “nominal expression” is an argument only if it is introduced by a category D.

This is, only DP’s can be arguments, so nP’s cannot be arguments of a predicate<sup>79</sup>. From here it follows that the base of a relational adjective cannot be an argument by itself. The semantic reason for this is that in order to saturate the argument variable that is free in the predicate, the noun must be selected by a determiner, which is interpreted as a logical constant. Relational adjectives are arguments which are not introduced by a determiner -and in fact they lack definite interpretations, at least in Spanish-, so if they are interpreted as arguments, this characteristic must be licensed by other means. We propose that the alternative means to perform thematic assignment, in the absence of a determiner, is to introduce a matrix of phi features that force the nP to establish a formal relationship with a category associated to the predicate. This relationship is interpreted as theta-identification. The lexical item  $a^{def}$  is this matrix of features<sup>80</sup>.

Let us consider a first option that we will discard. It is possible to think that the operation of agreement itself is interpreted as theta-assignment, specifically as theta-identification. This is Kester’s (1996) proposal when she studies thematic assignment in adjectives. It is a fact that in languages with overt phonetic realisation for agreement an adjective always agrees with the noun which receives a theta role from it. The sentence

<sup>79</sup> The obvious counterexample to this generalisation is the set of bare nouns which act as the direct object of a verb in Spanish, as in *comer patatas*. We propose that these elements are licensed by zero determiners (cfr. Contreras 1986, 1996, Hoekstra & Mulder 1990).

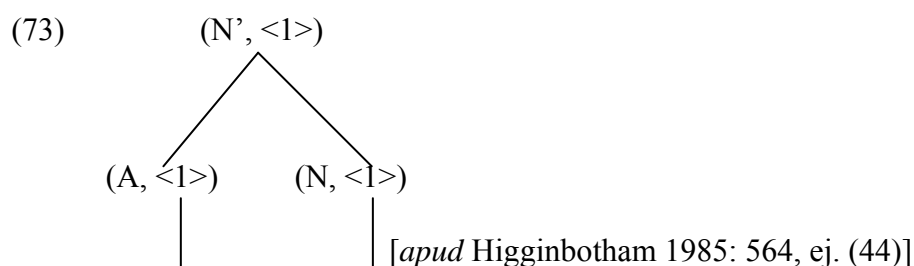
<sup>80</sup> In Spanish it seems to be an alternative to establish an argument relationship between a noun and a predicate, and it is to create a compound with the head to the left, as in *publi-cesta*, lit. *publi(city)-basket*, ‘basket for publicity’. In the appendix of chapter four we present an account of this alternative in Spanish, Finnish and Germanic languages.

in (72) shows that the subject of the adjective is always identified with the element with which the adjective checks its agreement.

- (72) El policía encontró a la asesina {agotad-o /-a}  
 The police.masc found acc.the.murderer.fem {exhausted-masc/fem}  
*The policeman found the murderer exhausted.*

If the adjective agrees in masculine gender, the reading is that the person who was exhausted is the policeman; if it shows feminine agreement, it is the female murderer who was exhausted.

Kester (1996), studying in detail adjectival agreement in a series of Romance and Germanic languages, proposes that the operation of feature checking between an adjective and a noun has a semantic reflection. It corresponds to the operation of thematic identification between an argumental position contained in the adjective and the only argumental position present in the noun (following Higginbotham 1985 for theta identification, cfr. 73).



This analysis is untenable in the Minimalist Program. If theta-assignment has to be read in LF, it is not possible to perform this operation through agreement. Agreement is a formal relation which is established precisely in order to avoid that uninterpretable features are present in LF (cfr. chapter one, 2.1.). Therefore, it is not possible that any trace of agreement as such remains in LF, so agreement by itself cannot trigger theta-assignment. A possible variation of this account would be that interpretable features suffer any change as a result of an agreement operation, but there seems to be no independent evidence of this interaction between features, which goes against the Inclusiveness Condition, which precludes features or signs from being introduced during the derivation.

We will pursue another line of analysis. Let us remember that Chomsky (2004: 116), asking himself about why there should be uninterpretable features at all in a minimal architecture of grammar, answers that uninterpretable features trigger a series of operations that have a semantic import. This is, the features themselves are not present in LF and therefore lack semantic information, but the operations that they trigger are associated to semantic notions.

Let us note, at this point, that in our proposal –cfr. chapter two, 2.1.- an nP lacks uninterpretable features of its own. In the Minimalist Program, every syntactic operation is triggered by the need to erase uninterpretable features. If we push this principle to its last consequences, we will infer that an element which lacks uninterpretable features does not take part in syntactic operations. Therefore, following Chomsky (2004: 115), an element without unchecked uninterpretable features is syntactically inactive and cannot be attracted by a projection that dominates it, because it cannot participate in agreement operations: “The probe and the goal [of an agreement process] must be

active: once their features have been checked and erased, these elements cannot enter into an agreement relation”.

On the other hand DP's are syntactically active, because they contain uninterpretable features. An nP is, by itself, an inactive constituent, for it lacks uninterpretable features. However, when the nP is combined with  $a^{def}$ , it becomes active, because at that moment it contains uninterpretable features, like a DP. At this moment, nP is an element that can be attracted by a lexical head.

We propose that what is interpreted as theta-assignment in the case of relational adjectives is a particular syntactic configuration motivated by the merge of a lexical head, Gen<sup>o</sup>, that checks genitive case with the head noun. An nP is by itself inactive and cannot be attracted by this head, so, when the derivation is transferred to LF, it won't be in the syntactic configuration needed to perform theta-assignment. When an nP combines with  $a^{def}$ , becoming a relational adjective, it is active and it is attracted by Gen, establishing a relation which in LF can be interpreted as theta assignment.

In order to implement this approach, it is necessary first to analyse genitive case checking inside the noun phrase.

### 3.2.1 Genitive case checking.

Very early in the Government and Binding framework, it was proposed that argument noun phrases must check case –the so-called Case Filter (Chomsky 1981: 49 and folls., 170 and folls., Stowell 1981, Vergnaud 1985)-, a well formedness condition which is maintained in the Minimalist Program. The relationship between relational adjectives and genitive arguments has been noted in classical articles in generative grammar (among others, cfr. Levi 1978: 28-29). Bosque (2002) also observes that there is a close relationship between these two formations and suggests that the affixes of the relational adjective behave quite similarly to genitive case marking. Our analysis does not establish an equivalence between the adjectival suffix and the expression of genitive case, but we propose that the affix lets the noun behave like a genitive argument.

We will propose that the same head is responsible for case checking of DP's and relational adjectives inside the noun phrase. For reasons that will become clear in a few pages, we will refer for the moment only to noun phrases with one argument.

The nP in (74a) shows that the patient of the deverbal noun, in this case *ruptura*, 'breakdown', is realised as a DP with the preposition *de*, 'of', a weak preposition both in English and in Spanish that has been studied and related to genitive case by a number of authors (Chomsky 1981, 1986, Borer 1984, Ritter 1991). Let us observe additionally that the patient argument of the deverbal noun could be equally expressed with a Thematic-R (74b).

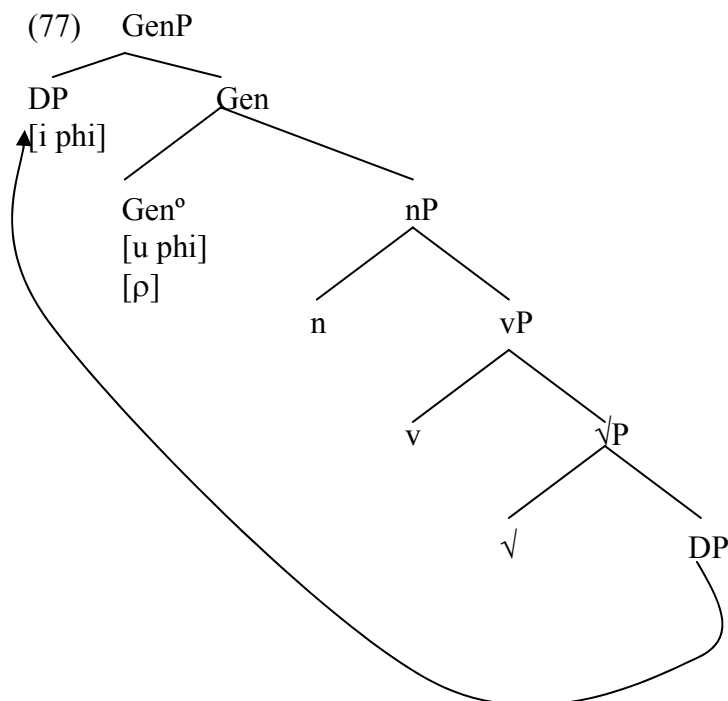
- (74) a. una ruptura *de matrimonio*  
lit. a break.nom of marriage  
*a marriage's breakdown*  
b. una ruptura *matrimonial*  
lit. a break.nom marriage.RAM  
*a marriage breakup*

Borer (1984) analyses equivalent constructions in Modern Hebrew and observes that the presence of *shel* introducing an argumental DP in a nominalisation does not preclude the DP that it introduces from c-commanding another argument (75). Other prepositions, as Hebrew *'et*, used to mark accusative case, avoid that the DP c-commands another argument (76).

- (75) re'iyat          acma<sub>i</sub>          shel ha-mora<sub>i</sub>  
 vision.DEF      herself          of the-teacher  
 the teacher's vision of herself
- (76) \*re'iyat          acma<sub>i</sub>          'et ha-mora<sub>i</sub>  
 vision.DEF      herself          ACC-the-teacher

Borer argues that the argument introduced by *shel* is never a PP during the syntactic derivation, and the preposition is a case marker, which is inserted in the PF in a certain context. Chomsky (1986) shows that *of* acts in the same way in English and suggests that this element is the realisation of genitive case. In DM, this process has a direct translation: English *of*, Hebrew *shel* and Spanish *de* are morphemes inserted post-syntactically, as agreement morphemes are, in a certain context.

The relevant question now is which the properties of the head that checks genitive case are. Following Chomsky (2004: 113, 114), only heads which are phi complete – that is, accusative *v* and finite T – can check case. Little *n* does not contain phi features in our account (cfr. chapter 2); therefore, this head cannot assign case. On the other hand, an argument realised as genitive case is strongly associated with the noun, and not with the determiner, because it is interpreted semantically as an entity related with the head noun. We propose that genitive case is assigned by a phi complete functional head Gen<sup>o</sup> with relational meaning which immediately dominates the nP. This projection, GenP, attracts an active constituent from its domain, in this case the argumental DP, and checks its phi features with it (77).<sup>81</sup>



We will assume that Gen contains [u phi], as happens with *v* and T when they are case assigners, and that case checking takes place always as the result of a complete relation of uninterpretable feature checking between two heads. When DP is merged in

<sup>81</sup> About the order of modifiers inside the noun phrase, there is an observation in chapter six, section 2.2.1.



the specifier of GenP, a relation of phi features checking is established. From here it follows case checking of the displaced argument.

As can be seen in the diagram, we propose additionally that the head Gen<sup>o</sup> is not semantically void, but contains the interpretable feature ‘ $\rho$ ’, which stands for ‘relation’ (Downing 1977). The appearance of the preposition *of/de* organises the semantic content of the nP in profile and ground (as noted by Langacker 2000; see also Mateu 2002). The element which receives genitive case is interpreted as the ground in cognitive semantics terms, while the rest of the nP is interpreted as the profile. Therefore, Gen<sup>o</sup> acts semantically as a relator, which explains its similarity to relational heads *par excellence*, prepositions.

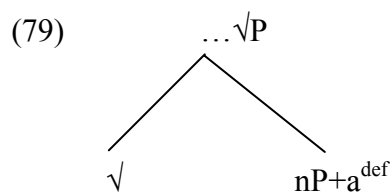
When this structure is transferred to morphology, the head n<sup>o</sup> appears in Ki<sup>o</sup>, which selects GenP in Spanish, so the noun head materialises itself before the genitive complement. The head little *n* also crosses Gen<sup>o</sup>, but in Spanish no morpheme is attached to it as a result of this; other languages, which mark genitive case in the head and not in the complement –as Turkish– are evidence that the noun crosses this head.

Spanish marks genitive case in the constituent that receives this case. We follow Halle (1997: 433) in his proposal that morphology makes a difference between the different materialisations of case through different values of features. In particular, the Vocabulary Item that materialises genitive case spells out the features specified in (78). In Spanish, this item is added to the complete DP; the fact that it is linearised to the left, as a prefix, and not to the right as a suffix, is determined by the idiosyncratic properties of each item in the Vocabulary.

$$(78) \quad /de/ \quad \leftrightarrow [+Oblique, +Structural, -Superior]$$

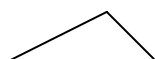
When this structure is transferred to the Morphology, n<sup>o</sup> is spelled-out in Ki<sup>o</sup> in Spanish, so the head noun precedes the genitive complement.

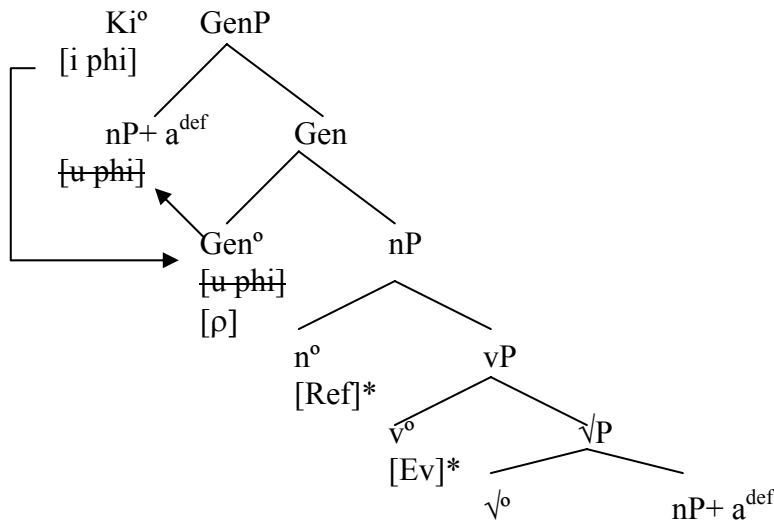
An only Thematic-R checks case in the same way. As Thematic-R are interpreted as arguments, we propose that they must be base merged as complements of the root. Further, we propose that only one Thematic-R is selected by the root (79). When there are two arguments, other factors intervene.



The nP is active, as it has the [u phi] added by a<sup>def</sup>, and therefore is attracted by Gen<sup>o</sup>. At this point, however, there is a difference between genitive case checking with a DP and with a Thematic-R. Thematic-R contains [u phi], as Gen<sup>o</sup>, so the relation of complete phi features checking cannot be established between the two elements alone. Rather, GenP erases its phi features with the interpretable features which are contained in the projections that dominate it and the nP, KiP and NumP. When Gen<sup>o</sup> acquires a value for these features, Thematic-R, which is in the specifier of GenP, copies those values. Both sets of [u phi] are erased then. Then there is a complete relation of feature checking between Gen and Thematic-R

$$(80) \quad \dots \text{KiP}$$





Let us now make explicit the way in which LF interprets this syntactic configuration as theta-assignment.

As it is seen in the diagram, there is a verbal head inside the eventive noun (cfr. Van Hout & Roeper 1998), which is interpreted as an event in logical form because it has an argument *Ev* which forces this interpretation (cfr. Davidson 1967). The head little *n* dominates it and changes the categorial label of the whole construction. Let us observe that *v* and *n* both need to be combined with phi features to be licensed (cfr. chapter one, 2.2.1.1.); these phi features are in the functional heads that dominate little *n*. As little *v* does not appear as an independent word, this means that it will be associated with the same set of phi features as the head little *n*. Then, the two heads will satisfy their Phi property with the same set of elements. As a result, as we proposed in chapter one, they will identify their Referential and their Eventive role, respectively.

In this way, when an element establishes a relationship between the features that dominate the noun, it establishes that relationship in an indirect manner with the verbal head that is identified with the noun. This mechanism is necessary for independent reasons; for example, when a deverbal noun gets a determiner, the determiner makes the event definite. When the deverbal noun is combined with a quantifier, there is a reading in which the event is quantified.

- (81) Presenciamos dos construcciones sucesivas del puente.  
We watched two consecutive events of building the bridge.

The next step is that the relational adjective establishes a checking relationship indirectly with GenP. The result of this will be that one of the thematic roles associated with the eventive head will be identified with the noun.

Now we will study the particular interpretation of the theta-role of the Thematic-R. Let us consider first the agentive interpretation when only one argument appears. Although in some cases the agentive reading seems to be particularly salient, one single argument fused with the root is interpreted either as the agent or the patient participating in the event expressed by the root, depending on the conceptual semantics associated with the particular root. In other words, it seems that the agentive interpretation of the relational adjective is performed in the Encyclopaedia, as a result of the conceptual entries of the Vocabulary Items inserted.

As we presented in chapter one (cfr. 1.2.1. there), Marantz (1997) observes that the agentive interpretation of arguments inside nominal phrases is licensed by the semantic

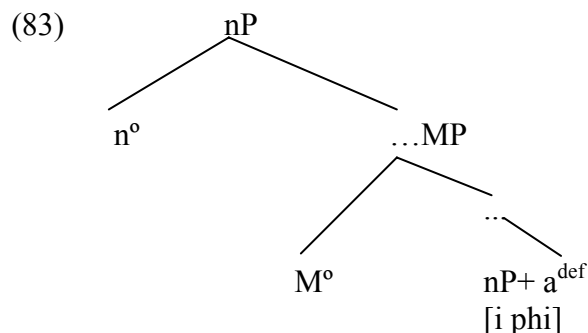
type of the root involved and specifically, whether it is possible to interpret it as an externally caused action; the agentive interpretation is not the result of a structural configuration. The same situation takes place with one relational adjective inside the nP. The phrase in (82) has one particularly salient interpretation in which the relational adjective is an agent, but a patient interpretation is by no means impossible, as can be shown if the PP *por parte de Alemania*, ‘by Germany’, is added to (82).

- (82) La invasión francesa (por parte de Alemania)  
 lit. the invasion French (by Germany)  
 The French Invasion (by Germany)

In order to answer these questions it is necessary first, however, to analyse Classificative-R and determine their particular morphological structure, something that we will do in section 3.4. In the next subsection, however, we will consider some properties of Thematic-R that follow from our analysis.

### 3.2.2. Implications of the analysis.

Observe that our analysis predicts that there must be a close relationship between the relational adjective and the predicate. If the relational adjective must be active, then it is not possible for another head with interpretable phi features to be present between it and the predicate, because the relational adjective would check its u-phi with this element and, as a consequence, it would become inactive. This intervening element -M in the diagram (83)- would interrupt in this way the necessary relationship between the head noun and the argument.



Some properties of relational adjectives follow from this characteristic.

First of all, relational adjectives are expected not to be expanded in phrases. To be expanded into a complete phrase would imply that the relational adjective would be merged with KiP and NumP. As these elements contain interpretable phi features, their presence would imply that there is no relationship between the relational adjective and the predicate noun. This explains that relational adjectives do not appear as full nouns, with KiP and NumP.

From this general property it also follows part of the characteristic behaviour of relational adjectives: nouns that denote events cannot be the base for a relational adjective, from where it follows the ungrammaticality of nP's such as *\*ataque invasional*, ‘invasional attack’. The explanation is related also to the adjacency requisites necessary for the structure to license theta-identification. Imagine that the interpretation of the relational adjective is eventive; this must mean that under the little *n* that heads the relational adjective there is a verbal head that contains the feature Ev. When the little *n* selects little *v*, they will identify Ev with Ref inside the relational

adjective, because they will both satisfy their Phi property with the same set of phi features.

The problem is that, when the relational adjective is associated with the head noun, the relational adjective won't be interpreted as an argument. The interpretation of the structure will be that there is an event that participates in the predicate event, because Ref is identified with Ev inside the relational adjective. This property explains the following data.

Relational adjectives can be formed taking as bases nouns derived with the suffix *-ción*, that admits both eventive and resultative interpretations, but when it is used as a base for relational adjectives it only admits the resultative reading. When the noun with *-ción* is ambiguous between a result and an eventive reading, it is only the result reading which is active if the noun is derived as a relational adjective (84). The same situation arises with other suffixes which are ambiguous between an eventive and a result reading, as *-nci(a)/nz(a)* or *-mient(o)* (85).

- (84) a. *protección, pensión, comisión, reacción, inflación...*  
*protection, wage, comission, reaction, inflation...*  
b. *proteccion-ista, pension-ista, comision-ista, reaccion-ario, inflacion-ario...*  
lit. *protection-ist, wage-ist, comission-ist, reaction-ary, inflation-ary*
- (85) a. *ordenanza, penitencia, procedimiento...*  
*ordenance, penitence, procedure...*  
b. *ordenanc-ista, penitenci-ario, procediment-al...*  
*ordenanc-ist, penitenc-iary, prodecur-al*

The formations with these suffixes which are obligatorily interpreted as eventive nouns cannot produce relational adjectives. Among these nouns there are *cocción*, 'coction', *fusilamiento*, 'fusilation', *enjuiciamiento*, 'injudgement', *enrojecimiento*, 'redddenment', o *abastecimiento*, 'providement'.

Some affixes also force an eventive reading of a noun. As it is known, some temporal prefixes, such as *pre-* or *post-*, select bases which have to be forcefully eventive. In consequence, a noun combined with these prefixes cannot be the base for a relational adjective. (86a) is a correct derivation, while the derivation in (86b) is ungrammatical.

- (86) a. *recep-ción > recep-cion-ario*  
*recep-tion > recep-tion-ary*  
b. *pre-rrecep-ción > \*pre-rrecep-cion-ario*  
*pre-recep-tion > \*pre-recep-tion-ary*

As is to be expected, relational adjectives can take as base words derived by the suffix *-ura* (*postur-al*), which only has resultative readings. With respect to the derivative suffix *-dor*, which is usually agentive or instrumental, it does not act as a base for relational adjectives. This is also expected, because the presence of an external argument forcefully implies the presence of an event. The scarce examples that we can document of relational adjectives with *-dor* are referred to lexicalised constructions where the agentive value has been lost (*reden-tor-ista*, 'person obsessed with religious redemption', *trac-tor-ista*, 'person who works with a tractor'). The reasons that explain the absence of eventive character are several; it may be the case that the base designates a noun that means a job instead of a true agent, as there is no related verb to express that

event (*pas-tor-il*, ‘referred to shepherds’, *pre-tor-iano*, ‘referred to the Praetor’), or they are lexicalised forms that express a function rather than an agent (*profe-sor-al*, ‘referred to the professor’, *rec-tor-al*, ‘referred to the head of the university’, *doc-tor-al*, ‘referred to the doctor’).

### 3.3. The semantic role of [Attr<sup>def</sup>].

The presence of a feature [Attr<sup>def</sup>] in the proposed lexical item makes our proposal coherent, for it explains the insertion of adjectival morphemes in the so-called relational adjectives, makes it possible the operation of fission and –from a more general perspective– prevents the proposal from having matrixes of features without interpretable constituents, which would be against the Minimalist Program. However, we have not provided evidence that this feature exists. In this section we will offer evidence of its existence and we will show its role in the semantics of the relational adjective.

Let us remember first the role of the feature [Attr] when it combines with an nP projection. We observed in 3.1. that its semantic role was three-fold. First, it selects the semantic type of the base and turns it into a gradable property, so it acts as a semantic function. Secondly, through coindexation in LF with [Ref], it makes predication possible. Thirdly, as we observed in the contrast between the noun *paja*, ‘straw’, and the derived adjective *pajizo*, ‘strawish’, the feature selects a subset of the set of properties denoted by the base. The result of this is that we can call *pajizo* a bigger number of entities than those that we can call *paja*: when the intensional features of the word are reduced, the extension of the term becomes bigger.

We propose that the feature [Attr] in its defective version lacks the two first characteristics, but keeps the third. That is, it is unable to change the semantic type of the base, so it does not project its label, and cannot establish a predication relationship, but it is able to select some of the properties of the base, and, therefore, it can make the extension of the word bigger.

We will illustrate this idea with examples. Let us consider the two pairs of noun phrases in (87).

- (87) a. transporte marítimo  
lit. transport maritime, *maritime transport*  
b. transporte por mar  
lit. transport by sea  
c. plato gelatinoso  
lit. dish jelly-ish, *jellyish dish*  
d. plato con gelatina  
lit. dish with jelly

The intuition of the speaker about these expressions is that the phrases with a relational adjective are, in a sense, more ‘general’ than the phrases with a full noun phrase. The idea is that (87b) can only be applied to a situation in which there is something which is transported by the sea, while that in (87a) could refer to other situations in which something is transported through the water, for instance, through a lake or a river. *Marítimo* seems to mean ‘by something which is made out of water’. This is, from the set of properties denoted by the noun *mar*, ‘sea’, which is in the base of the relational adjective, only a subset of them has been selected, in particular the property that states that the sea contains water, so that the extension of the word is enlarged with respect to the base.

A similar situation arises in (87c), which can refer not only to those dishes which contain the substance that we call *gelatina*, ‘jelly’, but also those substances that share with jelly only their texture, as for example, the yolk of the egg. In contrast, (87d) only can refer to dishes which contain jelly.

Let us consider other examples of relational adjectives which are built over different morphological bases. Let us think in a relational adjective constructed from a noun which denotes an entity which is normally unique, as for example *presidente*, ‘president’. Let us observe that in (88a) it is presupposed that there is a president and the decision has been taken by him in person. On the contrary (88b), could be used to refer to a situation where there is no president –because it has been deposed, it has just died, etc...-, but the decision has been taken by someone from the president’s staff, or someone whose status is similar to the status of the president –as for example the vice-president which fulfil the president’s duties during his or her absence. Once again, the relational adjective has a bigger extension than the corresponding noun.

- (88) a. la decisión del presidente  
lit. the decision of the president
- b. la decisión presidencial  
lit. the decision presidential

Let us consider, finally, relational adjectives which are derived from proper names. We have already observed that the relational adjective derived from such elements does not denote the individual known by that name, which is unique in the context, but a bigger set of elements, which includes the set of beliefs that are associated to that individual in the Encyclopaedia. This necessarily implies that the extension of the word is bigger than the extension of the base. The phrase in (89a) can refer only to the operas composed by Wagner himself, while that in (89b) can refer not only to the operas composed by Wagner, but also to those by his followers or those that share some properties with those by Wagner himself.

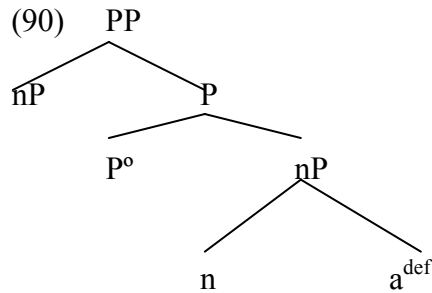
- (89) a. la producción operística de Wagner  
lit. the production opera.RAM by Wagner, *the opera production by Wagner*
- b. la producción operística wagneriana  
lit. the production opera.RAM Wagnerian, *the Wagnerian opera production*

### 3.4. Classificative relational adjectives. Internal morphological structure.

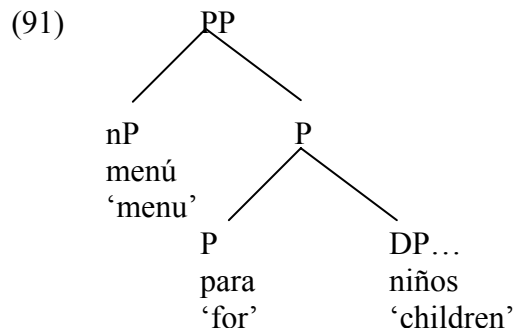
In (12) we showed that Classificative-R are usually equivalent to a noun phrase introduced by a preposition with lexical content. We propose that a Classificative-R has the same structure as a Thematic-R, with the additional characteristic that it is selected by a preposition which relates the relational adjective with the head noun (90).<sup>82</sup> From the presence of the preposition follow most of the characteristics that differentiate Classificative-R from Thematic-R.

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<sup>82</sup> As can be seen, we propose that there is an nP in the specifier of the relational projection, as happens in the case of the structure of the adjective (cfr. chapter two, section 2.2.3.). Like that case, we propose that there is another nP external to the relational structure, which is dominated by the projections that contain phi features, KiP and NumP, and which is coindexed in LF with the nP in the diagram (90). The nP in the diagram does not spell out, because it is c-commanded by the nP which combines with the rest of the functional projections.



This preposition has a semantic content, so the relational adjective can be paraphrased by a PP with a lexical preposition, unlike Thematic-R. We would like to observe that the structure in (90) is, in crucial properties, the same as the structure which is formed when there are two nouns related by a lexical preposition such as *con*, ‘with’, *para*, ‘for’ or *sin*, ‘without’ (91).

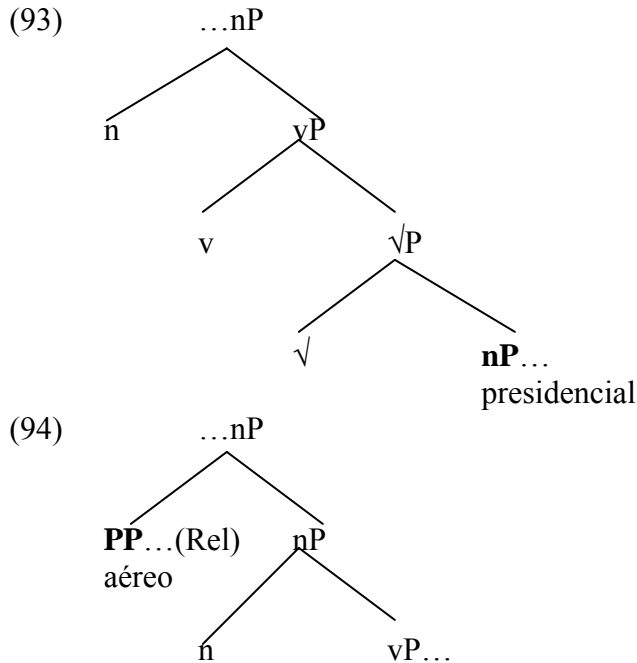


There is a further basic difference between Thematic-R and Classificative-R, which has been observed by Bosque (1993), Demonte (1999) and other authors: the first class is interpreted as one of the arguments of the deverbal noun, while the second class expresses external characteristics, which may not be expressed, of the head noun. In other words, Classificative-R seem to be adjuncts, while Thematic-R are arguments.

From here it follows a first difference between Classificative-R and Thematic-R: the number of Classificative-R that can modify the same head noun is not restricted, so it can be more than two (92a). On the other hand, the number of Thematic-R that can possibly appear with the same head noun is restricted to the number of arguments of the deverbal noun, and in any case can never exceed two. In (92b) ungrammaticality is due to the fact that the verb *caer*, ‘to fall’ has only one argument; (92c) is impossible even though the verb *donar*, ‘to donate’, may have three arguments.

- (92)
- a. tren eléctrico pendular español  
lit. train electric pendular Spanish  
*Spanish pendular electric train*
  - b. \*la caída alemana francesa  
lit. the fall German French (both interpreted as Thematic-R).
  - c. \*donación monetaria presidencial mundial  
lit. donation monetary presidential world-wide (interpreted as in *the president donates some money to the world*).

This difference between arguments and adjuncts can be captured nicely if Thematic-R are selected as complement by the root (93). Classificative-R, on the other hand, are adjuncts to nP (94).



Let us consider more in detail the syntactic structure of the classificative relational adjective. In the specifier of PP we have placed an nP which is correferential with the nP which combines with KiP, NumP and DP, as in the case of the relational structure of the adjective. A reasonable assumption is -we believe- that the nP in the specifier of PP must be c-commanded by the projections which contain the phi features associated with the head nP, because it has to be identified with it. Therefore, this nP must be in a structural position that allows KiP and the other projections to c-command it

Going back to the equivalence between PP's and Classificative-R, we would like to observe that the crucial difference between (90) and (91) is, again, that in the latter, but not in the former, the complement of P is a full DP. The preposition, a predicate, assigns theta-role to its complement, a full DP, in the usual way. When the complement is an nP, the preposition cannot assign theta-role to the complement in the usual way, as there is no DP.

We will make explicit our proposal about the way in which  $a^{def}$  makes it possible to perform theta-assignment. As in the case of Thematic-R, nP is an inert syntactic element, for it lacks uninterpretable features. The presence of the lexical element  $a^{def}$  provides the projection with uninterpretable features, with the result that it becomes syntactically active.

The effect of the nP being syntactically active is that the configuration that it constitutes with the preposition is also active and can be recognised in LF. On this level, as happened with Thematic-R, the configuration that the relational adjective establishes with the head that assigns a theta-role to it is interpreted as theta-assignment. In the absence of  $a^{def}$ , as nP is inactive, this configuration cannot be interpreted.

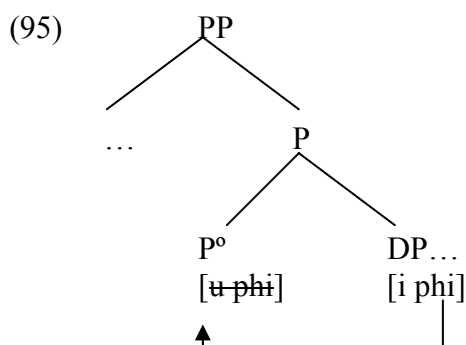
In the next section, we will refer to the way in which Classificative-R erase their  $\phi$ -features and check its case, with the result that it is interpreted that it receives a theta-role from the preposition.



### 3.4.1. Case assignment to Classificative-R.

In the first place, it is necessary to say a few words about the way in which a preposition checks the case of its complement.

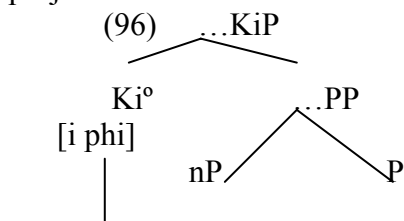
To answer this question, let us be explicit about feature content of a preposition. We propose that a preposition contains a set of uninterpretable phi features,  $[u\ \phi]$ , which force it to combine with at least one full nominal projection to check them, and at least one interpretable feature that accounts for its interpretation as a relator,  $[\rho]$ , as it is the case with  $\text{Gen}^0$ , the head which assigns genitive case. When the preposition selects a full DP, it checks  $[u\ \phi]$  with this complement. Some languages reflect this agreement morphologically<sup>83</sup>. We will assume that agreement also takes place syntactically in Spanish, with the difference that in this language there are no Vocabulary Items to manifest it phonologically (95).



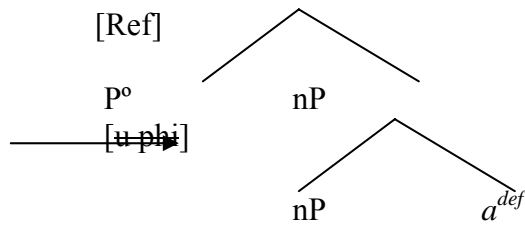
This is a complete relation of checking of phi features, so, following Chomsky (2004: 113-115), it is a relation that produces case checking as a result. In this way, the complement of the preposition gets its case checked.

This is not the only piece of evidence that a preposition contains phi features. Kayne (2004: 197-199, 201) presents a convincing reasoning that at least a set of prepositions – among them dative prepositions- act as probes that trigger the raising of the internal subject of an infinitive clause, whose case they check; therefore, prepositions intervene in phenomena of Extraordinary Case Assignment. If prepositions are probes able to check the case of a subject, then they necessarily must contain uninterpretable phi features.

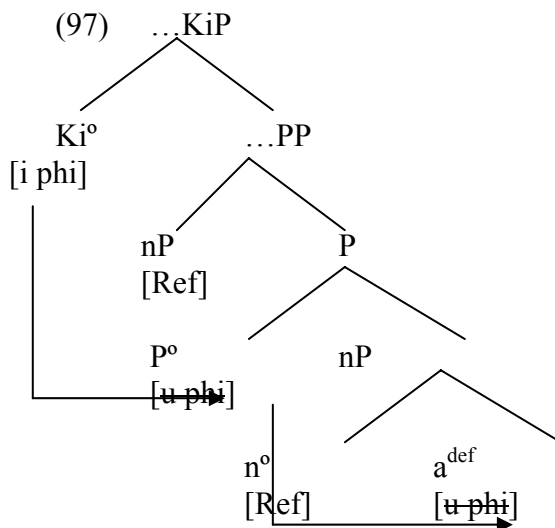
We will now consider case assignment to the relational adjective inside the PP. As it happened with Thematic-R, the projection nP does not contain  $[i\ \phi]$ , so this constituent cannot establish a direct checking relationship with the preposition. When  $a^{def}$  is added to nP, in fact, both the preposition and the relational adjective will have to check  $[u\ \phi]$ . The elements which contains  $[i\ \phi]$  and thus can check this matrix of features are the projections KiP and NumP which dominate the nP which is outside from the relational structure. These projections, as they contain the only phi features in the structure, are associated with the nP placed in the specifier of PP (96). When these projections enter into the derivation, they automatically check the features of  $P^0$  in (96).



<sup>83</sup> In fact, independent evidence that prepositions contain  $[u\ \phi]$  and are agreeing elements is found in languages such as Irish Gaelic. A preposition such as *ar*, 'on', is conjugated depending on the pronoun which is its complement: *orm* (1<sup>st</sup> sg.), *ort* (2<sup>nd</sup> sg.), *air* (3<sup>rd</sup> sg.masc.), *uirthe* (3<sup>rd</sup> sg.fem.), *orainn* (1<sup>st</sup>.pl.), *oraibh* (2<sup>nd</sup>.pl.) and *orthu* (3<sup>rd</sup>.pl.).



The relational adjective also has to check its uninterpretable features. First, it has to assign a value to these features, so it copies the values from the prepositional head, which is closer to it. In the next step, both matrixes of *u phi* are erased by the interpretable *phi* features contained in the functional projections that dominate the noun modified by the relational structure. Thus, there is a complete checking relationship between the two elements with *phi* features in the configuration (97), which produces case checking as a result. This process is parallel to the one that takes place with Thematic-R.



This configuration is active; as a consequence of this, in LF the feature [Ref] of the nP inside the relational adjective and the feature  $\rho$  of the preposition are active and establish a relationship between them. This triggers that it is interpreted that the nP receives a theta-role from the preposition.

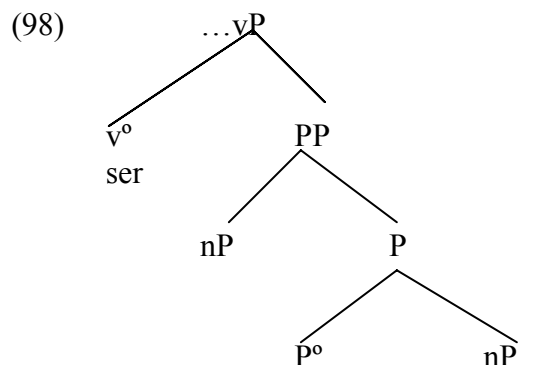
In the next section, we will consider some properties of Classificative-R that follow from our analysis.

### 3.4.2. Special characteristics of Classificative-R.

The first property that follows from our analysis is that a Classificative-R adjective expresses the same semantic relationships which lexical prepositions express, that is, external relationships of a class of elements with another class of elements, such as purpose, location or origin. From here it follows that these relational adjectives can be paraphrased by overt PP's with lexical prepositions.

As for the second property, let us remember that Classificative-R, unlike Thematic-R, can appear as predicates in copulative sentences. We expect Classificative-R to appear in this context for the same reason that PP's can. A sentence such as *la elección fue municipal*, 'the election was municipal', is grammatical just as *la elección fue para el municipio*, 'the election was for the municipality', is grammatical (98). A Thematic-R adjective, on the other hand, receives a theta-role from the subject of the copulative

sentence, which is not adjacent to it, so we expect that this kind of elements will not be able to appear in copulative sentences. Moreover, PP can be predicates, but nP cannot, unless they are combined with a Predicative Phrase (PredP, Bowers 1993, 2000, Baker 2003), but the presence of a PredP would interrupt adjacency between the relational adjective and the head noun.



**Another property that follows from this structure is that we expect Classificative-R to combine with each other in subordinating structures. In a group of qualitative adjectives modifying the same phrase it is not the case that one adjective is subordinated to the other, delimiting the denotation of the first adjective (99). However, Classificative-R can form series of elements where one is syntactically subordinated to the first one, delimiting its semantic class (100, from Bosque & Picallo 1996: 366)<sup>84</sup>.**

- (99) una falda cómoda elegante  
lit. a skirt comfortable elegant  
*a comfortable elegant skirt*

- (100) a. coma alcohólico metílico  
lit. coma alcoholic methylated  
*methylated alcohol coma*  
b. literatura medieval francesa  
lit. literature medieval French  
*French medieval literature*

These relational adjectives act just as PPs that modify an nP. PP's can be iterated, because each one will modify the complement of the previous one, specifying its denotation. The relational adjectives in (100) are semantically equivalent to the PP's in (101).

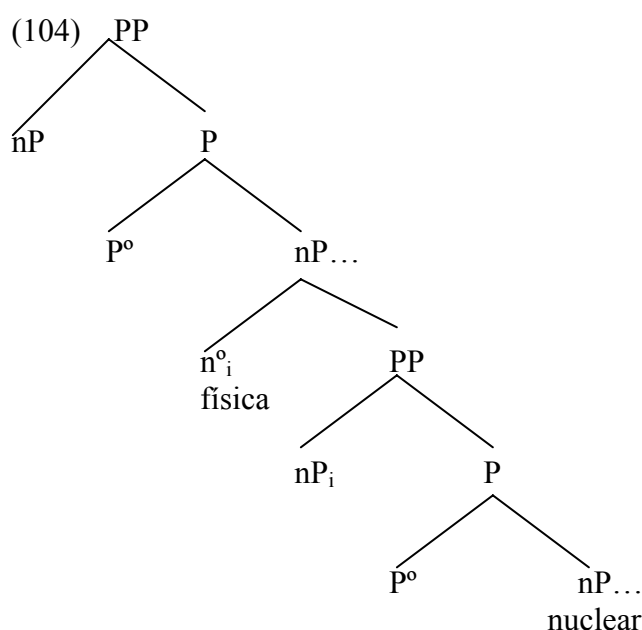
- (101) a. coma por alcohol con metilo  
lit. coma from alcohol from methyl  
*coma caused by methyl alcohol*  
b. literatura durante el medioevo en Francia  
lit. literature during the Middle Ages in France

<sup>84</sup> Complements of heads usually specify the semantic denotation of their heads if they maintain an argument relationship with them. For example, the complement *potatoes* in *to eat potatoes* specifies that, from the set of events of eating conceivable, that particular structure only denotes those events of eating which involve *potatoes*. The semantic relationship between the two relational adjectives involved in the construction discussed is similar.

There is one case of bracketing paradox that may be solved by paying attention to this property. The phrases in (102) are constituted by two relational adjectives, one subordinated to the other. However, they are interpreted as the result of turning into a relational adjective the phrases *química inorgánica*, ‘inorganic chemistry’, and *física nuclear*, ‘nuclear physics’, respectively. There are other paradoxes, such as those in (103), which are interpreted as deriving with the suffix *-ista* the noun phrase *latín vulgar*, ‘vulgar Latin’. This semantic interpretation cannot respond to a straightforward formal derivation, because, assuming some version of the Lexical Integrity Hypothesis (cfr. chapter five, section 2), a phrase cannot be combined with a suffix.

- (102) (un proceso) químico inorgánico, (un estudio) físico nuclear  
lit. (a process) chemical inorganic, (a study) physical nuclear  
*an inorganic chemical process, a physical nuclear study*
- (103) un latinista vulgar  
lit. a Latinist vulgar  
*a vulgar Latinist*

This is not surprising given our analysis. A noun can be modified by a PP, while an adjective cannot be modified by other adjective. In (104) we represent this relationship of modification.



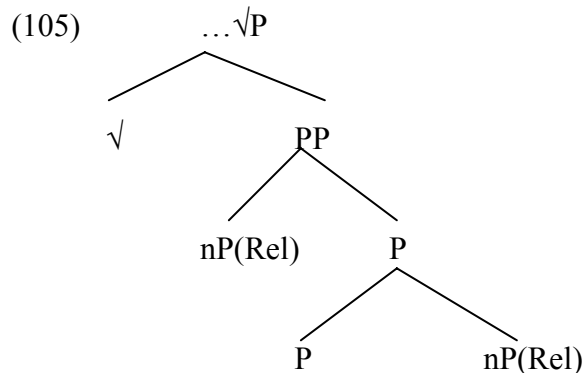
The structure in (104) shows that there is nothing special about this type of bracketing paradoxes that cannot be explained on structural grounds. Compositionality is not violated as far as the semantic relationships can be expressed and explained in the branching diagram. Consequently, this class of bracketing paradoxes does not provide arguments for models of word formation which deny the existence of a proper internal structure of the word (cfr. Spencer 1991, Anderson 1992); with the proper structure, they can be explained.

#### 4. Sequences of more than one relational adjective in the same noun phrase.

In this section we will address some questions that we left unanswered in previous pages, such as the analysis when two Thematic-R co-occur, or the relative ordering between relational adjectives in the noun phrase.

#### 4.1. Series of two Thematic-R.

Let us consider first the case in which two relational arguments are present in the derivation. We will assume the simpler theory according to which a root only selects one argument. Therefore, another element must be selecting the second Thematic-R. We propose that, when two Thematic-R appear in the same noun phrase, both of them are arguments of a relational head selected by the root (105).



One reason to propose the structure in (105) for a sequence of two Thematic-R is that the position in which external arguments are merged in a usual predicate is not provided by a noun. This has been observed in the generative tradition, sometimes framed in the discussion about compounds, by a number of researchers, among them Chomsky (1981), Sproat (1985), Jackendoff (1987) and Varela (1990b). In contrast, in a verbal predicate, the position of external arguments is the specifier of  $\nu$ P. This happens when little  $\nu$  is phi-complete, that is, when it is associated with the formal features which are enough to check case (Chomsky 2001). In the case of a deverbal noun, it seems that little  $\nu$  cannot be phi complete, because it cannot check the case of its internal argument, a well-known fact of English and Spanish (106). Consequently, little  $\nu$  is not complete and cannot select an external argument as its specifier.

- (106) a. the enemy's destruction (\*of) the city.  
 b. la destrucción (\*de) la ciudad por el enemigo  
*the destruction of the city by the enemy*

We consider Grimshaw's (1990: 109-112) exposition particularly clear. This author offers convincing evidence that in fact external arguments are not assigned by nP's themselves. She observes, first, that in a nominalisation the agentive argument is always optional, but not the patient / theme (107). When the patient does not appear it must be retrieved from the discourse. (107b) is ungrammatical in the absolute beginning of the discourse, because there is no previous information to retrieve the patient. In contrast, (107a) is grammatical even in the position of absolute beginning of the discourse.

- (107) a. The (enemy's) destruction of the city  
 b. The enemy's destruction \*(of the city)

In a sense, then, eventive nominalisations are passive forms (cfr. also Picallo 1991). From the perspective of discourse semantics, when the agent does not appear in (99), the interpretation depends on whether the action denoted by the root can be viewed as externally or internally caused. If the action can only be viewed as externally caused, that is, if it needs a cause that initiates the process, the agent must be interpreted even though it does not appear so, as in a passive voice<sup>85</sup>.

Therefore, there are strong reasons to propose that the external argument cannot be assigned in the usual way inside a noun phrase. Now, it is necessary to determine how the agentive interpretation is obtained inside a noun phrase.

When two Thematic-R's appear, we propose that the preposition assigns an agent (or experiencer) role to its internal argument, while the other argument, which is in the specifier of the preposition, is interpreted as theme / patient by default, being the only remaining argument of the predicate. If the agent theta-role is assigned by the preposition, then the preposition must be a strong preposition with lexical content. Thus, the prediction is that, when the relational argument manifests itself as a full nP, the preposition that accompanies it won't be a light preposition *de*, 'of', but a strong preposition, with lexical content. This prediction is confirmed by the data. When only one argument appears, the agentive argument may appear with *de* (108a), but if both arguments are present, there is a strong tendency for the strong preposition *por*, 'by', which has an agentive / instrumental meaning, or the prepositional locution *por parte de*, with the same meaning (108c) to occur. If the agent appears in this context also with the preposition *de*, the phrase is not entirely grammatical (108b).

- (108) a. La invasión de los alemanes  
lit. the invasion of the Germans  
The Germans' invasion  
b. La invasión de Francia ?? de los alemanes  
lit. the invasion of France of the Germans  
c. La invasión de Francia por (parte de) los alemanes  
lit. the invasion of France by the Germans  
France's invasion by the Germans

In strong contrast, patients / themes cannot manifest themselves with a preposition different from the weak *de*. This is expected if they never have a thematic role assigned by a prepositional phrase. Therefore, the agent Thematic-R that co-occurs with a patient Thematic-R is similar to a Classificative-R and receives its case and its theta-role in the same way as those elements, that is, through a preposition.

Let us observe that the proposed structure predicts also that the unmarked order for Thematic-R is that in which the internal argument appears first, followed by the external argument. This prediction is upheld. The following contrast, which shows that the first adjective is interpreted as the patient or theme and the second, as the agent, is taken from Bosque & Picallo (1996: 360):

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<sup>85</sup> In addition to this, there is a phenomenon in Japanese that counts as evidence in favour of the non argumentality of agents in nominalisations. In light verb constructions, the noun that determines the argumental structure must be accompanied by its subject. It is crucial, however, that the subject be outside the construction. At the same time, it is necessary that the noun which combines with the light verb has an empty thematic position in order to make the formation of the complex predicate possible. The immediate question is why it is not the case that the subject can occupy the free argumental position. Grimshaw concludes that this situation is expected if the position of the external argument is not free because it is not available in the nominalisation.

- (109) a. estudios rodoledianos femeninos  
lit. studies Rodoreda.RAM feminine (studies about Rodoreda by women)  
b. estudios femeninos rododerianos  
lit. studies feminine Rodoreda.RAM (studies about women by Rodoreda)

#### 4.1.1. Kayne's restriction revisited.

There is an additional restriction which operates on Thematic-R and their interaction with ordinary DP arguments inside the noun phrase. Kayne (1984) has observed that if in the same phrase there is a DP theme that occurs with a weak preposition and a Thematic-R interpreted as an agent, the result is grammatical (110a). However, if the Thematic-R is the theme and the DP expresses the agent, the result is ungrammatical (110b).

- (110) a. The Albanian<sub>Agent</sub> invasion of Italy<sub>Them</sub>.  
b. \*The Italian<sub>Them</sub> invasion of Albany<sub>Agent</sub>.

Bosque & Picallo (1996: 356-359) give as a translation for this data in Spanish phrases that contain PP with agents introduced by 'por (parte de)', considering them instances of the same restriction observed by Kayne. Let us note, however, that they are not the direct equivalent of the structure studied by Kayne, because the English 'of' is an empty preposition, equivalent to the Spanish *de*, not to the Spanish *por (parte de)*, which is a strong lexical preposition. In our mind, there is in fact a contrast between the noun phrases in (111) and (112), with a strong and a weak preposition, respectively. The noun phrases in (112) are ungrammatical with an agentive interpretation of the PP modifier.

- (111) a. la pesca ballenera **por parte de** los japoneses  
lit. the fishing whale.REL by the Japanese  
the whale fishing by the Japanese  
b. la producción sedera **por parte de** los chinos  
lit. the production silk.REL. by the Chinese  
the silk production by the Chinese  
c. la producción quesera **por parte de** los holandeses  
lit. the production cheese.REL by the Dutch  
the cheese production by the Dutch  
(112) a. \*la pesca ballenera **de** los japoneses  
lit. the fishing whale.REL of the Japanese  
b. \*la producción sedera **de** los chinos  
lit. the production silk.REL of the Chinese  
c. \* la producción quesera **de** los holandeses  
lit. the production cheese.REL of the Dutch

Bosque & Picallo explain the contrast in (110) in the following way: a noun such as *invasión*, 'producción', is eventive, and eventive nouns require obligatorily a theme or patient. Relational adjectives are projected always as specifiers in Bosque & Picallo's theory. Patients or themes are generated as complements, not as specifiers. Therefore, a relational adjective cannot fulfil the role of a theme or patient (1996: 357). The nP in (110b) is ungrammatical, then, because one of the obligatory arguments of the deverbal noun is not satisfied. Agents can be satisfied by relational adjectives, because they are licensed in specifier positions; therefore, (110a) is grammatical.

Result nouns do not require a patient or a theme. Therefore, there is nothing wrong with having a result nominal which satisfies the theme role with a relational adjective (1996: 358-359). Therefore, (112) is grammatical in the result noun interpretation, forced by some predicates, such as *pesar*, ‘to weigh’ (113).

- (113) a. *la pesca ballenera de los japoneses (pesó tres toneladas).*  
 lit. the fishing whale.REL of the Japanese (weighed three tons).  
 Japanese’s whale fishing raised up to three tons.  
 b. *la producción sedera de la China (excedió todas las previsiones)*  
 lit. the production silk.REL of the China (exceeded every prevision).  
 China’s silk production exceeded every prevision.

If the analysis that these authors propose for Kayne’s restriction, there are three predictions. The first one is that the noun phrases in (112) will still be ungrammatical when the agent appears as a relational adjective, because that does not solve the fact that the theme is expressed as a specifier. This prediction is not confirmed by the data. In (105) it is shown that turning the agent into an adjective makes the phrase grammatical. Let us observe that in the sentences in (114) a verb which forces an eventive interpretation is added, in such a way that the relevant noun phrases are not confused with result nouns.

- (114) a. *la pesca ballenera japonesa (comienza cada día al alba).*  
 Lit. the fishing whale.REL Japanese (starts every day at dawn)  
 b. *la producción sedera china (comienza cada día a las cinco)*  
 lit. the production silk.REL Chinese (starts every day at five).  
 c. *el acuerdo pesquero hispano-marroquí (tuvo lugar el pasado día cinco).*  
 Lit. the agreement fishing Hispanic-Moroccan (took place past day five).  
 d. *la producción quesera holandesa (comienza cada día a las cinco).*  
 Lit. the production cheese.REL Dutch (starts every day at five)

The second prediction of Bosque & Picallo’s proposal is that when the agent occurs with another preposition, for example a non weak preposition, the grammaticality of the phrase will not be maintained. This prediction is not borne out, again. When the agent appears with a strong preposition, the phrase is completely grammatical (115), as we showed in (111). Bosque & Picallo consider these sentences as ungrammatical, but in fact, according to our own competence as speaker and that of other speakers we have consulted, they are not ungrammatical.

- (115) a. *la pesca ballenera por (parte de) Japón comienza cada día al alba.*  
 b. *la producción cestera por (parte de) China finaliza cada día a las cinco.*  
 c. *el acuerdo pesquero de España y Marruecos tuvo lugar el día cinco.*

Thirdly, these authors’ proposal predicts that unaccusative verbs will never be able to license its subject, an internal argument, as a relational adjective. In fact Picallo (1991: 287) gives a series of examples from Giorgi & Longobardi (1991) in favour of this prediction, as well as some other examples in Catalan (116).

- (116) a. \* *la tornada matrimonial a París*  
 lit. the return matrimonial to Paris  
 b. \* *la desaparició autrohongaresa de l’escenari polític*



lit. the disappearance Austro-Hungarian from the political scenario

However, it seems that in examples equivalent in Spanish with eventive nominals and unaccusative verbs may be grammatical. Examples (117d, e, f) are proposed by Bosque & Picallo themselves (1996: 356):

- (117) a. el retorno / regreso presidencial tuvo lugar en 1976  
lit. the return presidential took place in 1976  
the presidential return took place in 1976  
b. la caída alemana tuvo lugar en 1945  
lit. the fall German took place in 1945  
the German fall took place in 1945  
c. la decadencia otomana durante el siglo XVIII  
lit. the decadence Otoman during the XVIII century  
the Otoman decadence during the XVIII century.  
d. la emigración americana.  
lit. the emmigration American  
the American emmigration  
e. la salida francesa de la OTAN  
lit. the quitting French of the NATO  
the French quitting the NATO  
f. la entrada inglesa en el Mercado Común  
lit. the admission English in the Common Market  
the English admission into the Common Market

The same should happen, at least according to Giorgi y Longobardi (1991) and Picallo (1991, 1999), with the nominalisations of psychological nouns from the group of *preoccupare*, which assign the thematic role of experiencer to the internal argument. The data, once again, does not confirm the prediction in Spanish. If the experiencer is projected as an internal argument in these verbs, then, Bosque & Picallo's account cannot explain Kayne's restriction:

- (118) a. La conmoción sueca ante el asesinato de Palme dura ya quince años.  
lit. The shock Swedish for the murder of Palme lasts already fifteen years  
*The Swedish shock for the murder of Palme has already lasted fifteen years.*  
b. La preocupación española por el futuro de los hijos dura mucho tiempo.  
lit. The concern Spanish for the future of the children lasts long time  
*The Spanish concern for the future of their children has lasted a long time.*

The examples in (108) and (109) are eventive nominalisations, because they are the subject of a verb such as *tener lugar*, 'take place', which forces the eventive reading of the noun<sup>86</sup>. Bosque & Picallo observe (1996: 356) that it would be possible to explain

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<sup>86</sup> Picallo (1999: 381) argues that these noun phrases are headed by result nouns, because, when there is a temporal complement referred to the deverbal noun, it needs to be introduced by a preposition (i).

- (i) a. la erupción volcánica \*(de) el año 1950.  
b. la crecida fluvial \*(de) ayer

the cases where the relational adjective fulfils an internal theta-role proposing that, in these verbs, the adjectives are projected as specifiers, but they somehow manage to absorb the theta-role of the internal argument. However, if this was true, it would be necessary to explain why it is impossible for the relational adjective to absorb the internal theta-role in the same way in the ungrammatical examples of (112). The conclusion is, then, that the ungrammaticality is not the product of the projection of the relational adjective as a specifier.

The paradigm of data of Modern Spanish –at least, of the variety that we have presented, where the examples in (111) are grammatical- seems to be this: it is not possible to have an agent PP with a weak preposition and a theme relational adjective, but it is possible to have it with the agent PP with a strong preposition.

The reason of the ungrammaticality of the first construction but not the second one is clear in our analysis. When both elements are accompanied by the same weak preposition *de*, ‘of’, they are occupying the same base position and, also, the same position of landing, namely, the place where genitive case is assigned. An agent noun with a weak preposition receives Genitive, which means that it has moved to nP, as other constituents in Genitive case. The problem is that if the agent is in that position, the theme cannot appear there, so it is not structurally licensed.

If the agent has moved to nP, this is because it has not been selected by a preposition, so it needs to satisfy its case. Therefore, one way to save the grammaticality of the phrases in (112) is to combine the agent with a strong preposition; in this case, the argument is being selected by a PP, and therefore it does not occupy the same base position as the theme would occupy. Similarly, it has no need to move to nP to check case.

#### 4.2. The relative ordering between relational adjectives.

In this section, we will refer to the order in which different relational adjectives co-occur in the noun phrase.

Let us address in the first place the relative ordering between only one Thematic-R and a Classificative-R. In (119) it is shown that Classificative-R may appear after Thematic-R, or viceversa. Bosque & Picallo (1996: 368) consider ungrammatical the ordering Thematic-R > Classificative-R, so, according to their judgement, (119a) would be out; however, we disagree with them.

- (119) a. la producción francesa<sub>Th</sub> manual<sub>Cl</sub>  
lit. the production French manual  
b. la producción manual<sub>Cl</sub> francesa<sub>Th</sub>

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c. la emigración mexicana \*(de) la pasada década

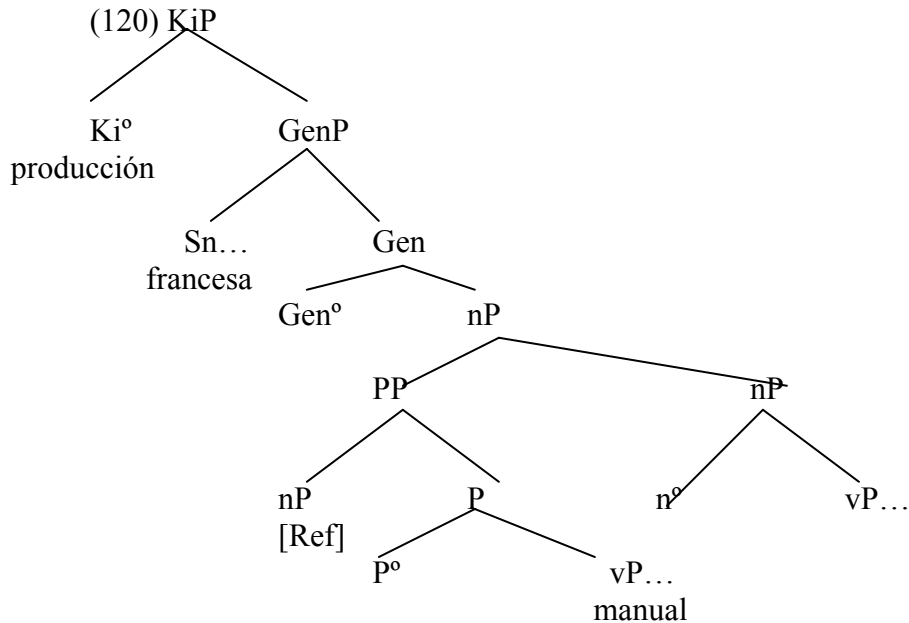
However, this criterion does not seem completely reliable, because many eventive nominalisations need to express their temporal modifier as a PP (ii):

- (i) a. la conversación \*(de) ayer duró más de cinco horas.  
b. la representación \*(de) los martes comienza a las ocho en punto.

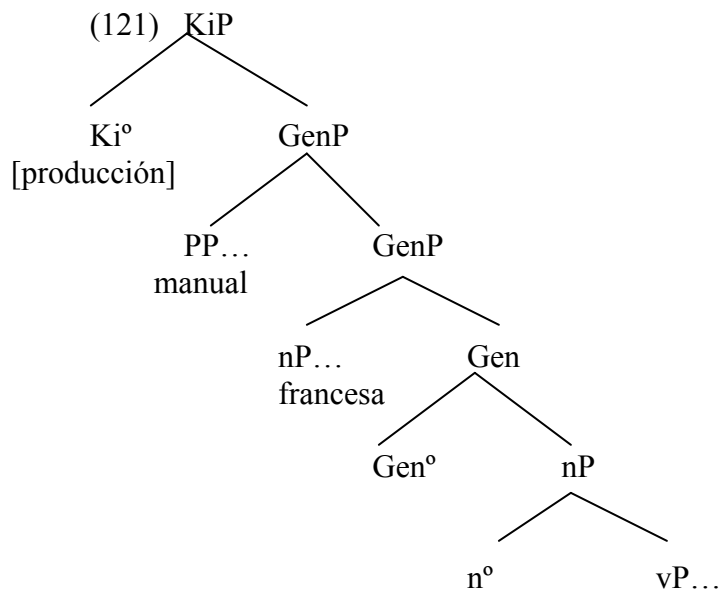
In fact, examples such as those in (iii) can be the subject of predicates which require an eventive interpretation of the external argument, such as ‘durar’, ‘tener lugar’ and the passive ‘ser presenciado’.

- (ii) a. la erupción volcánica del año 1950 se prolongó durante varios días.  
b. la crecida fluvial de ayer comenzó al romperse la presa.  
c. la emigración mexicana de la pasada década fue presenciada con preocupación por las autoridades.

This ordering is due to the position where Classificative-R can be adjunct. This element is adjunct to nP. Let us remember that our proposal is that the Thematic-R receives Genitive case in a position between nP and KiP (cfr. section 3.3.). Let us also note that we have proposed that a noun manifests itself morphologically in the position of Ki° after post-syntactic merger. Therefore, the Classificative-R can be adjoined to nP, as in (120), giving raise to the ordering in (119a).



There is an alternative ordering for the two classes of relational adjectives: Classificative-R precedes Thematic-R (119b). We propose that this ordering is obtained when Classificative-R is adjunct to GenP, the phrase where genitive case is assigned (121).



Let us observe that it is not possible for Classificative-R to adjunct to a position higher than GenP, such as KiP. The reason is that, if this element is adjoined to this projection, part of the interpretable phi features of the noun –those which are contained

in Ki°- do not c-command the nP which is inside the specifier of the PP of the Classificative-R. This situation would prevent the nP from being identified with the lower nP, with which it is correferential. This makes ungrammatical the ordering in (122), which would be the result of the Classificative-R adjoined to KiP or NumP.

(122) \*la manual producción francesa.

Additionally, we would like to observe that, given the position occupied by the head that checks Genitive case in a relational adjective, Thematic-R or Classificative-R will never surface before the noun, which is spelled-out in Ki°. From here it follows the ungrammaticality of (123).

(123) \*la francesa producción manual

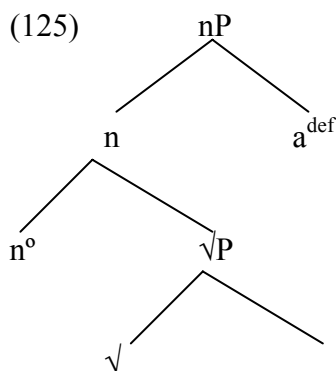
Now, we will consider word order facts when two Thematic-R and one Classificative-R co-occur. In this case, the latter can appear before both Thematic-R (124a) or between them (124b), but they are not perfectly grammatical after them (124c, cfr. Bosque 1993).

- (124) a. la producción manual<sub>C</sub> lechera<sub>Th</sub> francesa<sub>Th</sub>  
 b. la producción lechera<sub>Th</sub> manual<sub>C</sub> francesa<sub>Th</sub>  
 c. ??la producción lechera<sub>Th</sub> francesa<sub>Th</sub> manual<sub>C</sub>

Now, this fact can have an explanation. The first Thematic-R moves to GenP to have its case checked, but the agent Thematic-R doesn't need to move in order to get its case checked, because it is selected by a preposition, so it remains *in situ*. Therefore, if the Classificative-R is adjoined to GenP, the projection where Thematic-R gets its case licensed, it will precede both adjectives, as in (124a). On the other hand, it will appear after the first Thematic-R, but before the agent Thematic-R when it is adjuncted to nP (124b). Finally, given that the second relational adjective does not move to GenP, Classificative-R does not appear after both of them (124c).

## 5. Spell out.

The basic syntactic structure that we have proposed for a relational adjective is the following:

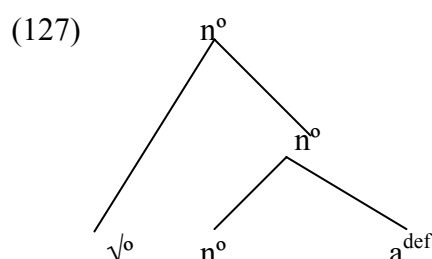


From this structure follows the order of the morphemes in the word:  $\sqrt{\text{--}}\text{-n-a}^{\text{def}}$ . Let us see the operations. Morphological merger changes the linear order between the head  $\sqrt{\text{--}}$  and the head little *n*. However, it cannot apply to  $\text{a}^{\text{def}}$ , because this head contains a

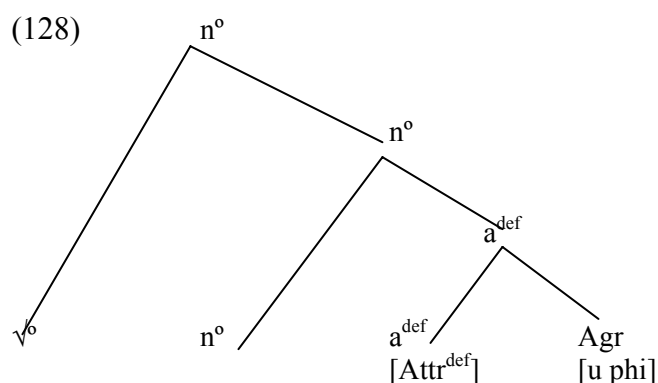
complete set of (uninterpretable) phi features, and following our assumptions about Morphological Merger –made explicit in chapter one, section 2.2.1.1.–, this operation is constrained in Spanish by the presence of phi features: when a lexical item contains phi features, it cannot be subject to morphological merger, so it cannot precede the head that selects it. This property was stated as the principle in (126).

- (126) Morphological Merger cannot be applied to two heads X and Y if there is a head Z that c-commands Y, is c-commanded by X and contains phi features.

Therefore, the lexical item  $a^{def}$  is linearised keeping its position in the syntactic structure. As it is c-commanded by the head little n, it will be materialised to the right of it –that is, as a suffix-, not to the left, as a prefix. The representation of (125) in the Morphology after Morphological Merger is in the diagram (127).



The syntactic structure in (125) suffers another post-syntactic operation. This operation is general to every morphological adjective in Spanish: the addition of a dissociated morpheme, used to spell-out the uninterpretable phi features contained in  $a^{def}$ . This dissociated morpheme receives the name of Agr, for ‘agreement’ and it is the position of exponence of the Vocabulary Items that materialise the agreement of the adjective and the noun (cfr. 128).



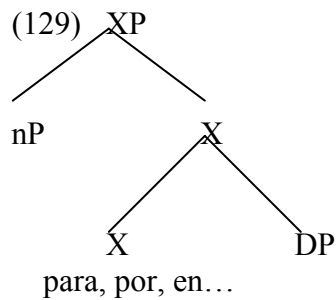
This produces the actual basic structure for the relational adjective: Root – (verbal morpheme) – noun morpheme – adjectival morpheme – agreement marks.

## 6. Combinations of Relational Heads and Nominal categories.

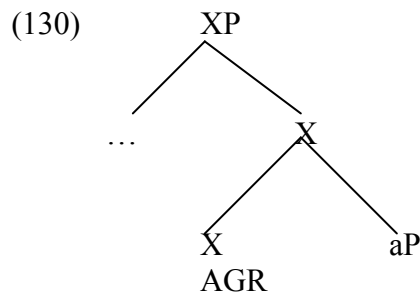
In this chapter and in the previous one we have proposed the existence of different types of relational heads in the syntax of nominal categories. Some of these relational heads take the form of phonological prepositions, such as *de*, ‘of’, ‘from’, or *para*, ‘for’. Others appear as agreement morphemes. In this section we will discuss the possible

combinations of relational heads with nominal categories, and we will try to determine which characteristics determine whether a phonological preposition is inserted or not.

The first factor that is going to be considered is the category of the complement of the relational head. When the relational head appears as a preposition after Vocabulary Insertion, the complement is a DP. In the diagram (129), as well as in the rest of the diagrams in this section, we will represent a relational head with X, so as to remain neutral with respect to whether it manifests itself as a preposition or as pure phi features.



In this case, the relational head X appears as a pure preposition. The Vocabulary Item inserted here is a lexical element which makes explicit the semantics of ‘relation’, that is, a preposition. On the other hand, when the relational head selects a category aP, as happens with pure adjectives, the relational head is a set of agreement morphemes (130).



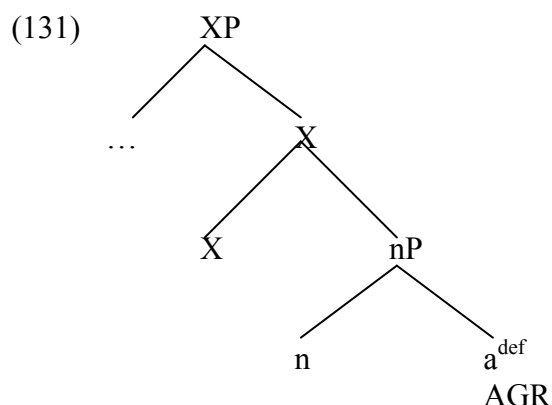
Syntactically, relational heads contain two types of features:  $\rho$  and u phi.

We propose that Vocabulary Items that we call ‘prepositions’ are inserted in nodes which contain only the feature  $\rho$ , without any trace of u-phi. Marks of agreement, on the other hand, are inserted in matrixes which contain u-phi, and not a feature  $\rho$ .

We propose that there are two operations of feature impoverishment that apply post-syntactically to a relational head, depending on the nature of the complement. When the complement of X is a DP, we propose that, as this category already contains (materialised) uninterpretable phi features, the u-phi of the relational head are erased from the matrix and the only feature that remains is  $\rho$ . This forces the insertion of a phonological preposition. On the other hand, when the complement of the relational head is a category without uninterpretable phi features, such as aP, impoverishment does not erase the u-phi in X, but the feature  $\rho$ . Thus, agreement morphemes –not prepositions- are inserted in this node.

We must at this point account for a third possibility, which we have introduced in this discussion. The relational head selects a complement nP, as in the case of Classificative-R. Observe that in this case, the relational head does not appear at all.

There is no phonological preposition, and the agreement morpheme that appears in the derivation corresponds to the lexical item  $a^{def}$  (131).



As nP does not contain phi features, we expect that the feature  $r$  is erased in X, as when the complement is aP. This leaves the u-phi features. If they were left, we would expect insertion of agreement morphemes. This is not the case, so they must have been erased. We propose that this is due to another principle of the grammar, maybe specific to some languages, among them Spanish, which prevents nouns from carrying agreement morphemes; due to this, relational heads are incapable of manifesting agreement morphemes when the functional projection that merges with them is a noun phrase instead of an adjectival phrase. We state this principle in (132).

- (132) Relational heads do not show agreement morphemes when they spell-out a noun.

There are other situations which have to be singled out. In the first place, let us observe that there are two types of relational heads which can take DP's, but they spell out in a completely different way. The relational head that checks genitive case,  $Gen^o$ , is not spelled out as a head –*de* is a constituent which marks genitive case in the displaced argument-; on the other hand, the relational head that assigns theta-role to its complement spells out as a preposition with conceptual semantics, such as *por*, 'by', or *para*, 'for'. It is necessary to differentiate these two types of relational elements, because this will let us gain a deeper understanding of the nature of a GenP.

Our proposal starts from the following characteristics: a relational head which is spelled out as a preposition with conceptual semantics expresses a definite relationship, whereas the relational head that checks genitive case expresses also a relationship, but one which is semantically underspecified and can be of any type –possessive, locative, agentive, etc...-. We propose that the fact that a relation is definite or not depends on the presence of a feature, dependent on  $[\rho]$ , which we represent as  $[Def]$ .

- (133)  $[\rho]$   
 |  
 $[Def]$

The presence of this feature makes it possible that the relational head can be a predicate, because it expresses a definite relationship, so, therefore, a stable relationship, so that theta-assignment is possible. After particular Vocabulary Items are inserted, the

conceptual semantics of each piece will determine the particular interpretation that the relationship must have.

In contrast, a GenP is a projection which expresses a non-definite relationship, and therefore non-stable. Consequently, it cannot act as a predicate, in contrast with the prepositions with conceptual semantics. Due to this, it selects an nP, which is a non argument, unlike the preposition with conceptual content, which selects a DP.

If in the Vocabulary the entries of the prepositions with conceptual semantics are as in (134), we guarantee, by virtue of the Subset Condition –chapter one, 2.3.- that a strong preposition will never be inserted as head of GenP, for they require a feature [Def] that is not present in the morphosyntactic matrix of features.

- (134) POR  
 PARA  
 CON  
 etc...  $\leftrightarrow$  [\_\_\_\_, [ρ], [def]]

In the following tableau, we represent the different types of relational heads identified.

HEAD	FEATURE MATRIX	SELECTED COMPLEMENT	SPELL OUT
Gen°	[u phi, ρ]	nP	Zero
P°	[u phi, ρ, def]	DP	Preposition with conceptual content
		syntactically active nP	Zero (after erasure of [ρ])
R°	[uG, u phi, ρ]	aP	Agreement morphemes

The preposition present in Classificative-R is a particular subcase of P°, and therefore we represent it in a cell adjacent to the entry of this head. Let us note that in this particular case, once that [ρ] is erased, it is also erased its dependent node, [Def], in such a way that it is impossible to spell out the head with any element in the Vocabulary.

The set of relational heads represented in the tableau raises the question whether there are other possibilities in Spanish. One possibility that is worth exploring is to search for a head equivalent to R°, this is, a head that makes a predicative relationship possible, but which selects nP's instead of aP's. In the following chapter we will argue that this type of head indeed exists in Spanish.

## APPENDIX

### RELATIONAL ADJECTIVES, GENITIVE CASE AND DEFINITENESS: THE CASE OF UPPER SORBIAN

We will propose that Upper Sorbian illustrates a situation in which, as Bosque (2002) suggests, the relational adjective morpheme is in fact genitive case marking.



Let us remember the data that we presented in (14), taken from Corbett (1987: 300-303), repeated in (1) for convenience.

(1)	[[Determiner	Relational Adjective]	Head Noun]
	a.mojeho my gen.sg.masc my brother's children	bratow.e brother's.nom.pl	dzeci children.nom.pl
	b.mojeho my.ge.sg.masc. my husband's sister	muzowa husband's.nom.sg.fem	sostra sister.sg.fem
	c.mojeje my.gen.sg.fem. my sister's place	sotrine sister's.nom.sg.neut	mestno place.sg.neut
	d. naseho our.gen.sg.masc. our teacher's daughter	wucerjowu teacher's.acc.sg.fem	dzowku daughter.acc.sg.fem
	e. w naseho in our.gen.sg.masc. in our father's house	nanowej father's.loc.sg.fem.	chezi house.loc.sg.fem

The relational adjective, that shows agreement, is accompanied by a possessive determiner. This determiner in genitive case agrees in gender and number with the noun which is in the base of the relational adjective. According to Ružička (1997), Slovak has a similar construction (2).

(17)	nasho Lit. our.gen.sg.masc The garden of our neighbour	susedova neighbour.sg.masc.	záhrada garden.nom.sg.fem
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We will argue that relational adjectives with possessive meaning in Upper Sorbian are the morphological expression of genitive case assigned to a full DP. This is the reason why possessive adjectives in this language can be modified by determiners that agree with them. In Spanish this is not possible (2), because the base of the relational adjective is a nP, which doesn't have phi features.

There is evidence that in Upper Sorbian the noun turned into an adjective is in fact a fully projected DP (see also Lieber 1992). First of all, the election of the adjectival morpheme that turns the nominal element into an adjective depends on the gender of the nominal element. If it is masculine, the suffix *-ow* is added (3a); if it is feminine, the suffix is *-in* or *-yn* (3b), in a phonologically conditioned distribution. There is no comparable relationship between gender and suffix in Spanish relational adjectives.

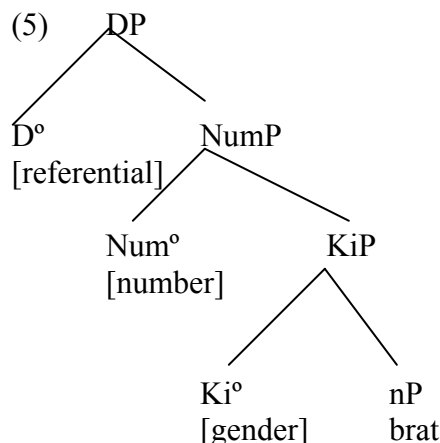
- (3) a. nan, 'father' → nan-ow-y  
b. zona, 'mother' → zon-in-y

This difference between the two languages follows naturally if the adjectival morpheme attaches in Spanish to little *n*, which is deprived of gender and number specifications, while in Upper Sorbian it attaches to a structure which already contains gender, as DP.

The second piece of evidence that proves that these relational adjectives are manifestations of DP is that possessive adjectives must be referential, and they do not express generic entities (Corbett 1987: 302). Referentiality is a property of nominal phrases headed by D°, which are interpreted as logical constants in LF. This, again, is not the case in Spanish, where any relational adjective is interpreted as a class. Consider for example the case of proper names and the adjectives derived from them. Proper names must be referential. When an adjective is derived from it, the result is either a qualificative adjective, which denotes a property which is pragmatically associated with the entity denoted by the noun (4a), or a relational adjective that denotes a school of thought whose founder is the person denoted by the noun (4b). What is impossible is to have a referential use of the noun (4c). This difference between Spanish and Upper Sorbian is also expected if the base of the referential adjective is also different.

- (4) a. situación dant-esc-a  
lit. situation Dante-esque  
Dantesque situation  
b. pensamiento marx-ist-a  
lit. thought Marx-ist  
Marxist thought  
c. #invasión hitler-ian-a  
lit. invasion Hitler-ian  
Hitlerian invasion (as an invasion by Hitler).

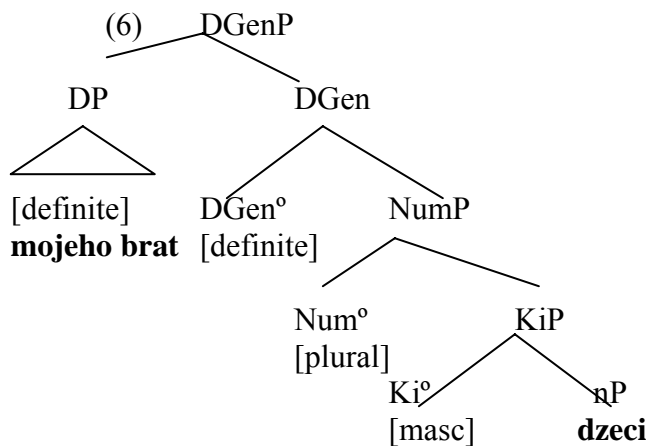
Our third piece of evidence is theoretically internal: given the Minimalist assumptions, if the base noun can be used as a probe to erase the phi features of the modifier that agrees with it, it must be because the base noun contains phi features of its own. Therefore, the relational adjective in Upper Sorbian cannot be constructed over a nP, but over a projection full of phi features, that is, KiP and NumP. As the relational adjective is also referential, and referentiality is contained in DP, this gives us the diagram in (5) for the base of the relational adjective in Upper Sorbian.



These are our three arguments to propose that a fully projected noun phrase is present in possessive adjectives in Upper Sorbian. The analysis, then, cannot be the same as in Spanish relational adjectives, because in Upper Sorbian there is evidence that DP is present, and the presence of this projection is enough to license theta assignment. Therefore, the insertion of an adjectival head is not necessary.

Our analysis is to consider the morpheme *-ow/in* as a genitive case marker. We believe that this proposal has appealing consequences. Let us note that, independently of the case shown by the head noun –which is in the third column in (16)-, the modifier of the possessive adjective –in the first column in (16)- must appear in genitive case. This fact has attracted the curiosity of the researchers of Upper Sorbian, who have been forced to proposed rules of semantic agreement (Schaarschmidt 1997) to explain it. Our proposal that these morphemes are genitive case markers explains the appearance of genitive case in the modifier, because the modifier has to agree with the possessive adjective in case, as well as in gender and number.

We propose that the adjectival morpheme *-ow / -in* is one possible morphological marking of genitive case in Upper Sorbian. In Upper Sorbian, as in English and unlike in Spanish, the appearance of a genitive argument is not compatible with the presence of an overt determiner. This property can be explained if genitive arguments land in the specifier of DP's, where they license an empty determiner and block the insertion of a particular vocabulary item (6).



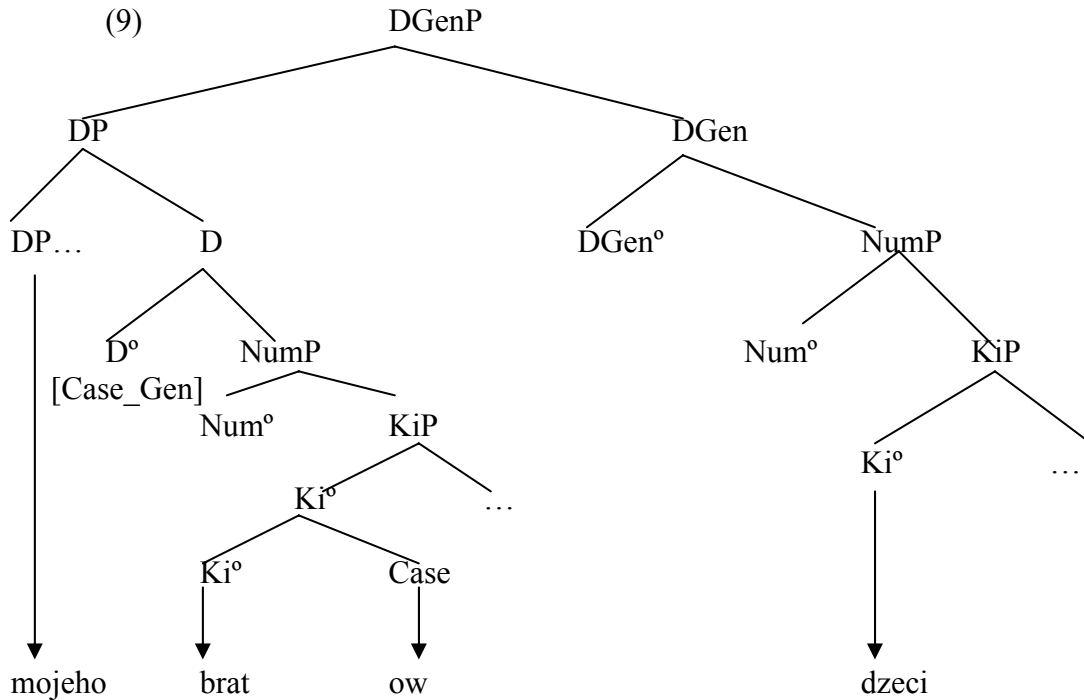
As is seen in (6), the possessive adjective is in a spec-head relationship with the determiner head  $D^{\circ}$ . Therefore, a form of agreement is expected between the possessive adjective and the head  $D^{\circ}$ . The head determiner is referential, so the specifier must also be referential. Otherwise, there will be a clash between two different specifications for the same value in the same phrase. This explains a fact observed by Corbett (1987), namely that possessive adjectives can only be constructed with referential and definite nominal phrases. Indefinite or non specific noun phrases are impossible in the specifier of DP because the values in the specifier and in the head would be different.

Now, in this position, the DP gets genitive case assigned –we assume that in Upper Sorbian there is a genitive  $D^{\circ}$  as the one proposed by Ritter (1991) for Hebrew-. In English, the spell-out of this operation is the saxon genitive *-s*; we propose that in Upper Sorbian the spell-out is the adjectival morpheme *-ow/-in*. Therefore, the DP *mojeho brat* will be spelled-out in genitive case.

Now we will consider the specific way in which the genitive case spells out in the possessive ‘adjective’. Let us observe that case is assigned to a complete DP, but is manifested morphologically in the noun –unlike in Spanish-. We propose that there is a rule in the morphological component that inserts a dissociated morpheme adjunct to the  $KiP$  projection of a DP which has received case as a result of a complete phi features checking operation (7). The inserted node contains different features depending on the different case assigned. For genitive case, we follow Halle (1997: 433) proposal to define it as the represented matrix of features. In Upper Sorbian, genitive case is spelled

out with the morphemes *-ow/in*, depending on the gender information present in KiP, so there must be two entries (8). The result is the diagram in (9).

- (7) Insert  $M^0$  in the context  $[DP_{[case]} \dots [Ki^0 + \_\_\_\_\_\_]]$  if  $[case]$  has value.  
 (8) /ow/  $\leftrightarrow$   $[+Oblique, +Structural, -Superior]$  in the context  $[masc]$   
 /in/  $\leftrightarrow$   $[+Oblique, +Structural, -Superior]$  in the context  $[fem]$



As can be seen, in this diagram we have not represented the agreement morpheme – *e*, which manifests itself adjacent to the case marker. This morpheme spells out the features of gender, number and case of the main noun phrase. It seems, then, that this morpheme makes visible the structural relationship between the two DP's, so it is reasonable to think that it is inserted as a dissociated morpheme in this syntactic context for a particular reason. We will suggest a reason for its insertion in the next paragraphs.

We would like to suggest a reason that explains why the genitive argument manifests itself in the position of the specifier of the main DP. The cause may be related with its definiteness value, which forces it to rise to the position of specifier of the DP in order to license a phonologically empty determiner. Upper Sorbian, maybe influenced by German (Schaarschmidt 2002: 56), unlike other Slavic languages, has an explicit determiner, which evolved from the demonstrative *ton*, and which is used in colloquial contexts (10). This determiner inflects for gender, number and case.

- (10) A      pon              **te** němske      tež nawukneć  
 Lit. and then              **the** German      also learn  
*And then to learn also German*  
 [apud Schaarschmidt 2002: 56, ex. 37]

However, in the possessive adjective construction this determiner never appears.

- (11) Moje doma je našeje                      maćerna      kuchnja

Lit. my house is our.gen.sg.fem  
My house is our mother's kitchen.

mother.POSS kitchen

[apud Schaarschmidt 2002: 49, ex. 10]

It is plausible to suppose, therefore, that, in the possessive adjective construction, there is an empty determiner which must be identified somehow. We suggest that the empty determiner is licensed by the possessive which rises to its specifier.

If this proposal is confirmed in a more detailed syntactic analysis –which exceeds the limits of this chapter-, then the insertion of the dissociated morpheme which spells out the features of case, gender and number of the main DP would be related with this necessity of identifying the empty determiner: the features that the dissociated morpheme spells out are those that the head  $D^0$  would have spelled out were it phonologically overt. The details of this proposal, however, are a matter for further research.

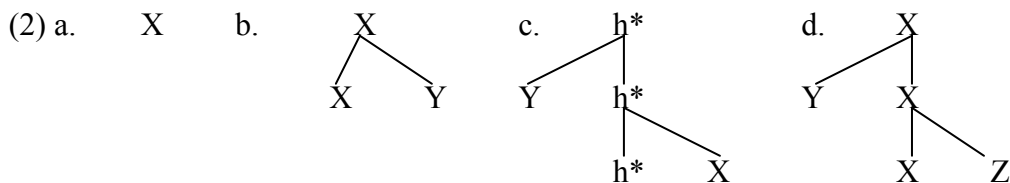
1. Nouns as predicates.

In this chapter we will address the problem posed by nouns that apparently function as predicates. Some cases of nouns as predicates have been widely studied in literature. This is the case of nouns as attributive complements of the copulative verb *to be* or *ser / estar*. We will not refer to this constructions in this dissertation (cfr. Zamparelli 2000 for a recent survey). Copulative verb constructions, in any case, may not constitute strong evidence that nouns can be predicates, since it could be the case that the verb *to be* is helping the nP to perform its predication. Some other cases of predicative nouns, however, constitute a stronger case in which it seems that there is no intervening category. In this chapter, we will analyse appositional constructions such as those in (1), where the second noun acts as a predicate of the first one.

- (1)    a. un cuello **chimenea**  
          lit. a neck chimney, a long and straight neck in a jersey  
       b. un príncipe **poeta**  
          lit. a poet prince, a prince who is also a poet  
       c. un salón **comedor**  
          lit. a living-room dining-room, a room used to stay in and to eat.

**1.1. Nouns as non relational categories.**

In this dissertation, we are arguing in favour of a restrictive theory of grammatical categories according to which each different category is defined syntactically by a functional projection. These functional projections are related biunivocally with different argument structures. In (2) we repeat for convenience the differences between grammatical categories in terms of argument structure, according to Hale & Keyser (1998, 2002).



The logical possibilities for the arguments of a head are four: to have no arguments of its own, as (2a), to have only a complement (2b), to have only a specifier (2c, which, due to the principles of bare phrase structure has to be achieved through the combination with another head), and to have both a complement and a specifier (2d). In a language like English or Spanish, the morphological instantiation of these structures is noun for (2a), verb for (2b), adjective for (2c) and preposition for (2d).

Let us focus now on the noun. We would like to observe that nouns are those categories that lack any arguments of their own. The rest of categories have at least one argument: the verb has an internal argument that determines some aspects of the event which is denoted, the adjective, being a pure predicate, needs a subject, with which it agrees, and the preposition needs both a subject and a complement, which makes it the relational head. Nouns, in contrast, are non relational categories.

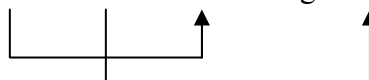
Their character as non relational entities has syntactic, morphological and semantic reflections.

Syntactically, in Spanish, nouns are never able to take arguments without the support of a weak or strong preposition (3). On the contrary, verbs can take direct objects without prepositions, and prepositions themselves have internal arguments that they select on their own, assigning to them a thematic role (4).

- (3) la casa \*(de) Pedro, una solución \*(para) tontos, un café \*(con) leche  
 Lit. the house of Pedro, a solution for dummies, a coffee with milk
- (4) a. reventar un mitin, pinchar una rueda, lidiar un toro  
 Lit. to sabotage a meeting, to blow out a tyre, to fight a bull  
 b. por Pedro, con un cuchillo, ante una gran audiencia, en el jardín  
 Lit. for Pedro, with a knife, before a big audience, in the garden

Morphologically, in Spanish, nouns show no agreement with any of the elements that are in their syntactic context. This fact is, to the extent of my knowledge, universal, since there are no clear instances of noun's agreement in any case. Adjectives, on the other hand, have as one of their prototypical properties that, in languages with rich morphology –such as Spanish, Italian or Arabic–, they show agreement with their subject (5a). This property of adjectives, even though it is manifested morphologically, forces syntactically the adjective to combine with a particular element, as we have seen (cfr. chapter two, 2.2.). Equally, verbs are associated morphologically with two types of agreement in Spanish: agreement with the direct or indirect object, visible through clitic constituents (in bold in 5b, cfr. Fernández Soriano 1989), and with the subject, visible through special inflectional morphemes (in italics in 5b). Prepositions show no agreement in Spanish, but in other languages, such as Gaelic, there is agreement with the internal argument, as we saw in chapter 3. Nouns, notwithstanding, never agree.

- (5) a. Juan recogió a María {cansad-*o* / cansad-*a*}  
 Lit. Juan pick.up-PAST acc.María {tired-masc/tired-fem}  
 b. A los niñ-os nosotros **los** *recogi-mos* ayer.



Lit. acc.the children we acc.masc.pl. pick.up-nom.1<sup>st</sup>.pl.yesterday

Finally, in the semantics, it has been said that nouns express conceptual notions when they are conceived in isolation, without reference to any other entity. When a concept is expressed by a noun, it is most commonly the case that it does not need another entity in order to be properly defined. Langacker (2000:10) notes that prepositions, express semantic concepts that are relational by nature; a preposition such as *ante*, ‘before’, expresses the location of an entity X with respect to a certain point Y, and it does not have complete meaning unless the point and the entity are both determined (6a). Verbs, as for them, express temporal relations which also take arguments (6b). Finally, adjectives, being predicates, denote conceptual entities that inherently have to be defined with reference to another element, the entity which is characterised by the property denoted, such as *alto*, ‘tall’ (6c).

- (6) a. X ante Y  
 X before Y  
 b. X dar Y a Z  
 X give Y to Z

c. X alto  
X tall

Nouns conceive the concept expressed as a whole that does not need to establish conceptual relations with other elements. This is illustrated if we compare the meaning of a root that manifests itself as a verb and as a noun (7).

- (7) a. cantar  
to sing  
b. la canción  
the song

When the action denoted by the root  $\sqrt{\text{CANT-}}$  is expressed in the verbal form, as in (7a), we obtain an expression that, according to Langacker (*op.cit.*) highlights a temporal relation: “[A verb] profiles a process defined as a relation that evolves through time and is scanned sequentially along this axis. A process might also be called a temporal relation, where ‘temporal’ refers both to its evolution through time and the sequential nature of its scanning”.

In contrast, when the root is expressed in a nominal form, as in (7b), the situation is conceptualised as a whole, conceived as a unique concept which does not establish inherent semantic relations with other concepts<sup>87</sup>.

The proposed characterisation of nouns is however, problematic since there are cases in which nouns are predicates. As we have already said, cases such as those in (8), where the noun –in bold– is combined with the verb *ser*, ‘to be’, are arguably not instances of predicate nouns. This is so, because it could be claimed that the predicate is obtained with the copulative verb. More problematic for the syntactic account of nouns are appositional constructions such as those in (1), which are further illustrated in (9); in these ones, it seems that the noun is acting as a predicate without the help of any verbal form.

- (8) Juan es médico.  
lit. John is doctor  
John is a doctor  
(9) pantalones **campana**, reloj **despertador**, mujer **pantera**  
lit. trousers bell, clock alarm, woman panther

Let us consider the implications that we would obtain if the noun could be a predicate by itself. In that case, the theory of grammatical categories defined by syntactic structures which we are substantiating in this dissertation will be considerably weakened, because the noun would have to be defined –at least in some cases– just like the adjective with respect to their syntactic relations. This would mean that syntax is not strong enough to give account of the differences between the four basic categories.

In this chapter, we will argue that nouns are indeed non relational categories which are unable to take any arguments. In order to take arguments they combine with relational heads, this is, prepositions. When they act as predicates, it is because they

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<sup>87</sup> The so-called relational nouns, such as *padre*, ‘father’, *hijo*, ‘son’, or *vecino*, ‘neighbour’, which are those nouns which cannot be understood semantically without reference to another entity, seem to be left out of this description. Even though they do not show morphological agreement, they have one argument and in the absence of this argument they are not semantically complete. The analysis of these cases exceeds the limits of this dissertation, so we will not address these elements here.



have combined with a relational head whose semantics is a predicator (Bowers 1993, 2000). This head, as I will argue, is spelled out in some cases, although it is generally empty. According to Bowers, this head, Pred<sup>o</sup> in his terminology, turns the noun into a semantic predicate and licenses the syntactic position for the subject providing the structure with a specifier. Isolated, the noun cannot project a specifier, and it does not constitute a syntactic predicate.

Therefore, as we will argue, the difference between appositions such as (1) / (9) and predicative constructions with adjectives, is a matter of a functional category selected by the relational head and the combination of both functional heads.

In the course of the discussion about the nature of appositions, a related question whose answer is very complex appears. In the morphological literature, it is a matter of some dispute concerning whether the constructions in (1) / (9) are compounds formed by two nouns or some kind of phrase, this is, whether they are morphological or syntactic objects. In this chapter, we will address also the problem of how to determine if a construction is a morphological or a syntactic object.

Let us remember that in Lexicalism, where a strong difference is established between morphological and syntactic objects, compounds with two nouns and appositions are generated in different grammatical levels, the lexicon and the syntax. This could mean that there are clear-cut properties that differentiate one structure from the other; however, in this chapter we will argue that this is not the case. On the other hand, in the DM framework, there cannot be a difference with respect to the level of the grammar where compounds and phrases are constructed, since the lexicon is not a generative component. Therefore, in DM, appositions and N-N compounds must be, both of them, syntactic objects. We will argue for this analysis and we will propose that N-N compounds are phrases which have some constituents that have become syntactically inert, with the result that they don't display some typical behaviour of syntactic constituents, as for example possibility of movement. We will propose also that other elements that have been classified as compounds are phrases one of whose constituents is a functional projection which lacks phi features of its own. As every functional projection must be associated to phi features, because this is the only way for them to establish grammatical relationships (cfr. chapter one, 2.2.1.1.), this means that a functional projection without phi features of its own will have to associate parasitically with a functional projection that has phi features, with the result that it will not be able to be separated from that projection.

It is necessary to note, however, that almost every compound that we will analyse as a phrase in this chapter belongs –only with the exception of A-A compounds (cfr. 4.2.1.)- to the type of compounding known as ‘improper compounding’ (as defined by Becker 1992: 6). Most of the compounds discussed here may contain internal inflection and in some cases one of their constituents may be modified. Then, even if our analysis is correct, there are still other classes of compounds that have to be analysed as phrases. Therefore, we do not want to give the impression that we think that our proposal puts an end to the longstanding debate about the nature of compounding.

## 2. An analysis of appositions.

Appositions are structures where one noun modifies another noun without overt intervention of any other category. In the sentences in (10), the two nouns in apposition are in bold.

- (10) a. **La madre de Luis**, **antigua estudiante de medicina**, atendió al herido.

Lit. the mother of Luis, former student of medicine, assisted the wounded.

b. Esta **cuestión, problema antiguo**, es difícil de resolver.

This question, an old problem, is difficult to solve.

c. Juan es un **poeta pintor**.

Juan is a poet-painter

d. Marta tiene una **falda pantalón**.

Marta has a skirt-trouser.

There are several types of appositions. In literature, there is a traditional distinction between two classes (Salvá 1830, Bello 1847). The first class, which is illustrated by (10a) and (10b), is that of the so-called ‘explanatory appositions’. In this group, the noun in apposition forms its own phonological group with respect to the head noun, and therefore appears orthographically between comas. The apposition, in this case, does not restrict the reference of the head noun: it simply adds some properties to an already identified referent.

The second group of appositions, classificative or restrictive appositions, is illustrated by (10c) and (10d). In this class of elements, the apposition forms a phonological group with the head noun. Semantically, the apposition adds some relevant properties to the head noun, in such a way that it restricts its reference just in the same way than a post-nominal adjective (11). If the adjective *bueno*, ‘good’, restricts the possible referents of the head noun *pantalón*, ‘trousers’, in (11a), the noun *campana*, ‘bell’, also restricts the possible referents of the same head noun in (11b) to only a subgroup of them which have some relevant properties in common with bells.

- (11) a. unos pantalones buenos  
lit. some trousers good, some good trousers  
b. unos pantalones campana  
lit. some trousers bell, some trousers with the shape of a bell

The properties that this type of appositions maintain with adjectives are, as can be seen, very relevant. These nominal constituents denote other semantic properties that the head noun has, and are not referential entities by themselves. In the following pages we will concentrate on an analysis of classificative appositions, while we will not refer to the so-called explanatory appositions in any way.

Classificative appositions can, in turn, be divided in different sub-groups. In the following table we present the different types of classificative appositions that we will consider in the different sections of this chapter.

**TABLE I**

<i>PREDICATIVE APPPOSITIONS</i>	<i>partitive</i>	<i>pantalones campana</i> <i>trousers-bell, ‘trousers with the shape of a bell’</i>
	<i>holistic</i>	<i>poeta pintor</i> <i>poet painter, ‘a poet that is also a painter’</i>
<i>KIND APPPOSITIONS</i>		<i>el presidente Zapatero</i>

*'the president Zapatero',  
President Zapatero*

*PROPER NAME / SURNAME*

*Noam Chomsky*

The first sub-group, which can be, in turn, divided in two, is formed by those appositions that express a certain property or set of properties of the noun which they modify. In this sense, they act as predicates, so we will refer to them as predicative appositions.

Predicative appositions can be divided also in two subclasses: those where the noun only denotes a subset of the properties of the entity that it usually denotes when it is the head of a nominal phrase (12) and those where the noun denotes the complete set of properties that define the entity that it denotes in isolation (13). Let's illustrate this first division with an example.

(11b)'s apposition, *pantalones campana*, lit. trousers-bell, are a type of trousers that are said to have one of the properties that define the noun *campana*, 'bell', this is, a particular shape, but they are not bells themselves. In contrast, the classificative apposition *rey filósofo*, lit. king-philosopher, is a king that is also a philosopher, not a king that has only some of the properties of philosophers –as for example being a reflexive person-, and therefore it admits the paraphrase 'X is a king and a philosopher' without change in its truth value. As we expect, *pantalones campana* does not admit the gloss #'X are trousers and a bell'. Further examples of the two types of predicative appositions are shown in (12) and (13).

- (12) corbata mariposa, pantalones campana, pájaro flauta, pez globo...  
lit. tie-butterfly, bow tie, trousers-bell, bird-flute, fish-balloon...
- (13) hombre lobo, poeta pintor, rey filósofo, salón comedor, decreto ley...  
man-wolf, werewolf, poet-painter, king-philosopher, living-room-dining-room, decree-law...

These two types of appositions cannot co-occur as predicates of the same head noun (14):

- (14) \*pájaro mascota flauta, \*pájaro flauta mascota  
bird pet flute, bird flute pet

In (14), it is not possible to interpret that the bird is also a pet and has some relevant properties of flutes –as for example the shape of the peak-. The sequence is ungrammatical in any word order between appositions.

The first type of predicative apposition never agrees neither in gender nor in number with the head noun (15a), but the second one –when the noun in apposition is animate– must agree in both gender and number (15b).

- (15) a. \*pájaros flautas, \*pantalones campanas, \*corbatas mariposas<sup>88</sup>  
lit. birds.pl flute.pl, trouser.pl. bell.pl, tie.pl. butterfly.pl  
b. hombres lobos, mujeres lobas, poetas pintores, poetisas pintoras, reina filósofa, but \*salones comedores.

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<sup>88</sup> Cfr. 2.1.1.5. for those cases of predicative partitive appositions that become compatible with number inflection as a result of historical drift, as in *problema clave*, 'key problem', – *problemas clave(s)* (Rainer & Varela 1992: 126).

Lit. man.pl wolf.pl, woman.pl wolf.pl, poet.masc.pl painter.masc.pl,  
poet.fem.pl painter.fem.pl., queen.fem philosopher.fem, but \*living-  
room.pl dining-room.pl

On the other hand, predicative appositions from the first type may be accompanied by the preposition *de*, something impossible in predicative appositions from the second type.

- (16) a. pantalones de campana, pájaro de flauta, corbata de mariposa  
lit. trousers of bell, bird of flute, tie of butterfly...  
b. \*hombre de lobo, \*salón de comedor...  
lit. man of wolf, living-room of dining-room...

It is not completely clear that predicative appositions can have more than two constituents. Rainer & Varela (1992: 119) consider that data such as *clérigo poeta autor de miles de versos deleznales*, ‘a clergyman poet author of thousands of terrible lines of poetry’ is grammatical. However, they note that the third constituent, ‘author of thousands of terrible lines of poetry’, has a different status than the second constituent, ‘poet’. We also think that the third constituent is different, because it constitutes an independent phonological group, in such a way that there is a tendency to detach this constituent from the rest of the phrase. In contrast, another data, such as *un niño poeta pintor*, lit. ‘a child poet painter’, may constitute clearer instances of predicative appositions with more than two constituents.

Apart from predicative appositions, there is a second class of classificative appositions, those that properly express the class to which the head noun belong. They generally appear with proper names (17)

- (17) el poeta Juan Ramón Jiménez, el lingüista Noam Chomsky, el presidente Zapatero, el Papa Benedicto XVI...  
lit. the poet JRJ, the linguist NC, the president Z, the Pope BXVI...

These appositions are compatible with the first class of predicative appositions (18a), but not with the other (18b), unless they are not animate elements (18c); when they appear, proper nouns must be accompanied by the determiner (19a) in every register, whereas usually proper nouns appear without the determiner in standard Spanish (19b).

- (18) a. la especie pájaro flauta.  
lit. the species bird flute  
b. \*el presidente hombre lobo  
lit. the president man wolf  
c. un recinto salón comedor  
lit. a room living-room dining-room
- (19) a. \*Presidente Zapatero, \*Poeta Valente...  
lit. President Z, Poet V...  
a. (\*el) Zapatero, (\*el) Valente

Finally, the third subclass of classificative appositions is formed by those constructions with two proper nouns in which one of them specifies the other: proper names and surnames (20).

- (20) Ana Ozores, Sancho Panza, Aureliano Buendía...

These appositions are compatible with classifiers (21), but they cannot be combined with common nouns (22a). The only apparent exception seems to be some constructions such as (22b), which are reminiscent of absolute ablative constructions in Latin (22c), with a temporal meaning, and some slogans (22d), where an elided preposition can be reconstructed, that are similar to certain English expressions (22e).

- (21) el coronel Aureliano Buendía  
lit. the coronel AB.
- (22) a. \*Aureliano Buendía poeta  
lit. AB poet  
b. Ubu Presidente, Edipo Rey  
'while Ubu was the president', 'while Edipo was king'  
c. Cicerone consule  
'while Cicero was consul'  
d. Zapatero presidente  
'Zapatero to become president'  
e. Chomsky for president.

It doesn't seem that the Spanish constructions illustrated by (22b) and (22d) can be derived from kind appositions. This is suggested by the fact that in languages such as English and Dutch structures such as those in (17) are possible, whereas structures such as (22) are utterly ungrammatical.

- (23) a. President Bush, Professor Chomsky  
b. \*Bush president, \*Chomsky professor  
c. President Balkenende, Minister van der Hoeven  
d. \*Balkenende president, \*van der Hoeven minister

It seems rather that structures such as those in (22b) are syntactically absolute predicative constructions. Therefore, we will leave them outside from this study.

All cases of appositions are compatible both with quantifiers and determiners.

- (24) a. Los dos presidentes Calvo Sotelo  
lit. the two presidents Calvo Sotelo  
b. Estos tres pájaros flauta.  
Lit. These three birds flute  
c. Aquellos cuatro reyes filósofos  
Lit. Those four kings philosophers  
d. Esas cinco especies pájaro flauta  
Lit. these five species bird flute

It is obvious that there are combinations of two nouns in Spanish that are not included in the classification presented. We do not account for two constructions observed in Rainer & Varela (1992: 119), because we consider that they have properties

that make them different from the structures that we study here. We will not analyse N-N constructions where the same noun is repeated, with intensifying value, such as *café café*, ‘coffee-coffee’, or *hombre hombre*, ‘man-man’. We will not analyse, either, N-N structures where the speaker feels that there is a preposition which has been dropped, as in *sector educación*, lit. ‘sector education’, or *cuestión “adopciones”*, lit. ‘question adoptions’. These structures are not accounted for the analysis that we present in the following pages. In our mind, it is not entirely obvious that our proposal can be extended without problems to these cases.

## 2.1. Predicative appositions.

In this section we will argue that the two classes of predicative appositions are the manifestation of the same type of structure, and they are only different in terms of the functional projections merged with that structure. We will discuss and provide evidence for the following ideas:

(a) A noun is never a predicate (cfr. Baker 2003, vs. Longobardi 1994). Predication in an appositional construction is due to the presence of a relational structure that makes it possible that the noun that acts as a predicator, selects the other element as its subject. This relational structure is equivalent to Bower’s (2000) PredP.

(b) There are two types of relational heads that make predication possible. One of them is partitive and may be spelled out as *de*, a weak preposition, and it selects a subset of the properties expressed by the noun that merges with it. The other relational head is a locative preposition that does not appear and has a reading where the whole class of the root is predicated from the other noun.

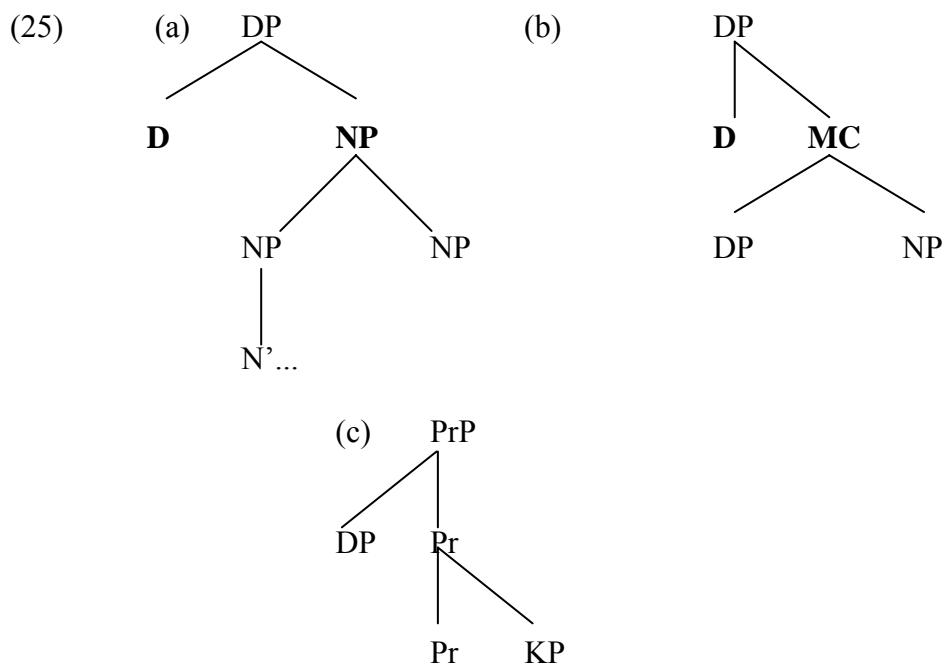
(c) When the noun in apposition is animate, this is due to the presence of the feature [animate], which is contained in  $Ki^0$  (cfr. chapter two, 2.1.4.1.). This means that this projection is merged in the relational structure, so the noun in apposition will show number and gender motion, because these features are contained in  $Ki^0$ .

But, first, it is necessary to consider the different syntactic structures that have been proposed as being responsible of predication, in order to determine which the configuration should be for a noun to be a predicate.

### 2. 1. 1. The syntactic basis of predication.

In this section, we will review the different proposals that have been established in generative syntax to deal with predication. We will adopt Bowers’ theory, which proposes that there is a special predicative head that may combine with different non relational categories, turning them into predicates.

To the extent of our knowledge, in the literature on generative grammar there are three relevant proposals regarding predication. The first is the one first proposed by Stowell (1981) (25b), where every category can have a subject with whom it constitutes a bare predicative structure known as Minimal Clause (MC). The second one is the proposal by Williams (1980) (25a), where no MC is proposed and the elements involved in predication do not form a constituent; predication is reached through a coindexation relation in an interface level before LF. Finally, the last proposal is by Bowers (1993, 2000) (25c), where it is proposed that there exists a specific syntactic projection, Predication Phrase, which determines which the subject is:



To determine what the correct structure is, in order to give account of nominal predication in appositions, we will pay attention to the crucial property that in some cases these appositions manifest a weak preposition *de*, which we claim to be manifestation of  $\text{Pr}^0$ . But first, we will revise in more detail each one of the three theories presented.

Williams proposes that predication is not codified in the syntax through a specific structure, but it is licensed via a process of post-syntactic co-indexation. This process establishes the relevant relations between subjects and predicates, even if these two elements are not grouped as a syntactic constituent. Co-indexation involves a relation of c-command, but this can be reached in a variety of cases, so it is not necessary that it exists a particular syntactic structure.

Stowell proposes that subject and predicate constitute a syntactic unit known as Minimal Clause or Bare Clause, where the subject is generated as a specifier of a phrase whose head is the predicate. Every grammatical category can have a subject, because, in accord with X-bar hypothesis, every category projects in the same way. However, not every category can license the case requisites of its subject, which explains why some structures are ungrammatical if the subject remains inside the constituent that forms with the predicate and doesn't move out of it to have its case licensed.

Bowers proposes that predication is licensed through the intervention of a specific category named Predication Phrase, and, consequently, it is not true that every category is able to house a subject. The head  $\text{Pred}^0$  selects a phrase which, following Frege's proposal about predication, is interpreted as a formula which contains at least one variable that needs to be saturated. The specifier merged with  $\text{Pred}$  is the constant which saturates that variable. The head is semantically equivalent, then, to the lambda operator that relates a constant with a variable inside a formula (cfr. Chierchia & McConnell-Ginet). Consequently, there is strict isomorphism between syntax and semantics.

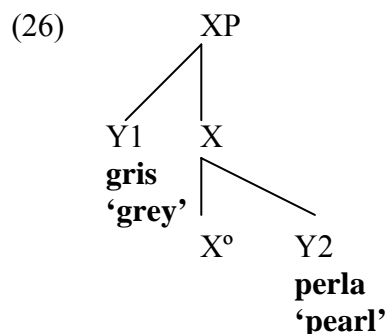
Bowers proposal is preferable to the other two for a number of reasons. In this section we will consider the theoretical reasons, whereas we will give empirical evidence for the case of appositions in the next pages. In a syntactic architecture without X-bar, as the Minimalist Program is, not every category is able to have a specifier, because its having a specifier depends on the grammatical features that the lexical item

has. Moreover, a head can have multiple specifiers, because a specifier is anything that agrees with the head and moves to the edge of that head, so having a specifier does not equal having a subject, because that will be dependent on the features that the particular element merged with the head has satisfied (cfr. also Fernández Soriano 1999). More specifically, Chomsky (2004: 110-111) suggests a correlation between external merge (cfr. chapter one, 2.1.) and argument structure, while internal merge –this is, movement in Government & Binding terminology- cannot be related to argument structure. Therefore, to prove that every category can have a subject, it is crucially necessary first to prove that every category has the features necessary to select this type of specifier.

The evidence gathered by Hale & Keyser in their different articles points actually to the opposite direction. These authors show that only some categories will be able to take a specifier (1993, 1998). Given the requisites of bare phrase structure, only those categories that already have a complement will be able to take a specifier, because if there is only one argument merged with the head, it will always be the complement. These authors conclude that adjectives and nouns are not able to take specifiers by themselves, because they don't take complements. Let's remember that adjectives are constructed always using a special relational head that takes it as a complement and licenses the external argument needed by the adjective as its specifier (cfr. chapter two, 2.2.1.). This implies that nouns will also be able to take a subject if they combine with a diadic head able to take it as a complement and the subject as a specifier.

The basic relational head, the preposition, has been identified as a predicate, as it is recognised that it is able to assign theta-roles<sup>89</sup>. Prepositions select a specifier by themselves, while adjectives must combine with a special type of relational head to be able to take a subject. This category satisfies predication requisites thanks to an inherent property associated to their argumental structure, expressed through grammatical features. Notwithstanding, adjectives and nouns can also be used as predicates, and their respective argumental structures do not license a specifier. An obvious solution to this problem is that nouns, just like adjectives, combine with a relational head, equivalent to Bowers' Predication Phrase. Although Bowers explores the plausibility of proposing the existence of a Predication Phrase in the verbal phrase (1993, 2000), in this work we will argue that PredP is present in the case of predicative appositions.

We will propose that when two nouns are in a relation of predication, their syntactic structure is the following, where X is the relational head, Y2 the noun interpreted as a predicate and Y1, the subject of the predication.



<sup>89</sup> Baker (2003) observes that the verb, the most basic predicative category, is also that which, due to its combination with little v, can take systematically an external argument that will act as its subject. If Baker's analysis is correct, it would imply that the verb is also a predicative category, in addition to the preposition.



The relational head selects one of the nouns as its complement, interpreted as the predicate, while it licenses the other noun, which is interpreted as a subject<sup>90</sup>. This structure will be present in cases such as those illustrated in (27):

- (27) poeta pintor, ‘poet painter’, salón comedor, ‘living room dining room’, pájaro flauta, ‘bird flute’, pantalón campana, ‘trousers bell’, corbata mariposa, ‘tie butterfly’, gris perla, ‘grey pearl’...

An alternative to the structure proposed in (26) would be to claim that this structure is actually an adjunction construction. We would like to show some empirical evidence in favour of the structure in (26) and against an adjunction configuration. We will show that there is an intermediate functional head between the two nominal elements, which by itself is able to reject the adjunction analysis. In the next section we will analyse the appearance of an expletive preposition.

#### 2.1.1.1. Expletive prepositions between the two nouns.

In some predicative appositions a preposition ‘de’ can be spelled out. This never happens however, in kind appositions (28):

- (28) a. el poeta (\*de) Miguel Delibes  
lit. The poet (of) MD  
b. la especie (\*de) Homo Sapiens  
lit. the species (of) HS  
c. el animal (\*de) Felis Leo.  
lit. the animal (of) FL

Predicative holistic appositions cannot be combined with a preposition, either.

- (29) a. hombre (\*de) lobo  
lit. man (of) wolf  
b. poeta (\*de) pintor  
lit. poet (of) painter  
c. café (\*de) teatro  
lit. café (of) theatre  
d. cine (\*de) club  
lit. cinema (of) club

It seems, then, that the preposition only appears in those predicative appositions where the predicate noun only denotes some of the properties associated with the object that it usually denotes (30).

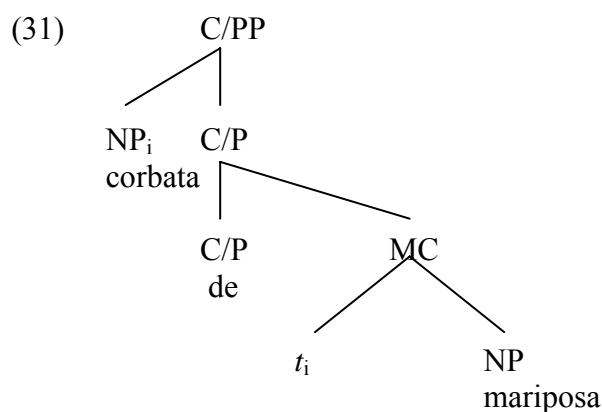
- (30) a. pantalones (de) campana  
lit. trousers of bell  
b. pájaro (de) flauta

<sup>90</sup> It may be argued that the head of the construction is the first noun, because its features of gender and number are those which remain active in the syntactic derivation for the purposes of agreement. However, note that this is predicted by the structure, because the specifier will force agreement with the head X of the construction, thus becoming the morphosyntactic head of the construction provided that X has uninterpretable phi features. The complement noun will be –if something– the head in the phonological sense, because if the head doesn’t have phonological entity, it will merge with it in the PF branch.

lit. bird of flute  
 c. corbata (de) mariposa  
 lit. tie of butterfly  
 d. pez (de) martillo  
 lit. fish of hammer

In this section we will show that this preposition is evidence for the existence of an intermediate projection, and it is not an empty element introduced post-syntactically, or the head of a complex minimal clause.

Let's start with this second possibility, which is proposed by Rafel (2000) for structures such as *tomar a DP por AP*, lit. 'to take DP for AP'. Rafel claims that the preposition is the manifestation of a C/P node that selects a Minimal Clause structure where both nouns are. In this case, predication will be licensed as Stowell suggests and the subject must escape from the Minimal Clause to have its case licensed. In (31) the analysis is adapted to the case of predicative appositions:



There is evidence, though, that the structure in (31) is not accurate. In the first place, prepositions that can appear in the cases studied by Rafel have conceptual meaning. In the cases that we are studying, the only preposition that can be manifested is the weak *de*, whereas prepositions such as *por*, 'by', are impossible. In fact, consider the data in (32).

- (32) a. bebé (\*de) probeta (a baby whose origin is a probet)  
 b. mujer (\*de) florero (a woman used for the same functions as flower vases have)  
 c. ciudad (\*de) dormitorio (a city used as a bedroom).

Here, the properties expressed by the predicative noun denote the function or the origin of the noun. In these cases the relational head cannot be expressed because functions, goals, instruments and similar notions are expressed in Spanish through semantically strong prepositions such as *para*, *por*, *con* or *mediante*. With respect to why it is not possible to insert this type of prepositions in these contexts, we will provide a proposal in section 2.1.1.2. in this chapter.

In the second place, related with this point, the prepositions that Rafel studies are modalisers of the MC, because they are complementiser-like elements, and they usually express possibility, in such a way that the speaker doesn't state that the predicate is true, but only that it may be true. In our cases, in contrast, there is no modal meaning, so it is very unclear that this is a prepositional complementiser.

In the third place, the cases that Rafel considers must be selected by a lexical category in such a way that the C/P is reanalysed with its selector and constitutes a single unit in the LF interface. In our case, the construction is not restricted to positions selected by lexical categories: it just can appear everywhere.

Therefore, this is not an instance of a prepositional complementiser that selects a genuine MC.

Let us consider now a second possible analysis of the weak preposition that appears here. It could be proposed that this ‘de’ is not the exponent of a real grammatical category that has a place in the hierarchical structure, but is just a case marker. Note that this is only a genuine objection if it is supposed that case markers are inserted post-syntactically in positions which are not defined by the syntax. If case markers are inserted post-syntactically but only in those positions that have been licensed by the syntax, then its insertion is still evidence that there is a syntactic position between the two elements in the apposition. Only if dummy prepositions are inserted arbitrarily in any place this may count as a problem for our theory.

Let us assume now, for the sake of the reasoning, that *de* is the manifestation of the case that is licensed to the second noun. The first question is why it doesn’t appear in every similar construction, including those mentioned in (32), where a preposition cannot appear, in which the modifier noun must receive case in any instance. Therefore, this other approach wouldn’t be tenable/suitable either.

We conclude, then, that the appearance of ‘de’ inside this type of predicative appositions shows that there is an intermediate projection.

#### 2.1.1.1.1. N-N structures with locative *de*.

We observed that classificative appositions cannot appear with a weak *de*. An apparent counterexample against the proposal could be the constructions in (33):

- (33) a. la calle (de) Alcalá  
lit. the street (of) Alcalá  
b. el reino \*(de) China  
lit. the kingdom (of) China  
c. la provincia \*(de) Almería  
lit. the province (of) Almería

Note that, except for the case of the noun *calle*, ‘street’, in these constructions the preposition is obligatory and has a locative meaning. Unlike the expletive preposition, this ‘de’ can be associated coherently with the meaning ‘place where something is’. This suggests that this structure is not an apposition. The element introduced by ‘de’ is a true PP that expresses a locative modifier of the head noun, typically a noun that denotes geographic accidents or sites, as *ciudad*, ‘city’, *paso*, ‘pass’, *estrecho*, ‘straight’, *cordillera*, ‘range of mountains’, *poblado*, ‘town’, *villa*, ‘village’, *istmo*, ‘isthmus’, or *cala*, ‘cove’ (34).

- (34) a. el estrecho de Bering  
lit. the straight of Bring.  
b. la cordillera de los Andes  
lit. the range of mountains of the Andes  
c. el paso de las Termópilas  
lit. the pass of the Termopilas.  
d. la ciudad de Buenos Aires.

lit. the city of Buenos Aires.

Other nouns that appear in this construction express a geographical entity which is delimited by a political entity which is expressed by the PP introduced by 'de'. Nouns that belong to this class are *reino*, 'kingdom', *provincia*, 'province', *país*, 'country', *imperio*, 'empire', *barrio*, 'quarter', *comarca*, 'land' (35)... Let us note that some of the nouns included in these two classes are deverbal nouns in whose argumental structure there is a locative complement, as *poblar* [a place], 'to populate', and *reinar en* [a place], 'to be king of'.

- (35) a. el reino de Swazilandia  
lit. the kingdom of Swazilandia  
b. la provincia de Jaén.  
lit. the province of Jaén  
c. la comarca del Bierzo  
lit. the land of the Bierzo  
d. el barrio de Chamberí  
lit. the quarter of Chamberí

Some nouns, as *calle*, 'street', *río*, 'river', o *pico*, 'peak', are ambiguous between the designation of a geographical object – in whose case they appear with the locative complement- and the denotation of a class where toponyms can be classified. In this second case, they can appear as kind appositions, but in the first case the preposition *of* never appears.

- (36) a. la calle Alcalá.  
lit. the street Alcalá  
b. el río Amazonas  
lit. the river Amazonas  
c. el pico K2  
lit. the summit K2

If we make up a false toponym, as *Ñu*, and we construct it with a noun like *río* with and without preposition, the meaning will be different in each case. With a preposition (37a), it will refer to the river which is situated in *Ñu*; without it, it will classify *Ñu* as a certain river, without saying where that river is. (37b). In the first case, *Ñu* cannot be a river, but the place that the river crosses.

- (37) a. el río de Ñu  
the river of Ñu  
b. el río Ñu  
the river Ñu

The different meaning of each sequence in (37) shows, to our mind, that we are dealing with two different structures.

#### 2.1.1.2. Structure.

In this section, we will derive the differences between the two types of predicative appositions from simple principles that are coherent with the rest of the work in this dissertation.

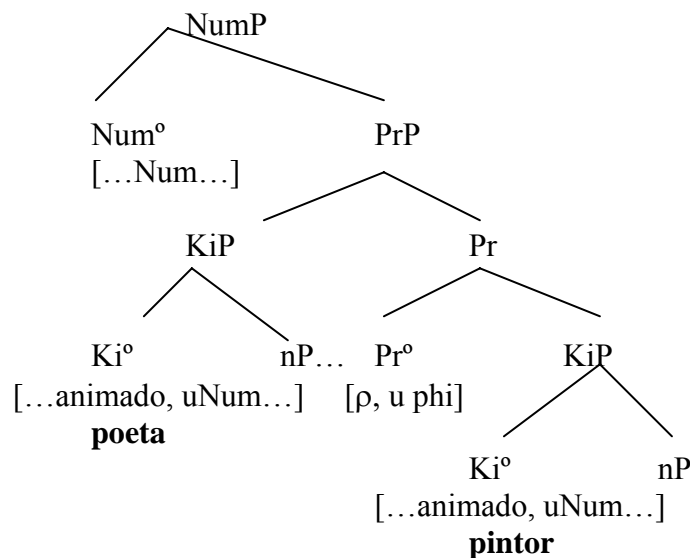
There are two characteristics, one independent of the other, which combine to obtain potentially four classes of predicative appositions:

- (a) Presence vs. absence of the feature [animate]
- (b) Predication of some properties denoted or of the whole group of properties.

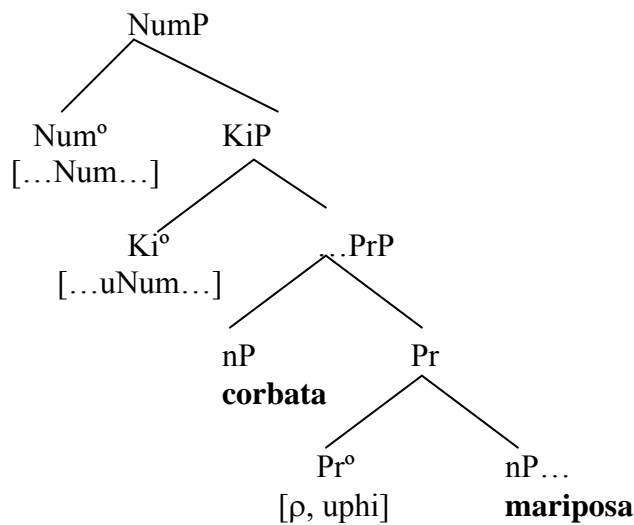
We find predicative appositions with the feature animate that predicate the whole bunch of properties denoted by the noun *–poeta pintor–*, predicative appositions without the feature animate that predicate the whole bunch of properties *–salón comedor–*, and predicative appositions without the feature animate that predicate only a subset of properties *–corbata mariposa–*. We don't have predicative appositions with the feature animate that only predicate a subset of properties; the reason will become clearer in the next paragraphs.

We have proposed that the feature [animate] is contained as a specification of the general linguistic property of Gender, and we have claimed that it is contained in  $Ki^0$ , as the rest of the gender specifications of a noun –cfr. chapter two, 2.1.4.1.–. Consequently, if a noun shows the feature animate, it must be a projection of  $KiP$ , not of  $nP$ . Therefore, the difference between presence vs. absence of the feature [animate] equals a difference in the categories that are related by the X head (38).

- (38) a. poeta pintor, 'poet painter'



b. corbata mariposa, ‘tie butterfly’, ‘bow-tie’



If the matrixes of features are what we proposed in Chapter II, then many of the properties follow them. In the case of animate nouns, [animate] is contained in the matrix of features with the rest of gender specifications, among them whether the noun is masculine or feminine. All these features are arguable. However, Class also contains an uninterpretable feature of number, [uNum]. Therefore, both elements of the construction must check this feature with an interpretable number feature, which is contained in the projection that dominates P. Whatever the number of Num, it will be shown by the subject noun, and the same specification will appear in the predicate noun, because there is no other proof to check those features.

Now, if the nouns are only projections of nP, there is only one Ki° and, therefore, only one element that contains an uninterpretable feature of number, so only one of the nouns -the one which is higher in structural terms- will show number morphology.

Going back to animate nouns, consider now those cases where they seem to share their gender specification. Note that between these two elements it is established a relation which superficially looks like an agreement one.

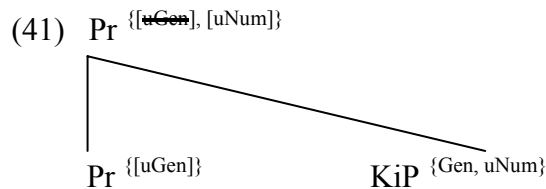
- (39) a. \*carteros panaderas  
lit. post-man.masc.pl. bread.woman (female baker).fem.pl.  
b. carteros panaderos  
lit. post-man masc.pl. bread.man(male baker).masc.pl.

It will be problematic to propose that this constitutes a case of agreement. Agreement is a formal relation that is established between a non interpretable feature and an interpretable one. Nouns, as opposed to adjectives, contain in their dominating projections interpretable gender and number features, so they cannot establish agreement in a technical sense. Consequently, the coincidence in features for nouns in apposition means a potential problem for this theory of agreement, for there is apparent agreement and the elements implied in these operations contain interpretable features.

However, if there is an intermediate functional projection that contains phi-features, these facts can be easily explained. In chapter three (section 3.4.1.) we already provided evidence that relational heads contain uninterpretable phi features.

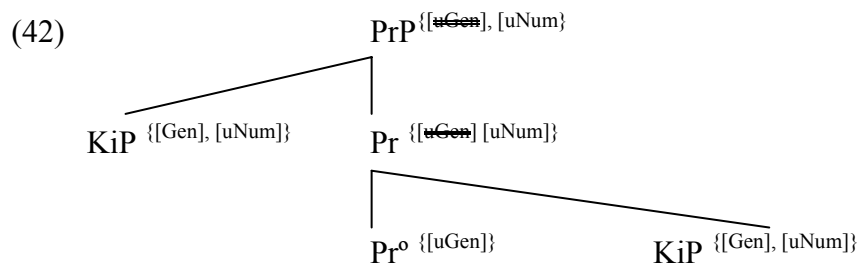
$$(40) \text{Pr} = \{\dots[\text{uGen}], [\text{uNum}]\dots\}$$

As any uninterpretable feature, it requires value to be assigned to it. As computation is blind to any requisites which are not those that derive from the operations of merging and agreement, the first element merged with  $\text{Pr}^\circ$  will assign value to the gender feature of the relational head. Such an element is the complement of  $\text{Pr}^\circ$ , this is, the predicative noun, which has interpretable gender features, being a projection of Class. When it is merged with  $\text{Pr}^\circ$ , one of its selectional features is erased and value is assigned to their uninterpretable phi features (41):

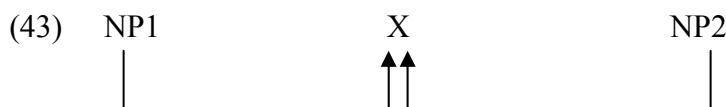


As a result of this operation,  $\text{Pr}^\circ$  agrees in features with the predicate noun.

The following merge operation satisfies the other selectional feature of  $\text{Pr}^\circ$ ; in this state of the derivation, the subject noun is merged as a specifier to the head  $\text{Pr}^\circ$ . As is well known since the Government and Binding framework, the specifier and the head must share the value of their features (cfr. the Wh-criterion or the Neg-criterion, which precludes an interrogative element from being the specifier of a non interrogative complementiser, or an element that is not negative from being the specifier of a NegP). Therefore, if the phi features of the specifier are not the same as those in  $\text{Pr}^\circ$  -which are a copy of the features of the predicate noun-, the derivation will not be convergent because the values of the features will be incongruous (42).



Therefore, what we have here is not a case of agreement between two nouns, which is unexpected in the present theoretical framework, but a coincidence in features which becomes obligatory because there is an intermediate functional category that takes both of the nouns as its selected arguments (43):

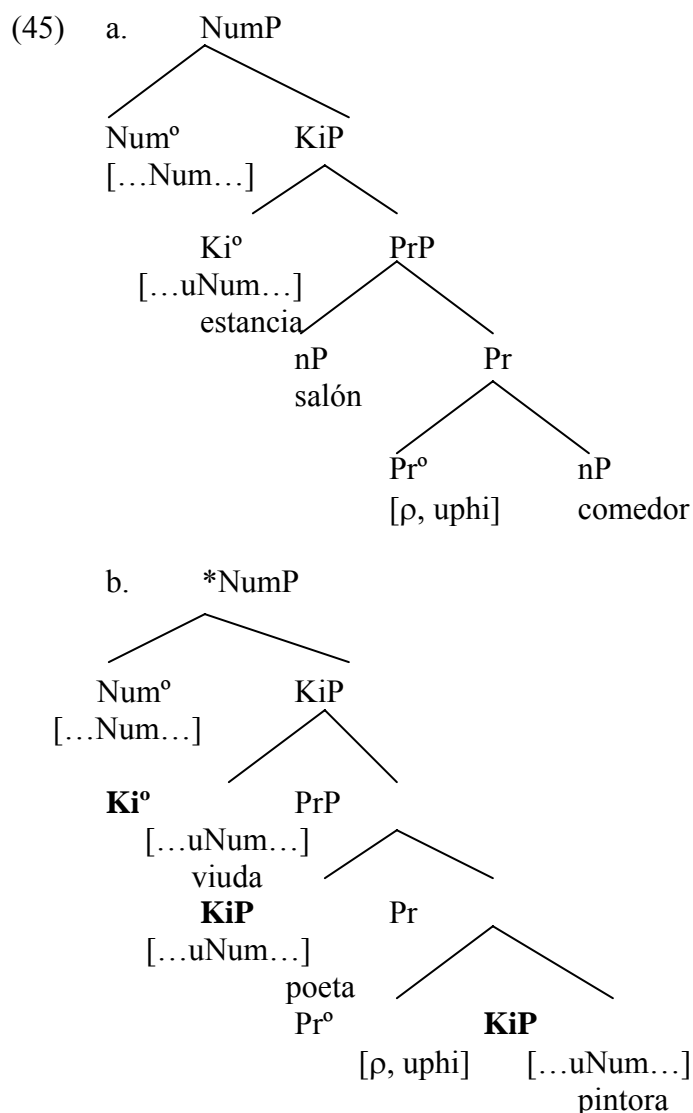


This counts as another argument for the presence of an intermediate category between the two nouns, because, on the absence of such category, the matching of gender features is not explained. Moreover, it constitutes additional evidence that relational heads contain uninterpretable phi features that must be satisfied by their arguments.

Let's consider now another property of predicative constructions. Remember that when they do not express an animate entity, they can be accompanied by a kind apposition (44), but if they are animate entities, they cannot (44b).

- (44) a. una estancia salón comedor  
lit. a room living-room dining-room  
b. \*un pintor rey filósofo, \*una viuda poeta pintora...  
lit. a painter king philosopher, a widower poet painter...

If we claim that kind appositions are generated as heads of KiP -something for which independent evidence will be provided in the next section-, it is obvious that animate entities, being themselves projections of Ki°, cannot be combined with another Ki°; however, non animate entities, which are the projection of n°, combine with KiP, and this head can be manifested as a classificative apposition.



Let us consider now the reasons that make it possible for the preposition *de* to appear phonologically. Let us note that in principle the relational head lacks a phonological representation. In the framework of Hale & Keyser, there are two possibilities. One is that the complement morphologically merges with the head to give

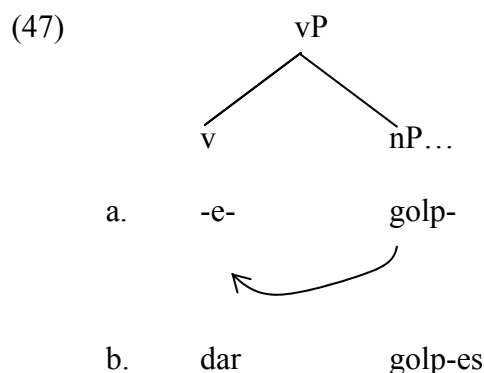


it phonological content and the other is to insert an unmarked element to fill that position.

This double possibility is illustrated in the verbal system by light verb constructions. Light verb constructions are structures whose head is a verb with defective semantics and whose complement is a noun or adjective that determines the argumental structure and most of the conceptual content of the construction (46a). These light verb constructions sometimes have synthetic counterparts in which both heads are spelled out by the same word (46b).

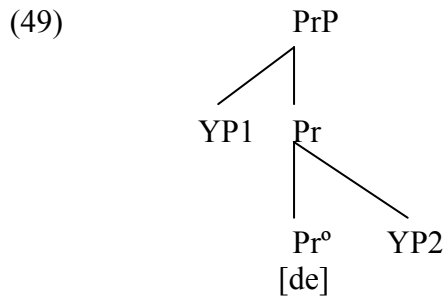
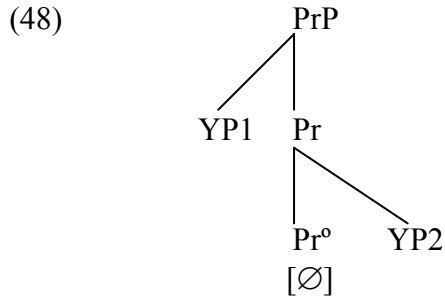
- (46) a. dar golpes, dar preocupaciones, ponerse enfermo, volverse loco...  
lit. to give hits, to give worries, to turn sick, to turn crazy...  
b. **golpear**, **preocupar**, **enfermar**, **enloquecer**...  
lit. to hit, to worry, to sick, to crazy...

Hale & Keyser (1993, 1998) predict both manifestations from the same basic structure. In the synthetic versions of the verbal predicate, the complement has morphologically merged (conflated in their theory<sup>91</sup>) with the verbal head (47a), while in the analytic versions there has been no conflation and instead a lexically unmarked verb such as *dar*, ‘to give’, *poner*, ‘to put’ or *hacer*, ‘to do’, is inserted in the place of the verb (47b).



This case would be similar, even though we will enrich Hale & Keyser’s analysis with the insertion conditions of the Vocabulary Items. It is possible that the relational head is left without phonological instantiation (48) or that a weak preposition *de* is inserted to spell it out (49).

<sup>91</sup> In (2000, 2002: 47 y sigs), Hale & Keyser reconsider the nature of conflation, which they refer as ‘fusion of syntactic heads’. These authors come to the conclusion that conflation is not identical to syntactic incorporation, because this type of merge implies a movement operation and conflation establishes a lexical relationship similar to binding. Speaking about their analysis of unergative verbs, these authors state that “conflation is not a process, that is, it is not a movement operation. The phenomenon that we have been addressing by that name is simply the binding relationship that is established between the semantic features of a verb –phonologically overt now- and the features of the nominal head of its complement” (Hale & Keyser 2002: 103). It is not clear, then, that conflation and Morphological Merger are identical processes, because there is not a relationship of semantic selection between the elements that undergo Morphological Merger. If this is correct, the equivalence between the examples of Hale & Keyser in the situation that we present is not complete. We cannot determine at this point whether the conflation cases noted by Hale & Keyser can be accounted for with a Morphological Merger analysis.



Let us consider before why *de* may appear only in some partitive apposition cases. The reason why the expletive preposition doesn't appear with holistic predicative appositions starts to be clear if we note that 'de' is usually found in partitive and pseudopartitive constructions in Spanish introducing the set from which a subset is taken (50). That is, there is a preposition *de* in Spanish with partitive meaning.

- (50)
- a. un trozo de tarta.  
Lit. a piece of cake
  - b. el alumno más listo de la clase  
the smartest alumn in the class
  - c. cinco de cada diez dentistas  
five out of ten dentists
  - d. la mitad de veinte  
the half of twenty

We propose that the predicative relational head involved in the appositive construction actually has two variants. The first variant is a partitive relational head that selects nP as its complement; we propose that this variant is characterised by the feature [partitive] in syntax. The second variant is a holistic relational head that selects KiP as a complement; this variant lacks the feature [partitive] in syntax. We propose that in the Spanish Vocabulary there is a Vocabulary Item that is a partitive *de*, which is inserted in a node that has the features [ $\rho$ ], [ $u\ \phi$ ] and [partitive] (51).

$$(51) \quad \text{DE} \quad \leftrightarrow \quad [\text{____}, u\ \phi, \text{partitivo}, \rho]$$

Given the Subset Condition (cfr. chapter first, 2.3.), *de* cannot be inserted to spell out the holistic relational head, because this head lacks the feature [partitive]. Only the first variant, the partitive, can be manifested through the insertion of an expletive preposition. There is no Vocabulary Item to spell out the holistic relational head in Spanish, so in this case no preposition is inserted.

In those cases where the preposition DE is not inserted in a partitive predicative apposition, we propose that a facultative impoverishment operation (cfr. chapter first, 2.2.1.4.) has been applied. The result of this operation is that the feature [partitive] is erased from the morphological node, in such a way that the insertion of partitive DE would mean an infraction of the Subset Condition. Let us remember that, in accordance with the system of relational heads that we have proposed for Spanish (chapter three, 6), a matrix with uninterpretable phi features and the feature  $\rho$  are not spelled out if their complement is a noun, because, morphologically, nouns cannot be combined with agreement morphemes.

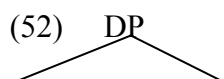
Let us note, also, that a correlation between being partitive and selecting nP is established, in such a way that it is not possible for a partitive predicative head to select a KiP. This has a semantic explanation. The projection nP expresses a set of properties that have not still been defined as a kind. As they express a set (of properties with constant value), it is possible to select a subset of them. However, KiP expresses only one property (Chierchia 1988: 18, cfr. chapter two, 2.1.3.), for this phrase only attributes to its referent the property of belonging to a certain kind. As it only expresses one property, it is not possible to select a subset from the denotation of the KiP. This explains why it is not possible to have the preposition 'de' with holistic predicative appositions and also why there are not partitive appositions with animate entities. In contrast, we expect that the holistic relational head will not have problems to select nP's and KiP's; as a result, we will have holistic predicative appositions with and without the feature [animate].

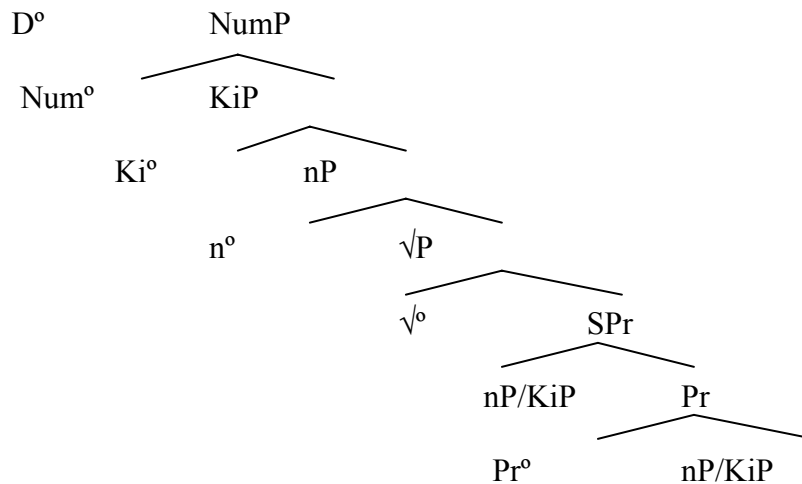
Finally, we will refer to why it is impossible to spell out  $\text{Pr}^0$  with strong prepositions such as PARA o POR. These prepositions do not spell out the predicative relational head because their context of insertion needs a feature [Def] which is not present in the predicative matrix of features (cfr. chapter three, 6), in such a way that the Subset Condition precludes them from being inserted here.

#### 2.1.1.3. Structural characteristics: headedness and syntactically inert elements.

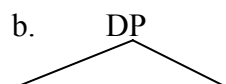
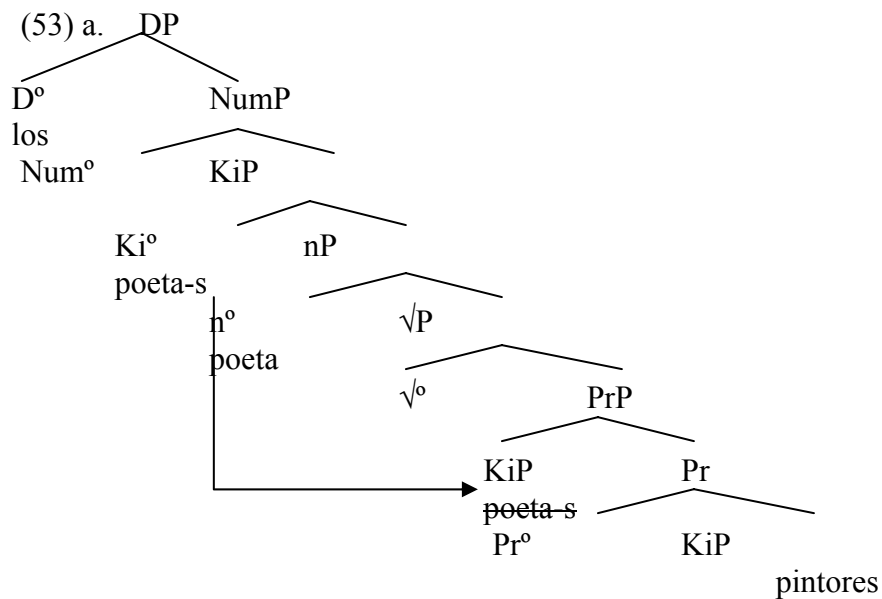
An interesting problem refers to the headedness of the structure. Empirically, we know that in Spanish a N-N structure of this type has the head to the left: the noun that is interpreted as the subject of the predicate is the head of the whole structure, in the sense that it gets the gender and number inflection. At this point, we will try to explain why the element in the specifier gets inflection and is the head of the structure, and then we will address the problem of why the other phrase is unable to participate in syntactic processes of displacement.

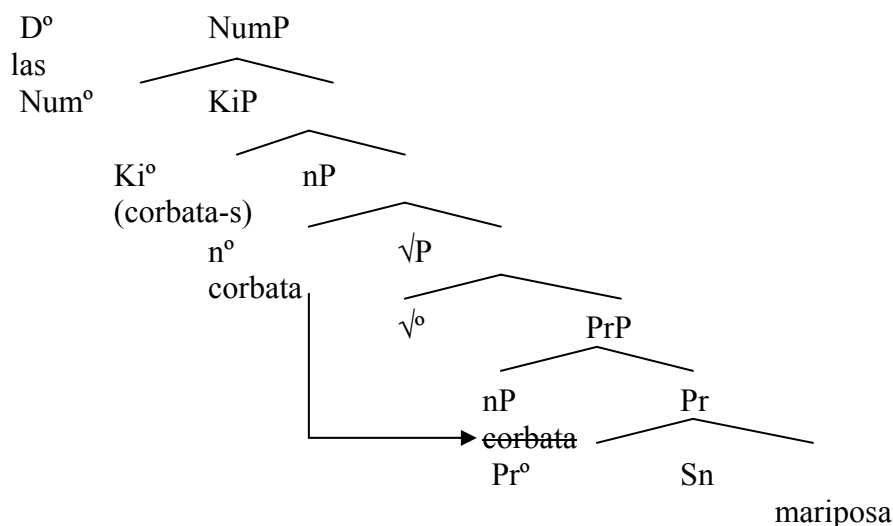
Let us remember that in chapter two, section 2.2.3., we proposed that the predicative structure of the adjective is combined with the functional projections that dominate the noun phrase in a configuration where the nP that is the subject of the predication appears twice. In that section we introduced some evidence for this proposal. As in a predicative apposition a similar relationship holds between the two nouns, it is plausible to propose that the structure in (52) corresponds to a predicative apposition.





As in the case of predication with an adjective, the specifier of the predicative structure is not spelled out, for it is c-commanded by an identical element. If the subject of the predicative structure is a KiP, it will be elided because it is identical to the KiP (53a); if the subject of the predicate structure is an nP, it will be elided because it is identical to the c-commanding nP (53b). For the sake of the representation, we use arrows to make explicit the category that is used to elide the subject of predication.





In consequence, in our proposal the fact that the head is to the left is a result of the structural relationships that take place inside the noun phrase. From a semantic point of view, the subject of the predication is the head of the compound because it is identical to the nP or KiP which denotes the DP that dominates the whole structure. Due to this, a phrase such as *una corbata mariposa*, ‘a tie butterfly’, denotes a type of tie and not a type of butterfly. Structurally, the head is also the constituent to the left, because –as it is identical to the nP or KiP that is dominated by NumP and DP- it is the one that spells-out the features of nominal inflection. It is also the one that is associated with complete phi features that let it license the formal requisites of the modifiers, for instance the agreement of an adjective.

Now, we will address the characteristics of the second member of the structure and we will try to explain why, in appearance, this member doesn’t have a syntactic behaviour. As is known, this characteristic has led some researchers to propose that these N-N constructions are morphological objects, a kind of compounds, because the second member is not syntactically independent. As we noted in chapter one, 2.1., a constituent that has checked all its uninterpretable features cannot take part in further syntactic operations. This can explain that the element seems to be a non-syntactic constituent, as we will argue now.

Let us make explicit the properties which the complement of the relational head has to check:

- (54) a. If it is nP: None.  
b. If it is KiP: [uNum].

If the uninterpretable features are these projections are those that we represent here, from here it follows that the complement of Pr° will always be syntactically inert, because it will have all its features checked. If the complement is an nP, there are no features to check; if it is a KiP, the only feature that needs to be checked is [uNum]. This operation takes place as soon as NumP is merged in the configuration. Whereas the constituent that is used to elide the specifier of the predicative structure is still syntactically active, the complement, with all its features checked, is invisible for syntax and stays frozen in its position (cfr. Chomsky 2004: 115; in this dissertation, cfr. chapter one, 2.1. and chapter three, 3.2.)

2.1.1.4. Nouns of animals and animacy.

An important question is the criterion that we use to determine if a root combines with an [animate] feature in syntax or it is not combined with this feature, but their encyclopaedic entry adds postsyntactically the information that they denote living creatures.

We propose that some nouns of animals illustrate the second possibility, and their reading as animate entities is due to their encyclopaedic entries. Among the names of animals that have this characteristic we find those in (55):

- (55) mosca, foca, araña, salmón, caracol, toro, vaca...  
*fly, seal, spider, salmon, snail, bull, cow...*

In contrast, we propose that other names of animals have an animate reading because they are combined in syntax with the feature [animate], contained in KiP (56).

- (56) perro, gato, lobo...  
*dog, cat, wolf...*

We will present our evidence. If the animate reading is caused by the presence of a syntactic feature, we expect that this feature will have an impact on the insertion of the Vocabulary Items. More in particular, we expect that this feature will determine aspects of gender inflection.

As we have seen, the presence of the feature [animate] is associated with a systematic gender variation. The same root materialises itself in feminine and masculine, with some tendency to use *-a* in the feminine and *-o* in the masculine (57a); in those cases where different desinences do not appear, there is still a systematic gender distinction (57b), as the different determiner used witnesses. As can be seen, this is the usual situation with nouns that denote human entities.

- (57) a. panadero, panadera, payaso, payasa, juez, jueza, hijo, hija...  
lit. baker.masc, baker.fem, clown.masc., clown.fem, judge.masc., judge.fem, son, daughter...  
b. el / la artista, el / la policía, el / la médico...  
lit. the.masc / the.fem artist, the.masc./the.fem. policeman, the.masc / the.fem. doctor

The nouns in (56) also exhibit this systematic gender distinction: the same element manifests itself as a masculine and feminine noun, with a change in their desinence (58). This is caused, as we would like to suggest, by the presence of the feature [animate] in syntax.

- (58) perro, perra, gato, gata, lobo, loba...  
lit. dog.masc. dog.fem., cat.masc., cat.fem., wolf.masc., wolf.fem...

In contrast, the items that spell out the names of animal illustrated in (55) only have one grammatical gender, and none of them exhibits gender variation. Some of them are only masculine or feminine, in such a way that they express gender variation with the addition of a noun in apposition *macho*, ‘male’, or *hembra*, ‘female’, –a situation that traditional grammars call ‘epicene gender’ - (59a). In other cases, the feminine and the masculine referent are denoted by completely different items, none of whom has gender variation (59b).

- (59) a. *mosca macho, mosca hembra, foca macho, foca hembra...*  
 lit. fly male, fly female, seal male, seal female...  
 b. *toro / vaca, caballo / yegua...*  
 lit. bull / cow, horse / mare...

This is due to the fact that in the syntax the feature that causes variation is not present, so we conclude that the animate reading is motivated by the information contained in a post-syntactic level, the Encyclopaedia.

This has direct consequences for predicative appositions. We expect that the apposition in (60a), where the predicate is the noun *mosca*, ‘fly’, can be interpreted as a bird that has some of the properties of flies, but which does not become a fly itself, for the predicate is projected as a nP; in contrast, we expect that (60b), where the predicate *lobo*, ‘wolf’, is read as an animate because of the syntactic feature, is projected as a KiP, and, therefore, it must be interpreted as a man that becomes a wolf, and not only as a man that has some of the properties of wolves, such as being hairy.

- (60) a. *pájaro mosca (pez toro...)*  
 lit. bird fly (fish bull...)  
 b. *hombre lobo (vs. hombre rana)*  
 lit. man wolf, *werewolf* (vs. man frog, *frogman*)

Our conclusion is that systematic aspects of morphology, as systematic gender variation, can be analysed as the reflection of syntactic characteristics, whereas it is legitimate to analyse asystematic aspects of morphology as characteristics added on non-syntactic levels, such as the Encyclopaedia or the Vocabulary.

#### 2.1.1.5. From partitive to holistic appositions: the plural marking.

Rainer & Varela (1992: 126) observe that some constructions, illustrated in (61), that we have analysed as partitive predicative appositions, and, as such, they reject number inflection in the second constituent (61a), are changing their status and are beginning to allow plural inflection (61b).

- (61) a. *problema clave*  
 lit. problem key  
 b. *problemas clave(s)*  
 lit. problem key (pl.)

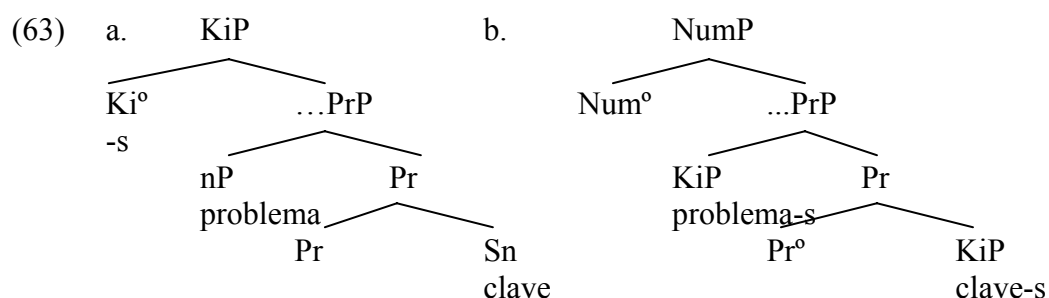
Other nouns that can behave in this way are *límite*, ‘borderline’, *-casos límite(s)*, ‘borderline cases’, *modelo*, ‘pattern’, *-alumnos modelo(s)*, lit. ‘students pattern (pl.)’, *estrella*, ‘star’, *-ofertas estrella(s)*, lit. ‘offers stars’- y *fantasma*, ‘phantom’, *-peligros fantasma(s)*, ‘dangers phantom (pl.)’. These authors note that this drift is produced when the meaning of the noun *clave*, ‘key’, in this construction becomes standard, in such a way that, according to them, they begin to acquire adjective-like characteristics. However, the fact that the noun appears with number inflection does not mean that it can appear also with gender inflection, as we would expect from a true adjective, nor can it appear before a noun (62a) or be combined with degree morphology (62b).

- (62) a. *\*el clave problema*  
 lit. the key problem

- b. \*el problema clav-ísimo  
lit. the problem key-SUP

To analyse these cases as the acquisition of adjective-like characteristics has many problems. Our analysis provides an alternative to study these structures. The presence of number inflection is one of the characteristics that differentiate partitive from holistic appositions. The apposition *problema clave* will show number inflection in its second constituent if it is a projection of KiP, and not of nP. This is, *clave* must denote a whole kind, and not only a set of properties from which a subset is selected.

To make this possible, a semantic drift process is necessary in order to let the same noun denote two different kinds, that is, the noun must become a polysemous word. The noun *clave*, ‘key’, designates a toll used to decode several types of messages; when it appears as an nP in a partitive apposition, the properties that have to do with the importance of a key in the decoding process are selected. When the use of *clave* in this type of construction becomes standard, the noun may develop a new meaning from the original one, so that it denotes the main component in a process. The new meaning of the noun *clave* can be used now in the holistic predication structure as a KiP that denotes the whole kind designated by the new meaning. The presence of number inflection depends, then, on the projection that dominates the word *clave*, nP (63a) or KiP (63b).



The prediction is, in fact, that only the nouns which are frequently and systematically used in apposition will be able to standardise and, therefore, to be reanalysed as a new semantic kind; consequently, only these nouns will be able to show number inflection. The observation by Rainer & Varela (1992: 126) that the meaning of the noun must become conventional in the apposition is valid. We believe that our proposal captures this observation, but avoids some of the inconveniences of Rainer & Varela’s (1992) analysis.

#### 2.1.2. Kind appositions.

We consider kind appositions those appositions where there is a noun that determines the general class to which the second noun belongs. These appositions, unlike predicative appositions, do not denote relevant properties of the head noun, but express the general class to which it belongs. They are frequent with proper names, for these nouns lack semantic features of their own to classify the entity denoted –in contrast with common nouns, which have these features-. These appositions are illustrated in (64).

- (64) a. el poeta Juan Ramón Jiménez  
the poet JRJ  
b. la especie Homo Sapiens



the species HS  
 c. el actor de cine Marlon Brando  
 the cinema actor MB  
 d. un recinto salón comedor  
 a room living-room dining-room  
 e. un niño poeta pintor  
 a child poet-painter  
 f. la calle Alcalá  
 the street A

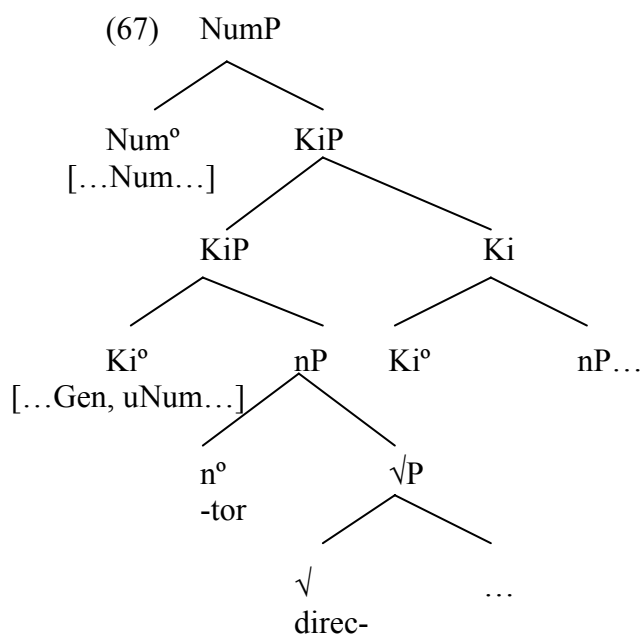
(64d) shows that they can appear also with common nouns, although they are more frequent with proper nouns. In (64c) it can be seen that the classificative noun can be followed by its own arguments, so it cannot be pure head, unlike classificatives in Chinese, according to Borer 2003.

(64) (el) director de cine Alfred Hitchcock, ‘the film director A. Hitchcock’

It is also possible to coordinate these elements, something that constitutes further evidence that they can be complete phrases and not only heads:

(65) el lingüista y politólogo Noam Chomsky  
 the linguist and politologist NC.

Due to these reasons, we propose to generate structurally complex kind appositions as specifiers of KiP.



Let us observe that when kind appositions appear, the second noun cannot have number morphology (cfr. 68a and 68c), but it is possible to have a semantically plural element, such as a pair of coordinated elements, as (68b) witnesses.

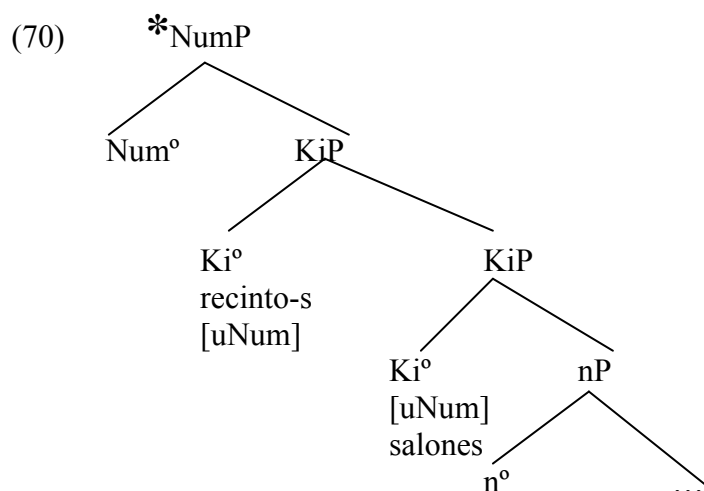
(68) a. \*los dos presidente-s Calvo-s Sotelo-s  
 lit. the two president-PL Calvo-PL Sotelo-PL

- b. Los presidente-s [Aznar y Zapatero]  
lit. the president-PL [A and Z]
- c. \*los recinto-s salon-es comedor-es  
lit. the room-PL living-room-PL dining-room-PL
- d. los recinto-s salón comedor  
lit. the room-PL living-room dining-room

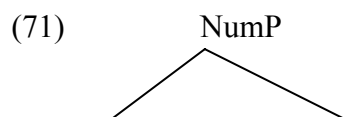
This data can easily be explained with the proposed structure. Let us first consider why (68a) and (68c) are ungrammatical. To analyse it, we have to discard first that proper names such as that in (68a) are not ungrammatical in plural because they don't admit these forms. Proper names -if they are semantically reinterpreted as denoting sets of more than one element- admit plural forms (69) (but see (79) *infra*).

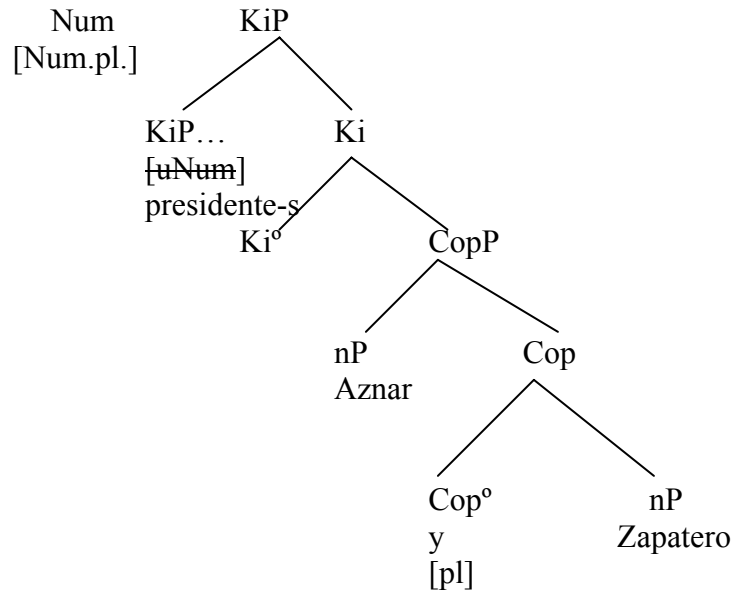
- (69) a. Hay muchos Ignacios en esta clase.  
There are many Ignacio.PL in this classroom.
- b. Hoy es el santo de los Ceferinos.  
Today it is the onomastic of the Ceferino.PL

The reason if the ungrammaticality of (68a) and (68c) is found in the selection of each category. In order to show plural number morphology, the subject of predication in the apposition would have to be  $Ki^{\circ}$ , which has the feature [uNum]. However, the kind apposition *recintos* is also a  $KiP$ , so, if the first noun in the apposition is in the plural form, we would have a sequence of two  $KiP$ , which is ungrammatical (70).



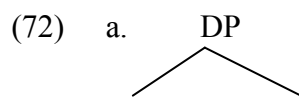
However, it is possible to have two elements coordinated with a cardinality value in addition to the class apposition, since, as we proposed (chapter three, 3.2.2.), the conjunction *y*, 'and', contains the feature [pl] when it selects nouns.





Another interesting property of this type of apposition is that they make it compulsory to have a determiner with the proper noun. The reason can also be derived from the structure. When there is only a proper noun, without a class apposition, it establishes a relation with the head D in such a way that it licenses an empty element there. When there is a class apposition the relation between the proper name in the nP and in the DP is interrupted by the presence of another nP selected by KiP, and therefore D must manifest itself as a phonologically overt determiner. We will not discuss the nature of this relationship in Spanish<sup>92</sup>.

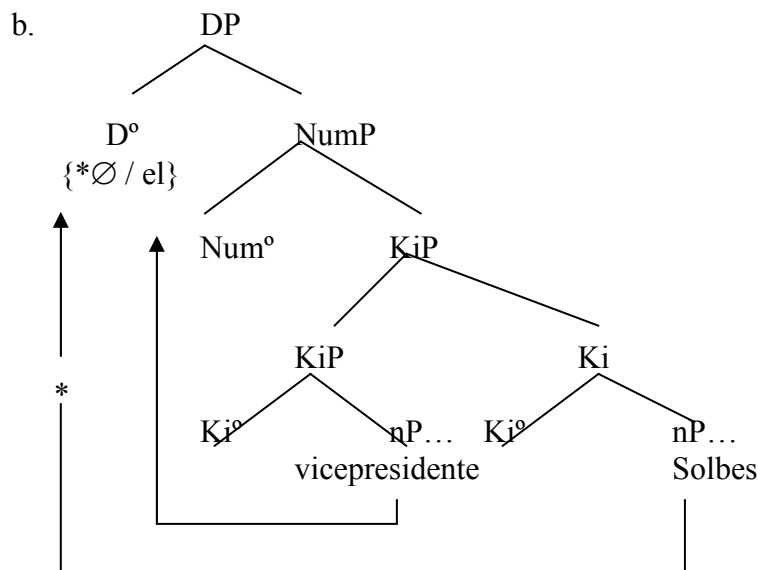
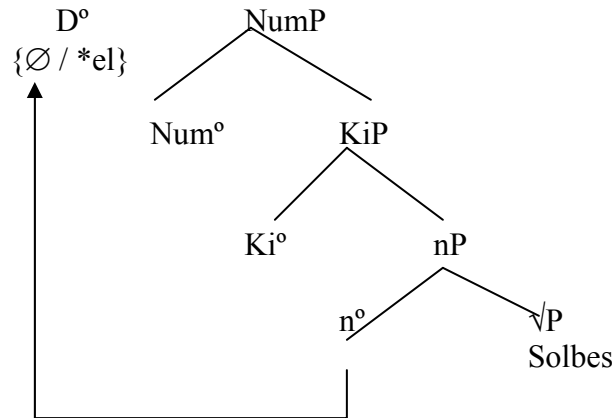
The reason now is clear: if there is an element different from the proper name in Ki°, the proper name is not able to establish a relation with D° because the other element is also nominal and is nearer to D°.



<sup>92</sup> Longobardi (1994) proposes that proper names move overtly to D° in Italian. His evidence is the order of adjectives and possessives with proper names vs. common names (i).

- (i)
- a. Gianni mio vs. \*machina mia  
lit. Gianni mine vs. \*car mine
  - b. Gianni bello vs. \*bella machina  
lit. Gianni beautiful vs. \*bautiful car

However, these pieces of evidence are not found in Spanish (\*Pepe mío, \*Pepe guapo), and proper names are combinable with determiners (un tal Luis, 'a certain Luis'), which suggests that in this language the movement of the proper name is not overt.



For the same reasons, we expect that the agreement of the DP in gender and number with the noun contained in the structure is established with the kind apposition, because it is structurally higher than the nP that it classifies. Let us go back to the phrase in (68d). When this phrase is combined with an agreeing element, such as an adjective, it can be seen that it is the kind apposition, and not the noun phrase that it classifies, the element that determines the number of the whole expression.

- (73) a. unos recinto-s salón comedor amplio-s  
b. unos precioso-s recinto-s salón comedor fue-ron vendido-s.

This is precisely what we expect from a structure such as the one that we propose.

Not every kind apposition behaves as in (72). When a kind apposition becomes a formal way of addressing, such as *sir* or *madam*, it is possible that –like the English or Dutch expression *President Bush*– the kind apposition can be reinterpreted as a determiner. As far as we know, this only happens in Spanish with *don / doña*, which comes from Latin DOMINUM. Let us observe that the appearance of *don* does not force the determiner to spell out (74a). Other ways of addressing, such as *señor*, do not behave in this way (74b).

- (74) a. (\*el) don Quijote  
lit. (the) don Quixote  
b. \*(el) señor Pérez  
lit. (the) mister Pérez

If kind appositions are generated in KiP, we also expect the order that they exhibit with respect to relational adjectives. Kind appositions are the only case where the relational adjective appears before the head noun (75). This is due to the fact that the kind apposition is housed in KiP, so the head noun cannot be placed in this position. As the relational adjective is spelled out in GenP, it materialises itself between KiP and nP, that is, to the right of the kind apposition and to the left of the noun.

- (75) a. el actor alemán Klaus Kinski.  
the German actor Klaus Kinski  
b. el canciller alemán Gerhard Schröder  
the German canceler Gerhard Schröder

### 2.1.3. Proper Names + Surnames.

Proper names cannot form appositions with common nouns (76).

- (76) \*Antonio Gamoneda poeta, \*Carlos lobo...  
Antonio Gamoneda poet, Carlos wolf...

The constructions in (76) are ungrammatical unless the second nouns are interpreted as being re-categorised as proper names, so that they don't express sets of properties that can be turned into kinds. This is, *poeta* wouldn't mean 'poet' anymore, nor *lobo* would stand for 'canis lupus'.

It is not surprising that proper names and common nouns cannot be put together in the same structure, because they have different properties.

First of all, we will refer to gender. There seems to be no gender distinction in proper names, although they have a gender feature, something that follows logically from the fact that a proper name can check the gender and number feature of an adjective (77). However, proper names can be typically used for both males and females, even though some social conventions make some names more appropriate for a certain sex. *María*, 'Mary', can be used for males, *José*, 'Josef', is also used for females, *Concepción* is used both for males and females, as well as *Jesús*. Moreover, when a common noun is re-categorised as a proper name, even though it may show a gender difference (78a), the gender difference becomes neutralised (78b).

- (77) Ramón es alto  
(78) a. un lobo, una loba  
b. Eduardo Lobo, María Lobo

Therefore, as it would seem, the gender feature of proper nouns may have some distinguishing difference. Number is also different in proper names. It is not uncommon that the proper name doesn't express morphologically the plural marker.

- (79) Hay mucho-s Ignacio que son alto-s en esta sala.  
There are many-PL Ignacio which are tall-PL in this room.  
Ha-n venido los García.

Therefore, proper names may be invariable for both gender and number. With respect to determinacy, proper names are inherently specified as definite, so they do not need to combine with an overt determiner to have their reference fixed (cfr. Longobardi 1994). Actually, they are the only examples in Spanish where a bare noun has definite interpretation. This can be due to the fact that some of the projections of the noun already contain a feature that forces a definite interpretation, instead of the determiner itself, in such a way that it can establish a relationship with DP that avoids the insertion of an overt determiner.

This can be explained if, as we said in the last subsection, the relationship between the element that contains the referential feature and the DP is interrupted by an intervening element in  $Ki^0$ . Consequently, the feature must be in little  $n$ . Therefore, the little  $n$  projection of a proper name is also different from the little  $n$  projection of a common noun, this is, they differ in terms of their morphosyntactic features.

This consequence is semantically welcomed. Common nouns express sets of properties, and in this sense they are not very different from adjectives, leaving aside the differences that we have commented in terms of which types of properties they express. They can be defined, and they can also be analysed in smaller constituents. On the contrary, proper names do not express sets of properties. They are semantically more similar to determiners, because they point out to referents without describing them, and cannot be defined or decomposed in smaller chunks of semantic information. Common nouns and proper names both express kinds, but different types of kinds. Usually proper names express kinds with only one member, while common names express kinds of plural entities.

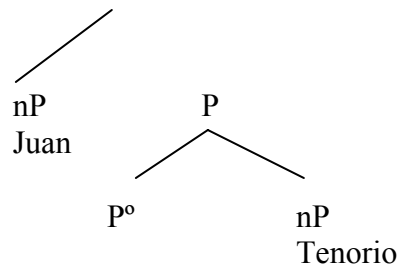
In summary, it seems that there is a basic difference between these two classes of nouns. We propose to formalise this difference in a different matrix of features for common and proper names. Proper names contain in little  $n$  a definiteness feature that some determiners provide; we propose to note it using the sign iota ( $\iota$ ) which Russell (1905) introduced. Therefore, the referential requisite of the noun is satisfied internally in the same matrix of features in a proper name, and by the extended projection  $D$  in a common noun:

- (80) a.  $n^0$  in proper names:  $\{[\iota], \text{Ref}\}$   
 b.  $n^0$  in common names:  $\{\text{Ref}\}$   
 c. some  $D^0$ 's, such as ‘el’:  $\{\dots [\iota] \dots\}$

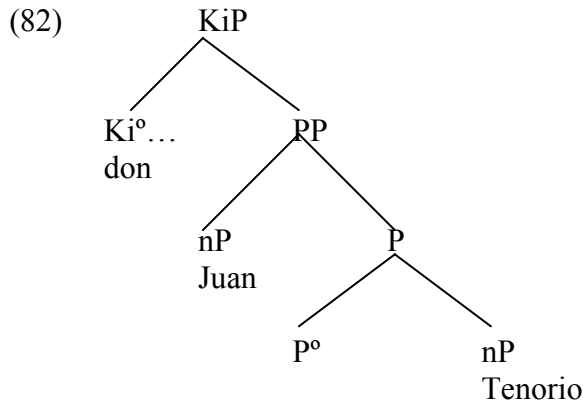
In the literature on logic it is also observed that there are differences between nouns and proper names with respect to the role that they play in the assignment of truth to a proposition (cfr. Kripke 1972, 1979).

The consequence of this is that proper names cannot combine with common nouns, because they have different properties. However, we expect two proper names to be combined together, for they are the same. These structures are attested in Spanish, in fact: the first noun is the baptism name and the second noun is the name of the family to which the person belongs. In some languages, the second noun receives a special case, such as genitive, typically in Slavic Languages. We propose that this special case is assigned by a relational head that puts the two proper names together, following the structure in (81).

- (81) PP
- 



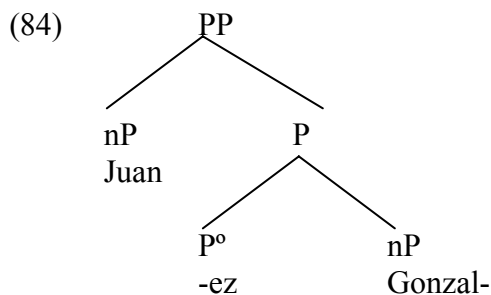
This structure can be of course matched with different classifiers.



In Spanish, in some cases the relational head is spelled out as the preposition ‘de’. In this case, the preposition is not devoid of semantic meaning, but may be associated with the meaning of source or origin.

- (83)
- a. Alberto de Mónaco.
  - b. Jorge de Montemayor
  - c. Margarita Mariscal de Gante

In some surnames, there can be found a morphological manifestation of the relational head, through the now morphologically unproductive suffix *-ez*.



Therefore, we have *Rodríguez*, from *Rodrigo*, *González*, from *Gonzalo*, *Gómez*, from *Gummo* –ancient Visigothic anthroponimic-, *López*, from *Lope*, *Fernández*, from *Fernando*, *Pérez* or *Ruipérez* from *(Ruy) Pero* –ancient form of Pedro-, *Ruiz* from *Ruy*, and so on.

The crucial point is that this relational head is different from the one that is behind predicative appositions, because here it is not possible to trace any sign of predication, but a meaning of origin, taken sometimes in a metaphorical sense. Therefore, it is not

possible to combine this structure with the predicative one, because the requisites of both heads are different.

### 3. Are compounds and phrases different?

In this section, we will revise the evidence that has been shown to establish a difference between compounds, which are claimed to be morphological objects, and phrases, as syntactic objects. We will maintain that none of the pieces of evidence which have been invoked proves by itself that the compound has not been constructed through syntactic means. On the contrary, we will argue that if compounds are considered syntactic objects, we obtain a deeper understanding of some of their properties.

We will provide evidence that suggests that, as in the case of N-N constructions, what have been called compounds are phrases some of whose constituents have special properties that make them have an apparently inert syntactic behaviour. Our proposal predicts that there is no clear cut distinction between phrases and so called compounds. If the difference between a compound and a phrase does not come from being in different levels, but it is due to different properties of some constituents, determined by syntactic features, then it comes as no surprise that some structures display some compound characteristics mixed up with syntactic ones.

#### 3.1. Criteria used to identify compounds.

Compounding is a morphological process whose identification as such is not always straightforward, and it is easy to find intense scientific discussion about whether a given word is a compound or a phrase (Levi 1978, Lieber 1992a). In the literature (cfr. Bauer 1978, Scalise 1992: 194-197, Rainer & Varela 1992: 118-121, among others), several criteria have been proposed to identify a compound. First of all, we would like to note (cfr. Lieber 1992b: 83) that there is no single unequivocal criterion to define what a compound is: every criterion fails when tested with some constructions which, under the light of other criteria, are clear instances of compounds. It is typically the case that the researcher identifies intermediate constructions which seem to be midway between a compound and a phrase. In this section we will shortly revise each of the criteria, and we will argue that they cannot be used to classify some structures as non syntactic ones.

##### A. SEMANTICS.

To our knowledge, this is the most unreliable criterion to define what a compound is, because it is the most vague and sloppy. Jespersen (1933, section 8.1.3.) defines a compound as a structure in which “the meaning of the whole cannot be logically deduced from the meaning of the elements separately”. Carr (1939) gives as an example that the meaning of German *Grossvater*, ‘grandfather’, is not the meaning that the separate words *gross*, ‘big’, and *Vater*, ‘father’, have, but there are in the compound some additional semantic features<sup>93</sup>.

According to this criterion, an expression such as *limpiabotas*, ‘shoe polisher’, should not be considered a compound, because its meaning is perfectly compositional, and, in contrast, an idiom such as *oler a cuerno quemado*, lit. ‘to smell like burnt horn’, ‘to be suspicious’, should be classified as a compound. What this criterion tests is not the word-hood of a construction, but whether its meaning is compositional or not, and it is clear that both phrases and words may develop demotivated meanings.

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<sup>93</sup> This definition contrasts with Darmesteter (1875: 11), who claims that the compound does not denote more concepts than the concepts expressed separately by the elements that are combined.



The concepts that a certain linguistic expression denotes cannot be a matter of the place in the grammar where the expression is constructed –the syntax or the lexicon–, because the same concepts can be expressed by words and phrases, as is shown in (85).

- (85) a. *limpiabotas*  
lit. polish-boots, ‘boot-polisher’  
b. *limpiador de botas*  
lit. polisher of boots, ‘boot-polisher’

The concept expressed by a linguistic expression depends on the information to which the lexical items used in the expression are associated in the Encyclopaedia and, therefore, on which chunks of structure access together that list, as was shown in chapter one, section 1.2.3.

#### B. PHONOLOGICAL PROPERTIES: STRESS AND VOWEL HARMONY.

It has been claimed that compounds have a different stress pattern than phrases. In English, while phrases receive stress in the rightmost element, compounds receive it on the leftmost constituent: therefore, *bláckboard* contrasts with *black bóard*. In Spanish, compounds can be claimed to be differentiated because they have primary stress in the rightmost constituent, and secondary in the leftmost element: *limpiabótas*<sup>94</sup>. In contrast, within phrases, both elements bear primary stress: *límpia bótas*, ‘he/she polishes boots’.

This difference does not constitute a reliable criterion for a number of reasons. First of all, many structures classified as compounds in English have stress in the rightmost constituent. This is the case of *ice créam* and *apple píe* (Lieber 1992a: 12).

Secondly, the difference between secondary and primary stress, as is well-known, is relative, not absolute. Stress is not a concept which can, by itself, be classified as primary, secondary or tertiary, because the classification depends on the force of each one with respect to another. Therefore, a secondary stress will be any stress that is next to a stronger stress, if in the same structure there is no stress stronger than this. In fact, in the syntax, there are also primary and secondary stresses, because stress is assigned cyclically to the syntactic constituents and some elements receive a stronger stress than others. Thus, it is impossible to determine *a priori* if the fact that one constituent has a stress stronger than another constituent is due to their being in the same word or due to their being in the same phrase. Sequences such as those in (86) only reflect that there are two different constituents as far as phonology is concerned. It is not possible to claim that those constituents have been put together in a different level from syntax with the support of this criterion.

- (86) *limpiabótas*, *ròjo fuégo*

Moreover, in structures such as *limpiabotas*, which are classified as compounds, to our knowledge, by every author, each constituent proves to be very independent from a phonological point of view. This can be noted on several grounds. Let’s consider first stress structure assignment. A word in Spanish usually has secondary stress on every two syllables counting from the primary stress to the left, as shown in (87). However, in compounds (88), each constituent of the compound has its own sequence of secondary stress, and they do not assign secondary stress counting from the syllable with primary stress. In (88b), we represent the way in which secondary stress is assigned forming

<sup>94</sup> The sign ‘˘’ represents secondary stress on a syllable.

trochees; the last syllable of the word is not counted for the purposes of stress assignment.

(87) na(bù·ko)(dò·no)sór...

(88) a. (kàs·te)làno-ablánte, *not* \*kas(tè·la)(nò·a)blánte; elèktromagnétiko,  
not \*(è·lek)(trò·mag)nétiko

(\*) (\*) / (\*) (\*)  
b. e lek tro mag ne ti <ko>

It is also the case that in those languages where there is a rule of vowel harmony, this process takes place with inflection and derivation, but not with compounding. Relevant examples are Finnish and Turkish. Consider (89), from Turkish. The inflectional morpheme *–Ivr*, which spells-out the morphological feature [plural], contains an underspecified vowel which must share the feature [back] with the last vowel of the stem to which it is attached. The same happens with the morpheme *–Vm*, which expresses first person singular agreement and shares the features [back] and [round] with the last vowel.

(89) a. zil (bell) – zil-ler (bells); çocuk (‘child’) – çocuk-lar (children).  
b. aç (hungry) – aç-ım (I am hungry); tembel (lazy) – tembel-im (I am lazy); yorgun (tired) – yorgun-um (I am tired); kötü (bad) – kötü-n-üm (I am bad).

Derivation also usually triggers vowel harmony. The Turkish causative morpheme *–Vr* also shares the features [back] and [round] with the last vowel in the stem (90).

(90) a. bit-mek (finish) – bit-ir-mek (make it finish); doy-mak (be satisfied) – doy-ur-mak (satisfy); düş-mek (fall) – düş-ür-mek (drop).

There is no harmony in compounding, however. We illustrate this with Turkish possessive (91a) or appositive (91b) compounds. The same happens with phrases in this language: there is never vowel harmony between the constituents of a phrase, just like in compounding.

(91) a. bahçe-kapıs-ı  
garden-gate-Poss  
b. büyük-baba  
grand-father

To sum up, phonological properties cannot be used to define whether an element is a compound, because they are to a large extent the same properties of independent words combined in standard phrase structures.

#### C. WORD ORDER FACTS: COMPOUNDS HAVE A DIFFERENT ORDER OF ELEMENTS THAN THE ONE STANDARD IN SYNTAX.

This argument is not reliable because it is circular. This criterion points out that, in some cases, constituents appear in an order different from the one expected in an ordinary phrasal structure. Consider the cases in (92a), from English, or in (92b), from Spanish. The notation LV stands for ‘linking vowel’.

- (92) a. file cabinet, blue sky  
       b. man-i-atar,               drogo-dependiente  
       lit. hands-LV-tie,       drug-dependent

In English, nouns that modify other nouns must appear on the right of the head -and usually accompanied by a preposition-, but, in the cases of (92a), the modifier noun appears without preposition and on the left of the head. An unusual word order is found also in the words in (92b), because in Spanish complements of verbs or deverbal adjectives, such as ‘atar’ or ‘dependiente’, respectively, appear to the right and sometimes also with a preposition. However, in the cases of (92b), the complements are on the left, without an overt preposition. The structures in (92) are certainly not the ordinary ones.

Now, the problem is that a deviant word order does not prove by itself that the structures in (92) are not syntactic ones. An argument constructed on word order facts is circular because it decides beforehand which orders are syntactic, and which orders aren’t, and this division forces an *a priori* classification of some structures as syntactic and some other, by exclusion, as morphological.

To reach the conclusion that word order is not syntactic, it should first be shown that the unusual order is not motivated by syntactic requisites, a reasoning which is not explicit, as far as we know, in the authors that follow this criterion. For example, it may be an interesting approach to relate this .

We would like to note, in any case, that the most usual order of elements in Spanish compounds is, by far, the standard syntactic order, this is, with the head to the left, showing that compounds usually follow the syntactic word order requisites.

#### D. INSEPARABILITY AND NON MODIFICABILITY.

To our mind, this is one of the strongest arguments, because it is sustained on formal properties of the elements analysed. The point is that members of a standard phrase can be modified with exclusion of the other constituents of the same phrase (93a), whereas members of a compound cannot be modified (93b). This can also be seen as an instance of a more general property, namely, that it is not possible for a member of a compound to be separated from the other constituents of the compound, as for example as a result of Wh-movement (94).

- (93) a. un agua [muy ardiente],   Juan limpia [muchas botas brillantes]...  
       lit. a water [very hot],       Juan polishes many boots shining  
       b. \*agua[muyardiente], \*limpia[muchasbotasbrillantes]...
- (94) \*¿qué<sub>i</sub> Juan es [limpia t<sub>i</sub>]?  
       what Juan is [polish]?

To reply to this criterion, we will offer in 4.1.3. a more detailed answer than the one which will be provided in this section. For the moment, we would like to point out some objections.

On the first place, we think that a syntactic explanation for the above mentioned facts should be searched before proposing that the constructions are not syntactic. It may be the case that the projections which are needed to license modifiers such as *muy*, ‘very’, a degree word, *muchos*, ‘many’, a quantifier, or the adjective *brillantes*, ‘shining’, cannot appear inside the type of phrase that a ‘compound’ is. Note also that it

is not completely clear that nothing can modify one member of a compound. Many linguists would classify the colour term *amarillo limón*, ‘lemon yellow’ (cfr. Piera & Varela 1999) or the noun *silla de ruedas*, ‘wheel-chair’ as compounds, this is, atomic lexical items, but their elements are clearly modifiable.

- (95) a. amarillo [tirando a limón]  
lit. yellow [fading to lemon], ‘lemonish yellow’  
b. silla de [ruedas giratorias]  
lit. chair of [wheels rotatory], ‘wheel-chair with rotatory wheels’

We would like to point out that this non detachment is not a property exclusive of structures which are allegedly morphological. As we have seen, constructions such as nouns with relational adjectives or bare direct objects with their verbs, which are clearly phrases because they admit coordination and ellipsis, also have a tendency to non detachability (96), (97).

- (96) a. decisión presidencial acertada, not \*decisión acertada presidencial  
lit. decision presidential accurate, not \*decision accurate presidential  
b. ladrón de joyas elegante vs. ??ladrón elegante de joyas  
lit. thief of jewellery elegant vs. ?? thief elegant of jewelry  
c. ladrón italiano de joyas vs. ??ladrón de joyas italiano  
lit. thief Italian of jewellery vs. ??thief of jewelry Italian  
d. una decisión presidencial y otra e parlamentaria.  
Lit. a decision presidential and another e parliamentary  
e. una decisión presidencial y parlamentaria.  
Lit. a decision presidential and parliamentary
- (97) a. Juan come arroz en su jardín vs. \*Juan come en su jardín arroz.  
Lit. Juan eats rice in his garden vs. \*Juan eats in his garden rice.  
b. Juan come el arroz en su jardín / Juan come en su jardín el arroz.  
Lit. Juan eats the rice in his garden / Juan eats in his garden the rice.  
c. Juan come arroz y Pedro e sardinas.  
Lit. Juan eats rice and Pedro e sardines.  
d. Juan come arroz y sardinas.  
Lit. Juan eats rice and sardines.

It is not possible, given this data, to conclude in a straightforward way that, when a structure is not detachable, we are dealing with morphological structures, whereas, if it is detachable, it is a syntactic structure. There are different degrees of detachability, and they need to be considered in a principled manner that derives them from general syntactic principles.

#### E. THE NON HEAD MAY LOSE ITS INFLECTION.

Bauer (1978) notes that, usually, the non head of the compound is not inflected. In many cases this constituent takes the form of the stem. In Danish, adjective + noun compounds are not declinable (98).

- (98) den store by vs. storbyen; to store byer vs. to storbyer; et halvt år vs. et halvår...

[apud Bauer 1978: 37-39]

We find a similar observation in Allen (1978: 112), who notes that inflectional affixes do not appear inside a compound, from where the ungrammaticality of words such as *\*mice-trap* (vs. *mouse-trap*) follows. This pattern is also found in Spanish. The non head does not generally show number or gender agreement, as can be shown with compounds that consist of two adjectives (99) compared with their phrasal counterparts, this is, *sordo y mudo*, ‘deaf and dumb’ vs. *sordomudo*, lit. ‘deaf-dumb’.

- (99) a. chicas sordas y mudas.  
 Lit. girls.fem.pl. deaf.fem.pl and dumb.fem.pl  
 b. chicas sordomudas.  
 Lit. girls.fem.pl deaf-dumb.fem.pl

In general, it seems correct to observe that the head of the compound is the constituent that manifests agreement for the whole structure, in every inflectional category, and it is also true that the speaker usually rejects the appearance of inflectional marks internal to the compound. In fact, compounding that exhibits internal inflectional morphemes is considered improper compounding (cfr. section 1 of this chapter). Scalise (1984: 126-127) presents a very relevant data that illustrates how the speaker has a tendency to remove inflectional morphemes from inside the compound to its edges. From the Italian phrase *pomo d’oro*, lit. ‘apple of gold’, ‘tomato’, it was created the improper compound in (100a), with plural inflection in the head. In nowadays Italian, however, the speaker puts the inflectional morphemes in the modifier—which should not have a plural form for a variety of reasons, among them that it is a mass noun-. The result of this is that the compound does not have internal inflectional morphemes (100b).

- (100) a. pomodoro → pomidoro  
 b. pomodoro → pomodori

Some of the cases with internal inflection, as for example the plural form of the N-N compounds that we have studied in this chapter, cfr. *coche-s bomba*, lit. ‘car-s bomb’, may not constitute a problem for a lexicalist theory, if we follow Rainer’s (1993b) analysis. This author builds on a proposal by Hoeksema (1985), who claims that every morphological operation acts on the head of the word. What happens in these compounds, from this perspective, is that the rule that adds plural morphology operates on the head, which is to the left. As the plural marking is a suffix, when it is added to the head, the morpheme materialises itself between the two constituents of the compound; in a strict sense, then, they are not examples counter to Bauer’s (1978) observation.

Even though we agree with Rainer’s proposal, it is not completely true that non heads of compounds do not show inflection. To the extent that the desinence of a noun or adjective may be inflectional in nature -something that could be possible because they do not change grammatical category, always appear in the margins of derived words and are non-stressed- it seems that the non heads of compounds must be inflected (101).

- (101) a. hombre ran-a  
 lit. man frog  
 b. oro negr-o

lit. gold black  
 c. roj-o-amarillo  
 lit. red-yellow

On the second place, some non heads are also inflected for number, although their number requisites are not extended to the whole word. The clearest case is the non head of [[V]N] compounds (102).

(102) un / el limpia[bota-s], canta[mañana-s], salta[pared-s]<sup>95</sup>...

In Danish, Bauer also notes that there are some compounds with a first plural element (such as *småkage*), or a neuter form adjective (*intetkøn*), which is a case similar to the one just mentioned in Spanish.

Booij (1994, 1996a) proposes to make a difference between two types of inflection, one determined by syntax and another inherent to the word. He argues that only the second one may appear inside a compound. However, not all the cases that can be found fit Booij's proposal, for there are cases of inflection in the non head of some compounds that are determined by the syntax, as we will see in (101) (cfr. section 4.3. of this same chapter for a fuller explanation).

Once again, it is not accurate that non heads appear uninflected. Non heads may show all or some inflectional accidents, and the crucial difference seems to be that their inflectional information is not active for syntactic operations performed in the sentence. From this property it cannot be concluded that some elements are compounds.

#### F. COORDINATION.

It has been said that it is not possible to coordinate the internal constituents of a word. This is true in some clear cases, as for example, with Spanish suffixes (103), which results in blatant ungrammaticality.

(103) a. \*escri [-tor y -tura]  
 lit. write [-er and -en]

It is also impossible to coordinate two stems (104).

(104) \*[escri y ac-] tor  
 lit. [write- and act-] tor

However, Plag (2003: 84) observes that in English it is possible to coordinate two stems provided that the suffix and the stem do not constitute a phonological word (represents in 105 as ω); the suffix must constitute its own independent phonological word (105c, 105d)<sup>96</sup>.

<sup>95</sup> The suggestion that these elements are actually plurals is supported by the fact that when the internal argument of the verb is a unique entity, it appears without -(e)s: 'parasol'.

<sup>96</sup> Scalise (1984: 75) considers grammatical the coordination of Greek stems, as in 'it does not matter if they are philo- or anti-Soviet'. However, we doubt that to coordinate two Greek stems in Spanish has grammatical results. Let us note that the sequence in (i) is clearly ungrammatical in Spanish:

(i) \*[anglo y francó-]filos  
 lit. [anglo- and franco-] phile.pl

- (105) a. \*feder- and [<sub>ω</sub>local]  
 b. \*productiv- and [<sub>ω</sub>selectivity]  
 c. computer- and internet[<sub>ω</sub>wise]  
 d. child- and home[<sub>ω</sub>less]

Some prefixes (106) can be coordinated.

- (106) tratado [pre y post]armamentístico, [pro y anti]abortistas  
 lit. treaty [pre and post] weapo.MAR, [pro and against] abortionist

One answer that those scholars that want to keep coordination out of the word domain provide to explain this data is that the structures in (106) are not morphological constructions. We believe that this answer has the risk of being circular, because it presupposes that it has been decided in an aprioristic way which operations are possible inside the domain of words. Then, every element that undergoes an operation that has been classified as non morphological is classified as a phrase.

There is another way to analyse these structures, proposed in Bosque (1987) and also adopted in Camacho (2003: 66-68). Cases such as (106) can be analysed as the coordination of full words, with the only peculiarity that the head of the first conjunct is an empty head which is licensed by the prefix (107).

- (107) [pre [∅]] y [post [armamentístico]]  
 lit. pre and post armamentistic

The evidence that Bosque invokes against an analysis where two prefixes are coordinated has to do with the assumption that prefixes are heads. One of the pieces of evidence is that one of the prefixes may be modified by an adverb, as in (108):

- (108) coaliciones [[<sub>aff</sub> pre] e [??incluso pos] electorales]  
 lit. coalitions [pre and even post electoral]

Bosque reasons that, if in the structure (108) *pos-* was an affix, it would not be possible to adjoin an adverb to it, because this is not possible in the usual affixes; however, if the prefix is in fact the only phonologically overt part of a complete word, then we explain the presence of the adverb, which is adjoined to a whole word.

We believe that this is not a valid reasoning, because it crucially presupposes that affixes are not syntactic elements and, therefore, cannot have adjuncts. If affixes are syntactic elements, then the sequence in (108) does not constitute evidence counter to prefix coordination, unless it is independently shown that prefixes cannot have adjuncts.

However, we know independently that nothing prevents a head from adjoining to another head (Kayne 1994: 17-19); in fact, what is banned is adjunction of phrases to heads (Kayne 1994: 30-32), and, in fact, if *incluso*, which could be analysed as a head, is replaced by a synonymous phrase as *de todas maneras*, ‘in any case’, the sequence

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The example that Scalise provides, even though in the context of the reasoning where he uses it is relevant to show that stems are not affixes, is not perfect. As can be seen, the other element coordinated is a prefix, whose status is different from a stem. Due to this, maybe the right way to analyse Scalise's example is as the coordination of a prefixed word with a Greek stem. This does not contradict Scalise's point that Greek stems are different from prefixes.

becomes ungrammatical. In contrast, Bosque's proposal would predict that this sequence should be as grammatical as (108).

- (109) coaliciones pre y (\*de todas maneras) pos-electorales.  
coalitions pre and (in any case) post-electoral

On the other hand, nothing prevents an adjunct from being adjoined to another adjunct, as happens in (110), where *aún*, 'even', is adjoined to *hoy*, 'today':

- (110) La oficina se abrirá al público [[aún] hoy].  
lit. the office will be open to the public even today.

Due to these two reasons, it seems that nothing would avoid that the prefix, if it is a syntactic constituent, may be modified by an adjunct. Bosque's criticism to the coordination of two prefixes cannot be maintained, then.

However, there is evidence that an ellipsis analysis cannot be maintained in cases such as this one. If there is ellipsis, we expect that the phrases in (106) will have the same meaning as the coordination of the complete words. This is not the case, though: (111) shows that there are crucial semantic differences.

- (111) a. Juana y Luis son pro- y anti-abortistas, respectivamente.  
lit. Juana and Luis are pro- and anti-abortionist, respectively.  
b. Juana y Luis son pro-abortistas y anti-abortistas, (\*respectivamente).  
lit. Juana and Luis are pro-abortionist and anti-abortionist, (respectively).

In (111a), the plural form allows for a distributive reading where one of the two properties denoted by the prefixes is predicated from each one of the members of the coordinated subject; then, Juana would be anti-abortionist and Luis would be pro-abortionist. In contrast, in (111b), the distributive reading is not possible –and this is the reason why the presence of the adverb *respectivamente*, which forces this reading, makes the sequence ungrammatical-, and the only available reading is one in which both Juana and Luis are, at the same time, anti-abortionist and pro-abortionist, whatever this means.

Artstein (2005: 359-360) notes the same difference in English.

- (112) a. Bill and Martha are orto- and periodonthists.  
b. Bill and Martha are ortodonthists and periodonthists.

As in Spanish, (112a) is true if Bill es ortodontist and Martha, periodontist, but (112b) is only true if both are at the same time ortodonthist and periodonthist. Artstein argues that, to obtain the correct semantic reading of (112a), the structure cannot be analysed as the coordination of complete words, because the coordination of two complete nouns (2005: 362) gives as a result a set where only the elements that possess the properties denoted by both nouns can be included (and to back up this idea, he invokes several articles by Chierchia, Link and Krifka). Beyond technical details on semantic decomposition, we believe that the contrast illustrated in (111) is crucial, because it proves that it is not possible to claim ellipsis in these cases.

In addition to this, we would like to note that, if there is an elided head in (106), this head is licensed in a way that is not standard in the present syntactic theory. The common assumptions about the licensing of elided heads claim that they have to be c-



commanded by the phonologically overt head -and spelled out after it in the linear sequence-, and also identified through agreement (113a vs. 113b).

- (113) a. los cuadros de Monet y los *e* de Picasso  
 lit. the paintings of Monet and the of Picasso  
 the paintings by Monet and those by Picasso  
 b. \*los *e* de Monet y los cuadros de Picasso

In (107), in sharp contrast with (113), the empty head is before the phonologically overt head and, moreover, there is no sign of phi features that make it possible licensing of the empty element. Actually, the opposite order (114) is ungrammatical, as Bosque (1987) himself notes.

- (114) \*coaliciones pre-electorales y post\_\_\_\_.  
 Lit. coalitions pre-electoral and post\_\_\_\_.

This behaviour is unexpected from an empty head, but it is expected if what we are coordinating are prefixes, which must appear to the left of the base. In a sequence such as (106), both prefixes manifest themselves to the left of the base, unlike in (114).

We conclude, then, that at least the cases illustrated in (106) are instances of prefix coordination, and therefore it is possible to coordinate internal constituents of words – although in a very limited way-. It is not possible to conclude from here, of course, that there are no cases of coordination of parts of words that can be accounted for with an ellipsis analysis,<sup>97</sup> but at least this case shows that some internal parts of words can be coordinated.

Coordination seems to be present also in structures that have been non-controversially classified as words, and where empty heads cannot appear, because the heads are phonologically expressed. Consider the compounds in (115).

- (115) verd-i-negro, sop-i-caldo, carr-i-coche, aj-i-sal...  
 green-and-black, soup-and-cream, cart-and-car, garlic-and-salt...

The semantic interpretation that the native speaker does of this class of compounds is one in which the two roots are coordinated. *Verdinegro* is an adjective that can be predicated from objects that show at the same time the colours green and black;

<sup>97</sup> In contrast with this, other cases of apparent coordination seem to need an ellipsis analysis. The cases studied by Booij (1985), as Dutch *minimum- en maximum-bedragen*, ‘smaller and bigger quantity’, or *zwanger- en moeder-schap*, ‘pregnancy and maternity’, can be analysed as instances of partial ellipsis from sequences as ‘minimum-~~bedragen~~ en maximum-bedragen’ and ‘zwanger-~~schap~~ en moeder-schap’. Evidence of this is that, in some cases, the two constituents that are coordinated belong to different grammatical categories, as happens with *wis- en sterrenkunde*, ‘mathematics and astronomy’, lit. ‘sure- and star-knowledge’, where, if we do not propose an ellipsis analysis, we would have to admit that different categories can be coordinated together, in this case adjective and noun (1985: 145). Sometimes, a linking element (LE) appears in the first constituent, something which is unexpected unless this element is part of a complete word: *wesp-e- en bij-e-steken*, lit. ‘wasp-LE- and bee-LE-stings’ (1985: 146). One of the strongest pieces of evidence for an ellipsis analysis is found in expressions such as *het verschil tussen een derde- en een zesde-klasser*, ‘lit. the difference between a third- and a sixth-classer. The preposition *tussen*, ‘between’, requires a plural complement, in such a way that its complement cannot be analysed as *[[een derde- en een zesde] klasser]*, because the only head of the structure, *klasser*, has singular number. Moreover, one of the elements that would be coordinated, *een zesde-*, is not even a syntactic constituent (1985: 145). To explain what licenses ellipsis in these cases, Booij proposes a rule of phonological reduction that the word undergoes when it is adjacent to this conjunction (1985: 150, 155).

*sopicaldo* is a dish which has *caldo*, a type of soup, and *sopas*, pieces of bread; *carricoche* is an object which has properties of carts and of cars, and *ajisal* is a condiment that has both garlic and salt. It seems that the intuition that there is semantic coordination here is not lost –apart from words that have developed a demotivated meaning-.

Moreover, the phonology of the linking element is identical with the phonology of the coordinative copulative conjunction in Spanish, /i/, written ‘y’ for orthographical reasons.

Coordination requires that the elements coordinated share the same grammatical category and have a semantics which is compatible. This requirement is also present in this class of compounds, because it is impossible to construct a word such as \**sopiseco*, ‘soup and dry’, because it would combine a nominal and an adjectival element.

Everything seems to indicate, from a semantic, categorial and phonological point of view, that in the formations in (106) we have basically the same structure as in *Juan y Pedro*, ‘Juan and Pedro’, or *Juan limpia botas y María, ventanas*, lit. ‘Juan polishes boots and Mary, windows’. The difference is that in this case the coordinated elements seem to be roots, not complete words.

So it is clear that it is not enough to say that coordination is not possible inside words, because some parts of words can be coordinated, while others can’t: suffixes cannot be coordinated in Spanish, while some prefixes and roots can.

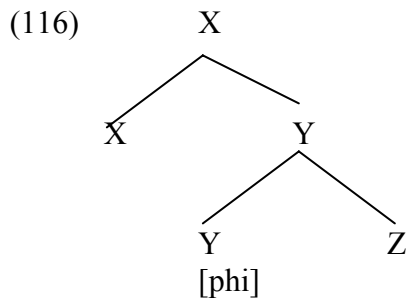
#### 4. The characteristics of compounding in a syntactic framework.

Our analysis of predicative appositions has shown that it is possible to analyse some compounds, those with N-N structure, in a syntactic framework, where they can be interpreted as syntactic objects with specific characteristics that make them insensitive to some syntactic phenomena. In this section we will argue that the formal criteria used to define a compound, which we have discussed in section 3, can be accounted for in a syntactic framework. In this section we will refer also to other cases that have been analysed as compounds.

##### 4.1. Compounds and phi features.

As Bauer noted (1978), inside a proper compound, true inflection is never manifested. It is possible to find the theme vowel of the verb inside a compound, and also inside derived words, but it is never possible to find inflectional morphemes such as number and person agreement. The same can be said about number or gender inflection in nouns and adjectives.

In the framework that we are developing in this dissertation, this property is motivated by one of the principles that we have claimed to determine the limits of morphological merger (cfr. chapter one, section 2.2.1.1.). Morphological merger is not possible if it crosses categories that contain phi features. In a structure such as the one that is depicted in (116), then, the terminal nodes X and Z cannot constitute a morphological word if the intervening head Y contains phi features, interpretable or not.



Let us note, however, that the fact that structures which are considered compounds may have internal inflection does not constitute an immediate problem for our proposal. The cases in which internal inflection is shown are analysed in this dissertation not as morphological words but as syntactic structures one of whose constituents has become syntactically inert. This is the case, for example, of N – N nouns with the structure *salón comedor*, ‘living-room dining-room’, with the plural *salon-es comedor*, not \**salón comedor-es*. In this case there is no morphological word being constructed and the effect that there is only one word is determined by the fact that the elements cannot be moved or modified one in the absence of the other, as will be shown.

From here we predict that there will be two types of compound structures, with different characteristics. In the first class we find those compounds one of whose constituents does not have phi features of its own. These elements have been considered morphological words. We propose that A-A compounds, such as *sordomudo*, ‘deaf-dumb’, which we will study in 4.2.1., illustrate this situation. In the second class, where N-N structures that we have already analysed are included, we find those configurations one of whose constituents may have phi features, but they are checked, so that the constituent becomes syntactically inert. These compounds are not morphological words. We will propose that N-A compounds, such as *oro negro*, lit. ‘gold black’, ‘oil’, which we will study in section 4.2.2., are instances of this situation.

But first we will show how our proposal about phi features can be used to explain why compounds reflect coordination, ellipsis and modification, unlike usual syntactic phrases.

#### 4.1.1. Coordination.

We propose that the reason why morphological constituents cannot be coordinated is explained because words reject to have phi features inside them. As we have seen, coordination is impossible in general inside words. Two stems cannot be coordinated, and it is also impossible to coordinate two suffixes. We saw, however, that it is possible to coordinate some prefixes and some roots (117).

- (100) a. pre y post conciliar  
 lit. pre and post-conciliar  
 b. aj-i-sal, verd-i-blanco  
 lit. garlic-and-salt, green-and-white

The analysis of this pattern is quite straightforward if we assume that the copulative head contains phi features. This must be so for a number of reasons. First of all, the copulative head must have a feature of number which is activated by the presence of nouns in its argument positions, because two singular nouns coordinated have plural agreement (118, cfr. chapter three, 3.2.2.).

- (118) [Juan<sub>[sg]</sub> y Pedro<sub>[sg]</sub>] vinieron <sub>[pl]</sub>  
lit. Juan and Pedro came.pl

Moreover, the copulative head seems to be able to check case to their internal arguments, and this has a morphological instantiation in some languages, such as English. Consider the sentence in (119).

- (119) Peter and me have arrived late

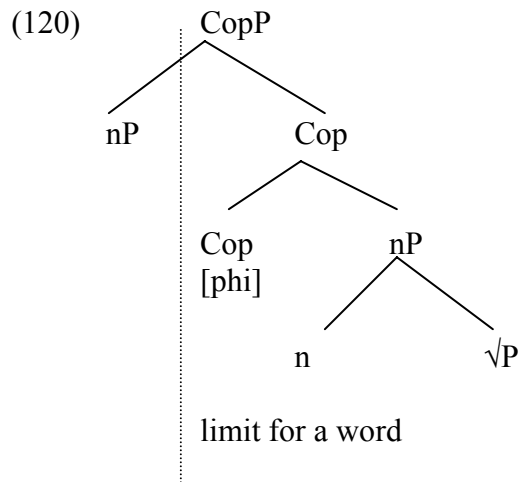
The two members in the coordination receive different cases. The first member receives nominative case from T, while the second member of the coordination receives case by default (cfr. Johannessen 1996, 1998). This is explained if the external argument has its case checked by the functional projections from outside CopP, while the internal argument receives case from Cop<sup>o</sup>. If we follow the common minimalist assumptions (Chomsky 2004: 114-115), case is the result of a complete checking between the phi features of a probe –in this case, the copulative head- and those of a goal, so by force it can only be assigned by a head which contains phi features. In consequence, Cop<sup>o</sup> must have phi features.

Assuming, then, that Cop<sup>o</sup> has phi features, let's consider each case in turn to see which coordinations can be possible and which aren't.

The generalisation is that it is impossible to coordinate any structure headed by a functional projection, be it a stem without phi features or be it a suffix, which we assume to be the manifestation of a functional projection (cfr. chapter one, 2.1.). The reason is clear once we remember that the presence of phi features blocks the construction of a word. If we coordinate two functional projections, the functional projection which is the internal argument of Cop<sup>o</sup> will find a set of phi features dominating it, with the result that it will never be spelled out as one word, but as a phrase.

The immediate consequence of this is that it is not possible to spell out the structure as a word any more, since it is interrupted by phi features, and the morphological merge operation is impossible. Therefore, this structure will never manifest itself as a compound, but should appear as a phrase.

If functional projections, which manifest themselves as suffixes, are coordinated, the problem is that one of the suffixes will have to be spelled out as an independent word. The structure will be impossible if they appear with the particular Vocabulary Items which are suffixes, because they are usually marked as phonologically dependent entities that have to attach to their bases in a single phonological word (120).



The prediction of our theory is precisely this. We do not predict that it will be impossible to coordinate parts of words, but only that, if they are coordinated, it is not possible to construct a single morphological word with the two coordinated parts, because there are phi features between them. From here it follows that, if both constituents in the coordination structure are licensed in phonology, coordination will be possible.

This accounts for the grammaticality of the coordination of verbal stems presented in Plag (2003: 84) for English, which we repeat here as (121) for the sake of the exposition. Grammatical cases are those where the affix attaches to the base as one single phonological word; in this way, any of the two elements, considered in isolation, is a well formed phonological word. Grammatical cases are those where the base and the affix constitute each their own phonological word, in such a way that each one of the coordinated elements is a well formed phonological object (122).

- (121) a. \*feder- and [<sub>ω</sub>local]  
 b. \*productiv- and [<sub>ω</sub>selectivity]  
 c. computer- and internet[<sub>ω</sub>wise]  
 d. child- and home[<sub>ω</sub>less]

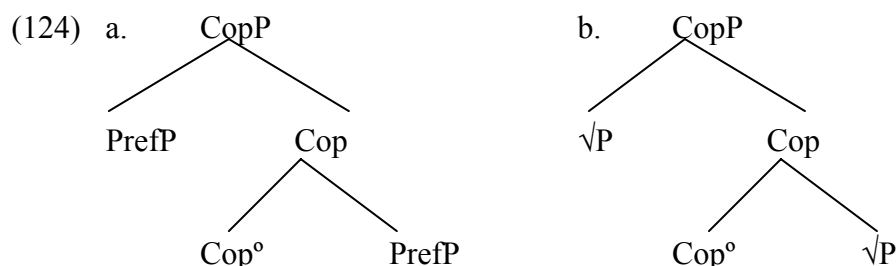
- (122) a. [<sub>ω</sub>computer]- and [<sub>ω</sub>internet][<sub>ω</sub>wise]  
 b. [<sub>ω</sub>child]- and [<sub>ω</sub>home] [<sub>ω</sub>less]

The question is why it is impossible to have this type of coordination in Spanish. The reason probably is that Spanish suffixes do not constitute independent phonological words. The only case that may be an instance of a suffix which can be an independent phonological word is the case of *mente* in predicative adverbs. This element, in case it is actually an affix, would behave like the English examples presented by Plag.

- (123) [<sub>ω</sub>simple]-, [<sub>ω</sub>lisa]- y [<sub>ω</sub>llana][<sub>ω</sub>mente]  
 lit. simple-, even- and plain-ly

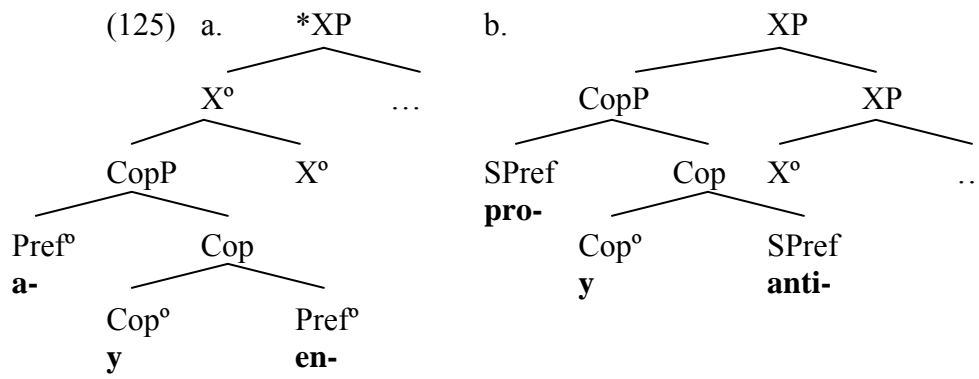
On the other hand, in Spanish it is possible to coordinate some prefixes and roots, and it is necessary to account for this. Let us note that roots and adjunct prefixes have in common that they lack a category of their own, this is, that they are not combined with a functional projection. They can be coordinated before they are combined with functional projections.

The reason we propose for this behaviour is the following one: not having a functional projection, they cannot count as morphological words, because they have not been transferred to the morphological component. Therefore, they will only come to the morphological component after one functional projection, which being merged over the copulative head, is added to the derivation. The consequence of this is that the phi features will not intervene between a functional projection and another component, so they won't block the morphological merger (124).



Therefore, we predict these structures to be grammatical. In short, the presence of phi features doesn't block morphological merger because they are not intervening between functional heads. To add phi features to a functional head is interpreted in the morphological component as to imply the end of a word; however, it causes no problem to add them to a structure without functional heads because that type of structure, as it doesn't have a category, is not recognised as a possible word in the morphology, and therefore morphological component simply doesn't recognise that structure as a possible word. Therefore, the principle stated in chapter one, section 2.2.1.1., would not apply to this structure.

An additional question is what prefixes can be coordinated. There are some prefixes that cannot be coordinated, and therefore a sequence such as *\*a- y de-portar*, 'to a- and de-port', 'to contribute and deport', is ungrammatical. As we will remember, in chapter one, section 2.1., we assumed DiSciullo's (1997) distinction between external and internal prefixes. We proposed to analyse external prefixes as prefixes that are adjoined to phrases, so they must be phrases themselves,  $PrefP$ . On the other hand, internal prefixes are adjoined to heads, and they are heads themselves,  $Pref^{\circ}$ . Coordination is structurally a phrase,  $CopP$ , which takes a complement and a specifier. From here it follows that only external prefixes can be coordinated. Let us observe that the coordination of two internal prefixes, which are heads, will not be possible, because, when coordinated, they would become a phrase, and therefore they would not be able to adjoin to the head (125a). In contrast, given that external prefixes are phrases, they can be coordinated (125b).



The fact that the prefix is external is a necessary, but not sufficient, condition for coordination. We expect that there will be also prosodic conditions, or requisites of semantic coherence that impose additional restrictions on coordination. For instance, it is not possible to coordinate the external prefixes *re-* y *des-*, as in *\*re- y des-componer*, lit. ‘re- and de-compose’, ‘to compose again and to decompose’, because these two elements lack the prosodic autonomy that is necessary for them to be phonologically detached from a base. These additional conditions require a fuller study that we cannot pursue here.

#### 4.2.1. Ellipsis.

We propose that the fact that phi features are rejected inside words also explains another defining characteristic of compounds, namely, that they do not allow ellipsis of any of their components. The reason of this behaviour is also motivated by the presence of phi features, which –as we have claimed– must be absent from the internal structure of the word.

The types of ellipsis that are impossible in morphology are the following:

A. It is not possible to elide the non head of a compound.

- (126) *pela-frutas y lava-frutas* → *\*pela-frutas y lava-e*  
lit. peel-fruits and wash-fruits → peel-fruits and wash-e

B. It is not possible to elide the head of a compound.

- (127) *lava-frutas y lava-platos* → *\*lava-frutas y e-platos*  
lit. wash-fruits and wash-dishes → wash-fruits and e-dishes

C. It is not possible to elide an element outside the compound taking as an antecedent the non head of the compound.

- (128) a. *\*Este lava-platos deja limpios los e de porcelana.*  
lit. this wash-dishes is cleans very well those *e* in china  
b. *\*Esto es un lava-platos y María [e]<sub>VP</sub> ropa.*  
lit. this is a wash-dishes and María *e* the clothing

The conditions that allow the ellipsis of one element are very strict, and have to do with the possibility of recovering the elided element. This is, the native speaker must be able to identify the elided category from the information that surrounds it. Typically,

this is achieved through the phi features associated with the elided category, which determine its grammatical relationships.

Let us consider an example for illustration. The ellipsis of nouns can be identified through the phi features associated with it, manifested in the determiners and adjectives that surround them (cfr. Bello 1847, Fernández Ramírez 1951, among many others). Therefore, an inflected noun can be elided and recovered through its phi feature matrix (129), manifested as its desinence. In some cases, the phi features of the elided noun appear as a desinence that is attached to some indefinite determiners (129b, Bernstein 1993).

- (129) a. est-e perr-o y es-e otr-o *e*.  
lit. this.masc.sg. dog.masc.sg. and that.masc.sg. another  
b. un perr-o amarill-o y un-o *e* roj-o  
lit. a dog.masc.sg. yellow.masc.sg. and a.masc.sg. red.masc.sg.

In those languages where phi features are not spelled out, the ellipsis is not possible unless it is inserted another element that recovers those features (Kester 1996). This is the case of English, where nominal ellipsis needs to be licensed with insertion of the conceptually empty ‘one’.

- (130) A blue jacket and a yellow \*(one)

Corver (1997) argues that ‘one’ is the manifestation of a lexical item that provides the necessary features to license ellipsis in English, and notes that ‘so’ is its adjectival counterpart. Therefore, in the absence of the overt manifestation of phi features, or any other licensing mechanism, it is impossible to elide a head.

The immediate consequence of this is that there is no possible ellipsis inside a compound, because inside a word there cannot be matrixes of phi features, as derives from our principle to restrict Morphological Merge (cfr. chapter one).

A question that should be addressed at this point is why it is impossible to take an element of a compound as an antecedent to elide an element out of the compound, as for example in (131).

- (131) \*un lavaplatos y un friega *e*

The answer to cases such as (131) has to do with the absence of intermediate functional projections. In ‘lavaplatos’, the noun ‘platos’ is not dominated by a determiner projection, because determiners select projections such as KiP and NumP, which contain phi features. However, determiners are necessary for a noun to act as an antecedent, because antecedents must have reference and a noun without a determiner doesn’t have a reference. This is the reason why a predicative noun cannot act as the antecedent of an elided argumental noun.

- (132) \*Pedro quiere ser médico y por eso visita muchos *e*  
lit. Pedro wants to be doctor, and because of this (he) visits many

In (132), *médico* doesn’t have a reference, and, consequently, it cannot be the antecedent of an argumental noun.

If the antecedent is not a noun, the general reason why elements inside compounds cannot license ellipsis is that the constituents which are not the head of a compound are



not immediately dominated by phi features of its own, but have to attach parasitically to the head and use the phi features associated with the head to satisfy this syntactic need. In an adjective compound such as *sordomudo*, ‘deaf-dumb’, it is impossible that the modifier *sordo*, ‘deaf’, licenses an ellipsis of the adjective *sordo*, ‘deaf’, in a subsequent sentence, because it is inside a word, and words cannot be formed with phi features inside. Therefore, the word *sordo*, ‘deaf’, doesn’t have features to recover the elided material and therefore it cannot act as an antecedent for an elided element.

- (133) Juan es sordomudo y Luisa también lo es (\*= es sorda)  
lit. Juan is deaf-dumb and Luisa is also so (=she is deaf)

(133) can only mean that Luisa is deaf-dumb. The explanation why it is also impossible to recover only the head of the compound also follows from here. The reason is that the phi features that license the head are also licensing indirectly the other functional projections inside the compound. Therefore, those phi features recover not only the head but also every other functional projection that they are licensing. Consequently, *sordomudo* cannot license an ellipsis of *mudo*, or an ellipsis of *sordo*, but an ellipsis of both constituents at the same time, *sordomudo*.

Finally, the head of a compound cannot be elided because their phi features are not identifying only it, but also the other constituents of the compound, so what would be recovered is not just what has been elided but also the portion of the structure which has not been elided.

#### 4.1.3. Modification.

The internal constituents of a compound cannot be modified. In our analysis, this effect is produced because, in the first place, the functional projections that are needed to license the modification cannot be present, because they contain phi features, and in the second place, because the constituent that is going to be modified is syntactically inert.

Postnominal adjectives crucially need to be combined with a relational head which contains phi features and which dominates the aP. It follows naturally from here that a noun inside a compound cannot be modified by an adjective, and also that adjectives that appear inside compounds must be defective, in some senses.

With respect to degree modifiers in adjectives and determiners or quantifiers in nouns, as the structure must lack the functional projections that house them, because they may contain phi features –as NumP- or they may select projections that contain phi features – as DegP-, it follows from our proposal that they cannot appear inside a compound.

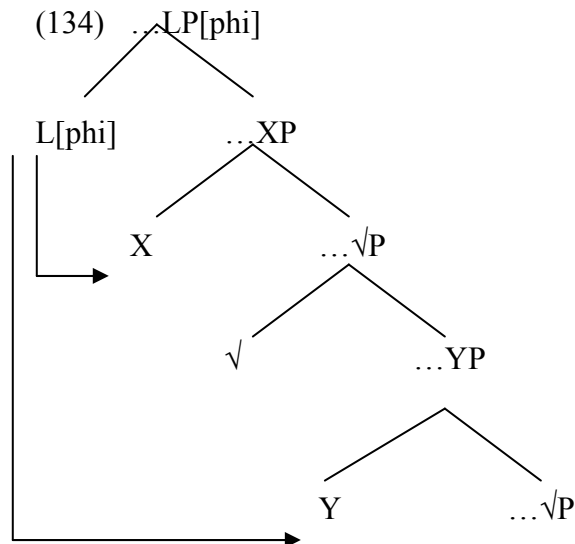
However, we also expect that those compounds that are constructed because one of its constituents has become syntactically inert may be able to have modifiers, because they can have internal phi features. This is the case of the N-N compounds that we have studied (cfr. *poetas temporalmente cantantes*, lit. ‘poets temporally singers’). This prediction is verified, as we will see in 4.2.2.

#### 4.2. Two types of nominal compounding.

We have predicted that there will be two types of nominal compounding, depending on whether their constituents contain phi features that have been checked or, on the contrary, they lack phi features. In this section we will analyse two Spanish compounds that –as we will argue- illustrate each one of the two predicted types.

#### 4.2.1. Compounds created due to the absence of phi features: A-A compounds.

The head of the compound must be dominated by functional projections with phi features. In contrast, if the compound constitutes a morphological word, the modifier of the head may not have projections with phi features independently of the head. The result of this is that the modifier will have to stick to the head of the compound as a suffix to its base. Consequently we have the abstract structure in (134), where C is the head of the compound and Y is the modifier.



When the phi features are inserted along with C in the derivation, they will be shared by X and Y. As a result of this, Y cannot be separated from the head of the compound, so we predict that this class of internal constituents of compounds won't be able to move, for the same reason as suffixes cannot move during the syntactic derivation.

A further prediction is that these elements cannot show internal marks of the presence of phi features, because the projections which have phi features are not present; therefore, it is not possible to find agreement. Another prediction is that these elements won't be subject to ellipsis.

These elements won't be able to be modified by any of the elements which are contained inside the functional projections that contain phi features or those that dominate them. From here it follows that no determiners, degree adverbs, quantifiers or aspectual modifiers can be added to the non heads of compounds.

In this section we will revise a pattern of nominal compounding that we believe that is motivated by the fact that every category defining functional projection has to be associated with phi features: A-A compounds.

Compounds with two adjectives can be interpreted as a semantic coordination in Spanish, even though there is no formal trace of the copulative conjunction *y*; there are also some cases that are interpreted as semantic subordination, which we will discuss later. This class includes adjectives such as *sordomudo*, 'dumb-deaf', *azulgrana*, 'blue-red', *blancoamarillo*, 'white-yellow' or *físico-químico*, 'physical-chemical' (Rainer & Varela 1992: 131). What these compounds have in common is that the first constituent does not show agreement and displays the unmarked word marker for the members of its declension, which is *-o* for adjectives that vary in gender and *-e* or  $\emptyset$  for adjectives which do not vary in gender. It is not possible to elide the modifier, to modify it or to have coordination of any kind inside of the word. These properties are those which we

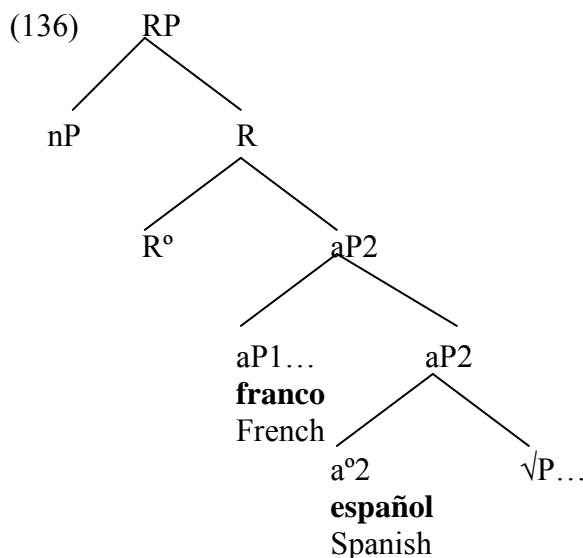
expect from a structure where a functional projection does not have phi features of its own.

Let's try to determine the structure of this class of compounds when they are coordinative. The meaning of the structure is coordinate-like, this is, one in which the properties expressed by each adjective are predicated at the same time from the same subject. Therefore, the adjectives must combine with only one relational head  $R^\circ$ , which introduces the subject for the adjective, as it is not possible to predicate each property from a different subject, as can be seen in (135).

- (135) \*Este jersey y esta camisa son blancoamarillas, respectivamente.  
Lit. This jersey and this shirt are white-yellow, respectively

The adjectives, then, must be combined between them, in the absence of any other projection. One option would be to use coordination; we will not pursue this solution here because it wouldn't explain why the overt copulative head is not spelled out in these compounds, when in other compounds it is overtly materialised (cfr. 3.1. and 4.1.1. in this same chapter). This analysis would not account for some cases of A-A compounds with a subordinate reading, for example *francocanadiense*, lit. 'French-Canadian', which may be interpreted as 'denoting the French part of Canada' (cfr. also Rainer & Varela 1992: 131).

There is an alternative structure, though, which can give account of all the characteristics of these compounds. The uninflected adjectival stem is adjoined to the adjectival head, which is combined with the whole set of functional projections.

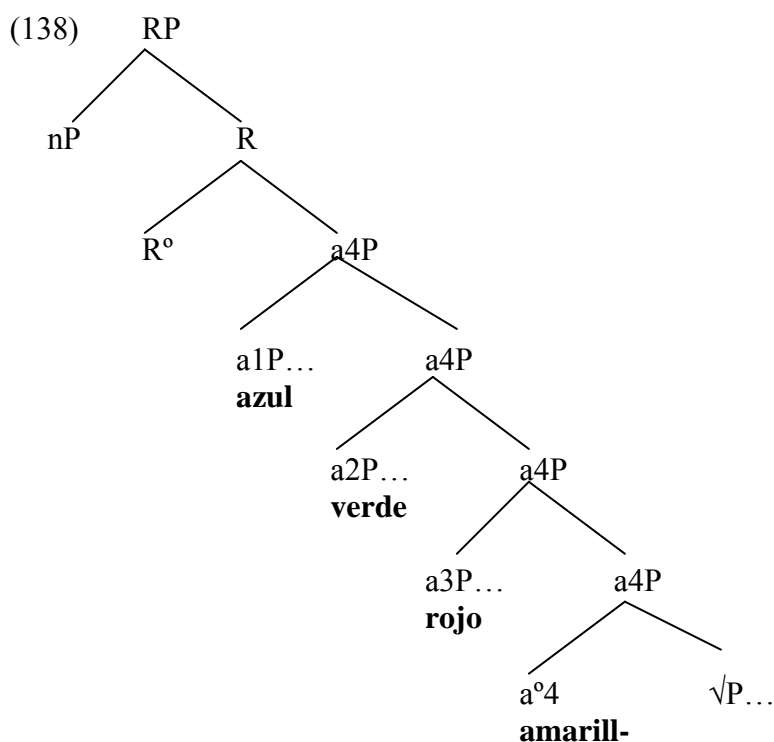


The semantic translation of this structure gives account of its semantic interpretation as a coordinate structure, because from the subject housed in the specifier of RP the properties denoted by both adjectives are predicated. Thus, every property contained in a2 and a1 is part of the predicate.

In this position, both adjectives are dominated by  $R^\circ$  and  $Deg^\circ$ , so they have a complete set of phi features, which implies that each one of the functional projections aP have satisfied the need that they have to be associated with phi features. The immediate consequence of this is that none of the constituents will be able to move, because that would imply setting apart from the functional head that has its projection expanded.

Another interesting consequence of this theory is that, provided that they are all dominated by R and Deg, there can be more than one adjectival stem adjoined to the head of the compound.

- (137) a. verde-*rojo*-amarill-as  
lit. green-red-yellow.fem.pl  
b. azul-verde-*rojo*-amarill-as  
lit. blue-green-red-yellow.fem.pl



At this point the relevant question is how the necessary Morphological Merger is produced between the head  $a^\circ$  *amarill-*, to which the rest of adjectives is adjoined, and the features of agreement and degree housed in  $R^\circ$ . Let us remember that the operation of Morphological Merger takes place between heads, and in Spanish (cfr. chapter one, 2.2.1.1.) it is previous to the insertion of the Vocabulary Items, in such a way that adjacency is defined by the hierarchical configuration, and not by the lineal order (cfr. Embick & Noyer 2001). From here it follows that this operation is not interrupted in Spanish by the specifiers or adjuncts that intervene between the heads. Hierarchically, the first head that  $R^\circ$  finds is the  $a^\circ$  head that is spelled out as *amarill-*, because this is the constituent that it selects; the other stems, being adjoined to the head, are not taken into account by Morphological Merger. This guarantees that none of the adjectival stems will manifest inflection, because it attaches to the head<sup>98</sup>.

Let us now address a sub-type of these compounds that have a subordinate meaning where the modifiers defines a specific class of the kind denoted by the adjective. This usually takes place with A-A compounds with two adjectives that denote the nationality, such as *italo-americano*, lit. ‘Italian-American’, which can be interpreted as referred to the part of America that has to do with Italy. Here, the stem *italo* specifies the denotation of the head *americano*. We propose that these adjectives have the same

<sup>98</sup> Cfr. Chomsky (2004: 117-124) for the observation that, before phonological spell out, an adjunct cannot intervene between the head of the projection to which it adjoins and the rest of the structure.

adjunction structure as the compounds interpreted as coordinated entities. The emergence of the coordinate or the subordinate reading depends on the conceptual semantics associated with the Vocabulary Items involved. As the speaker knows that the colour yellow cannot be classified as white, the compound *blancoamarillo*, lit. ‘white-yellow’, is interpreted as coordinated; on the other hand, the speaker that knows that there is a part of Canada that can be considered French will be able to read the compound *francocanadiense*, lit. ‘French-Canadian’, as the subordination of one entity to the other. The structure will be the same in both cases, the one in (138).

The subordinate reading has to meet a structural requisite. It is restricted to those cases where only one adjectival stem is adjoined. (139a) can have a coordinate reading –for instance, said of someone with two nationalities– and a subordinate one; on the other hand, (139b) only admits the coordinate reading, so it cannot be understood as ‘the English part of the French part of Canada’. It would be possible to interpret this sentence as referred to something that is at the same time English and from the French part of Canada. That is, in any case, the subordinate reading is restricted to the head and the first adjoined adjective.

- (139) a. *francocanadiense*  
lit. French-Canadian  
b. *anglofrancocanadiense*  
lit. English-French-Canadian

This restriction comes from the structure. As all the adjectival stems are adjoined to the same head, and it is not the case that one adjunct is adjoined to another adjunct, the structure does not license a reading where each component underspecifies the following. To make possible the subordinate reading in (139b), the structure should be the one in (140a), not the one in (138). Given the structure in (138), repeated here as (140b), it is only possible to interpret that one of the adjuncts, the first one, is subordinated to the head, whereas the other adjuncts must modify the structure formed by the head and this adjunct; this structure, then, rejects the reading where *anglo* is subordinated to *franco*.

- (140) a. [<sub>AP</sub> [<sub>AP</sub> [<sub>AP</sub> *anglo*] *franco*] *canadiense*]  
b. [<sub>AP</sub> [<sub>AP</sub> *anglo*] [<sub>AP</sub> *franco*] *canadiense*]

This situation illustrates once again the crucial importance of the structure in the semantic interpretation of a certain construction.

The fact that the adjoined adjectival stems do not combine morphologically with the inflection features has as a result that the stem frequently spells out in a special form. This form is not the usual spell out of the adjective and cannot be a word by itself –as happens with *italo-*. In contrast, the adjectival stem that is combined with R° through Morphological Merger does not exhibit a special form. This is illustrated in the contrast between (141a) and (141b). Let us observe that uninflected adjectival stems manifest themselves as special forms, whereas the inflected base is spelled out with an adjective that is also a possible independent word (141a); the opposite situation is ungrammatical (141b). This observation is found also in Rainer & Varela (1992: 131).

- (141) a. **franco-español**, **hispano-francés**, **anglo-francés**, **germano-inglés**,  
**italo-alemán**  
b. \**francés-hispano*, \**español-franco*, \**inglés-franco*, \**alemán-anglo*,  
\**italiano-germano*...

We conclude here the analysis of this type of compounds.

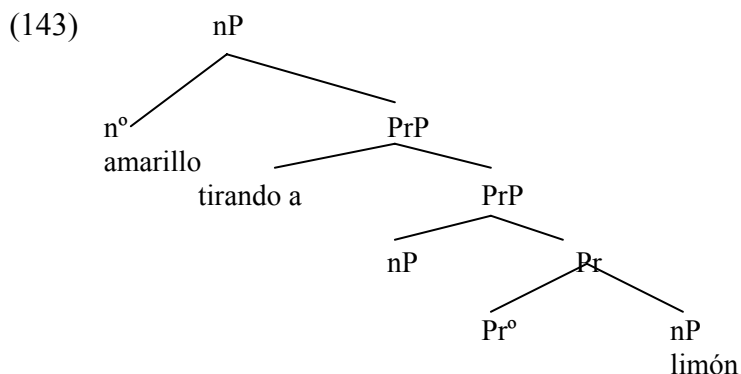
#### 4.2.2. Compounds formed with a constituent that becomes syntactically inert: N-A compounds.

As was observed in chapter three (3.2.) and before in this same chapter in section 2.1.1.3., when a lexical item has the whole set of its uninterpretable features checked, it becomes inert for further syntactic operations (cfr. Chomsky 2004: 115). In section 3.1.1.3. we argued that N-N structures can seem non-syntactic objects because they contain an inert element; therefore, one conceivable way to get a compound is to have an element which is syntactically inert.

Therefore, there would be a constituent which is not able to be displaced, because it is inert. In contrast, it could be modified, provided that it has become inert after some categories have merged with it. It would be also possible that some elements can be interposed between the head of the compound and the modifier, if such modifiers are licensed by the intermediate functional projections. Let us remember that, as we saw, in N-N structures one of the elements cannot move, but it is associated with phi features independently of the other noun. Therefore, as Piera & Varela (1999) and Val Álvaro (1999) noted, these compounds may be modified (142).

- (142) amarillo tirando a limón  
*yellow similar to lemon-yellow*

The explanation is that the noun *limón*, ‘lemon’, is syntactically inert, but, as there is a relational head between the head and the modifier, there is one structural component which can license such modifiers as *tirando a*.



If the projection has become inert during the derivation, through checking of uninterpretable features, we expect that it is also possible to find phi features present inside the structure, provided that they have been checked before the element can move. We also expect that it is possible to find phi features inside the structure if it belongs to the non-inert element. This is typically the case with N-N compounds, where the first element is always inflected, in such a way that there are phi features between the head and the modifier.

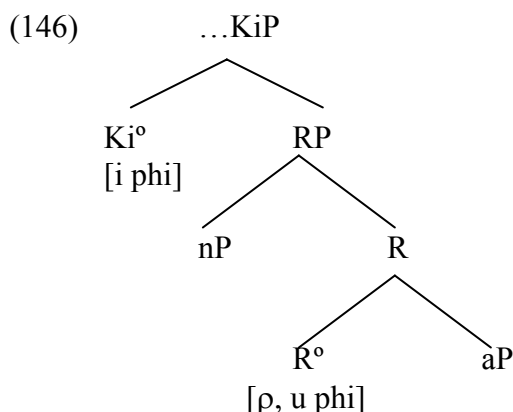
- (144) a. ciudad-es dormitorio  
 lit. city-PL bedroom  
 b. HEAD-inflection MODIFIER

In the next section we will analyse a pattern of nominal compounding which seems to be caused also by the fact that one of the elements becomes syntactically inactive within the syntax: N-A compounds.

The characteristics of N-A compounds are as well not those that we expect from a usual compound, because the non head manifests inflection. The adjective appears inflected for gender –not for number-.

- (145) oro negro, agua pesada  
lit. gold black-MASC, water heavy-FEM

This means, by implication, that the compound must have in its internal structure the head that contains the phi features necessary to establish agreement with the subject noun, this is, RP. Thus, I propose that the structure of a compound with the structure N-A is basically the same that we proposed to the structure that the postnominal adjective forms with its subject (146), repeated here and proposed in chapter two, section 2.2.1. The crucial difference between a usual nominal phrase with an adjective and a compound of this type is that the relational head lacks an uninterpretable degree feature [uDeg]. This gives as a first result that the adjective will not be combinable with degree modifiers and that, once agreement has been performed, the only uninterpretable features that would remain in the structure belong to the nominal head of the structure, in KiP. The immediate consequence is that as a result of this operation the adjective and the relational head become inert. The result of this is that the adjective, being already inactive, becomes frozen in site, unable to participate in other syntactic operations, but showing agreement as a result of the checking operation that turns it into an inactive element.



Even though we will not analyse them, because they contain prenominal adjectives, which we have left outside our dissertation, we would like to make a point about A-N compounds, such as *alta-voz*, ‘loud-speaker’. As we pointed out in 3.4., these compounds have a distinguishing property: the gender of the compound may be different from the gender which is shown in the internal agreement. The agreement in *alta-voz* is feminine, but *altavoz* as a compound is masculine, as can be seen in (147).

- (147) a. un pequeño alt-a-voz  
lit. a.masc. little.masc. highfem. -voice  
b. \*una pequeña alt-a-voz  
lit. a.fem little.fem high-fem-voice

<sup>99</sup> This is Rainer's (1996: 85) point in an answer to Booij. Rainer invokes an example where there is contextual inflection inside a derived word. Rainer notes that in *doscientos*, lit. 'two-hundred.pl.', the plural marker in *ciento* is a result of the agreement with *dos*, 'two'. However, it is not cancelled when it combines with the partitive suffix *-avo*: *dos-ciento-s-avo*.



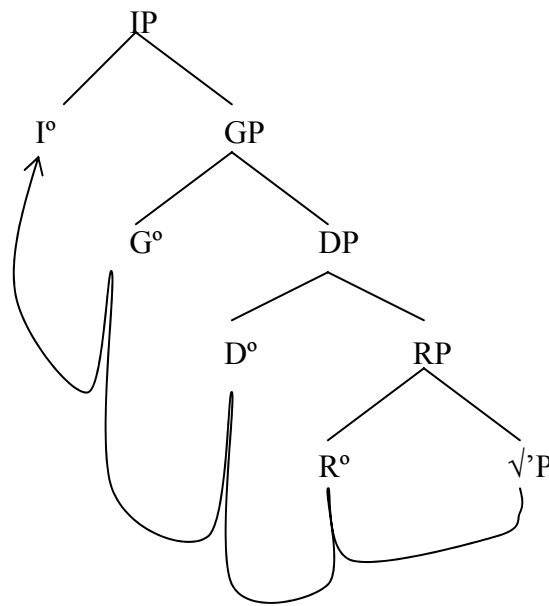
non prototypically lexical units. In contrast, proper compounding, such as A-A compounds, fit neatly in Booij's proposal.

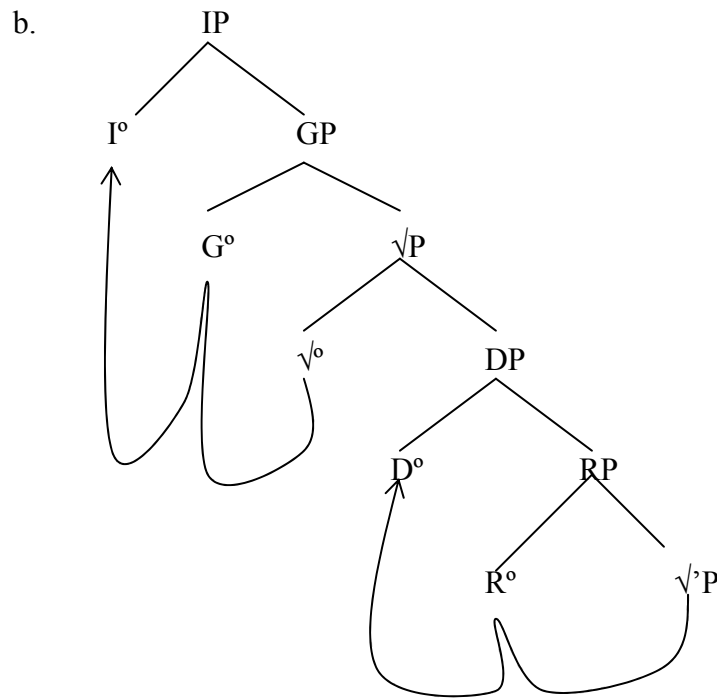
It is necessary, then, to analyse this problem more carefully, because it is interesting in itself to differentiate inflection and derivation. It is also important to explain why those compounds that contain uninterpretable phi features or contextual inflection behave differently from compounds that exhibit inherent inflection. Such a research goes beyond the limits of this dissertation, but is an intriguing question which has to be addressed in other works.

#### 4.4. Compounding in the Vocabulary.

The interesting case is that where compounds are formed because there are functional heads that need to share their phi features with other elements, because in these cases they constitute basically the same type of structure that a derived word. Consider the contrast in (149). (149a) is an uninterrupted series of functional heads, without any root. If none of the heads contain phi features, morphological merger will apply from the root to I, with R, D and G. However, in (149b) there is an additional root between G and D. As the second root cannot attach to the word if there is no functional head that dominates it and assigns a grammatical category to it, this means that the second root will not be able to constitute a morphological word with the first one.

(149) a.





Therefore, after morphological merger, and assuming that no head has phi features, the result of (149a) will be (150a) and the result of (149b) will be (150b), where the uppermost root is to the left.

- (150) a.  $\sqrt{'} - R - D - G - I$   
 b.  $\sqrt{-} G - I - \sqrt{'} - R - D$

Therefore, the crucial difference between a compound and a derived word, from the point of view of the vocabulary, is that a compound, having more than one root, will initiate a new chain of morphological merger for each root that it contains, while a derived word, containing only one root, will have only one chain of morphological merger operations.

This has as a result that phonologically each element from the compound will be independent, something that we have seen in the case of Turkish vowel harmony and Spanish secondary stresses, for example. This phonological difference is a direct reflect of the fact that in a compound there are always at least two different morphological phases, so some constituents are always phonologically independent from the other.

There is an immediate consequence of our approach, as it now stands, and it is that it predicts that the two elements in compounds will also be semantically independent one from the other, with the result that they will access the encyclopedias in different moments and they could never constitute a set of elements with demotivated meaning. We will address this question in the next chapter.

#### APPENDIX: N-N STRUCTURES AND RELATIONAL ADJECTIVES.

As is known, some languages of the world, among them English, Dutch and Finnish, express the structures with classificative relational adjectives, studied in 3.4. in chapter three, as N-N structures. Let us consider the pattern in (1), in contrast with the data in (2), from English, and in (3), from Finnish.

- (1) a. ramas vegetales  
 lit. branches vegetable.RAM.

- b. cuidado vegetal
  - lit. care vegetable.RAM.
  - c. disolución vegetal
  - lit. spray vegetable.RAM.
  - d. casa vegetal
  - lit. tree vegetable.RAM.
- (2)
  - a. tree branches
  - b. tree nursery
  - c. tree spray
  - d. tree house
- (3)
  - a. sähkö-voimalaitos
  - light-power plant (electric power plant)
  - b. sähkö-liesi
  - light-kitchen (electric kitchen)
  - c. sähkö-voima
  - light-energy (electric energy)
  - d. sähkö-generaattori
  - light-generator (electric generator)
  - e. sähkö-tuoli
  - light-chair (electric chair)

Other languages with productive N-N compounds include German (Becker 1992: 7-9, *Ozon-loch*, lit. ozone-layer) and Dutch (Booij 1977: 48, 70-71, 1992: 37-40, *bureau-la*, lit. office-drawer). There are also right-headed N-N compounds in Greek (Ralli 1992: 145, *elea-kalierjia*, lit. olive-growing). This pattern was also frequent in Latin, even though the structure has characteristics different from those of Germanic languages (cfr. *infra*): *agri-cola*, lit. country-grower, 'farmer'.

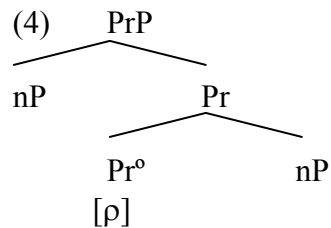
Let us remember that R-classificative in Spanish can denote a big variety of different relationships, which have to be determined contextually by means of the knowledge of the world associated with the Vocabulary Items involved. (1a) is interpreted as a part-whole relationship, 'branches that vegetables have'. In (1b) the same element is interpreted as the entity that receives the cares, 'cares for vegetables'; (1c) denotes the function of the noun, 'spray for vegetables'; (1d) probably has the meaning that the house is built with vegetables, in such a way that the vegetables are its physical constituents.

In the same way, the semantic relationship that is established between the nouns in an N-N construction is left mainly to pragmatic inference, as Levi Levi (1978: 52) noted. Discussing the pattern in (2), this author notes that (2a) also expresses a possessive relationship, translatable as 'that has'; (2b) and (2c) express both the same relationship, which can be denoted by the preposition 'for', with the meaning of 'cares for trees' and 'spray for trees', respectively; (2d) expresses a locative relationship, 'house in a tree'.

The Finnish data, taken from different dictionaries, produces the same result: a great underspecification of the semantic relationship held between the two nouns. (3a) denotes a relationship of production; (3b) denotes 'fed by'; (3c) expresses the constituents that compose the entity; (3d) is ambiguous between a generator that produces electricity and a one that uses electricity to produce something; finally, (3e) is a chair that uses electricity as an instrument to kill.

In English the structure that these formations have cannot be the same that we have proposed for relational adjectives in Spanish (cfr. chapter three, 3.1.), for the nP that acts as the argument lacks adjectival morphemes. They are, however, also argument nP's that are not licensed by a DP. We propose, therefore, that they are licensed by means of their structural position.

We propose that the structures of two nouns, N-N, in English, German and Dutch are the result of the presence of a relational head semantically underspecified that selects both nouns. The relational head is, in crucial respects, like the relational head that we have proposed for classificative appositions in Spanish, so we propose that it is also an instance of Bowers' Predicative Phrase (1993, 2000).

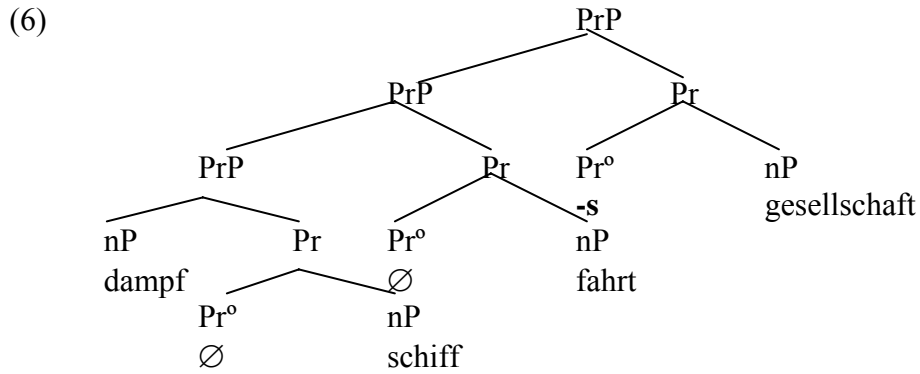


We propose that the structures in (5), even though they can be in some contexts synonymous with the structures presented in (2), are not structurally equivalent to them. None of them can be derived from the other; they are independent structures with different characteristics, for the relational head involved is also different (cfr. chapter three, 6).

- (5)
- a. branches from trees
  - b. nursery for trees
  - c. spray for trees
  - d. house in a tree

The nP that is interpreted as argument, in the specifier position, can be in turn a predicative structure with an adjective, as in *big tree branches*, or a coordinated structure, as in *love and death poetry*.

The structure can have more than two constituents. The famous German example (*Donau*)-*dampf-schiff-fahrt-s-gesellschaft* (lit. (Donau)-steam-ship-trip-LE-company, 'company of trips in steam ship (of the Donau)') presented in Becker (1992: 8) shows that the position of specifier of PrP can house a complete PrP. The same happens in Dutch (Booij 1977), with compounds such as *landbouw -machine – onderdelen -tentoonstelling - s - gebouw* (lit. agriculture - machine - parts –exhibition - building), 'building for exhibition of parts of agriculture machines'.

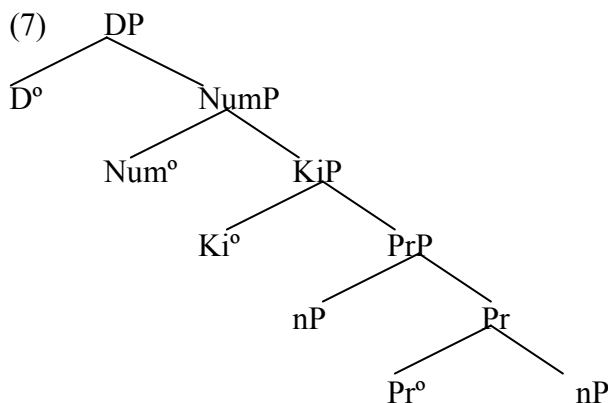


It is possible to construct an even bigger compound by adding the noun *Kapitän*, ‘captain’: *(Donau)dampfshiffsfahrtgesellschaftskapitän*. Examples such as this one show that the relationship between the two nouns is not established by means of Morphological Merger, or any other operation that applies to heads. Here, whole phrases are involved.

As can be seen in (6), we have generated the segment *-s-* in the head of the main PrP. In the works that study this type of structures in Germanic languages, it is reflected the fact that it often appears a phonological constituent called ‘linking element’ (LE, Becker 1992: 10-14, Booij 1992: 41-44) between the head and the first modifier. It is not possible to predict if a LE is going to appear, nor is it possible to determine what its form will be. The LE is sometimes homophonous with the genitive form (as in *Herzen-s-wunsch*, lit. heart-LE-desire), but this is not always the case (*Liebes-briefe*, lit. love-letter, where *Liebes* is not a form in the paradigm of *Liebe*). The same situation takes place in Dutch, where a compound like *regering-s-maatregel*, ‘government-seat’ shoes a mark that cannot be a genitive (Booij 1996b: 129). It is not clear, either, that these elements appear to play a phonological role, as the name that they receive suggests, because sometimes the sequence that results is phonologically more complex. Therefore, it would be tempting to suggest an analysis where the LE is in fact a manifestation of the PrP that heads the whole structure, whose insertion is conditioned by the particular Vocabulary Items that appear.

In this proposal, the LE would be the spell out of the head Pr°, where an idiosyncratically chosen Vocabulary Item would be inserted, depending on the noun to the left of this head. Therefore, the insertion of the LE is determined by a principle of linear adjacency independent of the hierarchy.

The structure in (4) is dominated by the functional projections that define a noun phrase, KiP, NumP and DP, with their complete set of phi features (7).

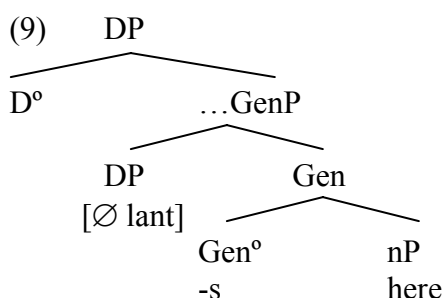


An question that is crucial at this moment is to explain the headedness of the compound. In the Germanic compounds that we have studied, unlike the Spanish N-N cases that we studied in 2.1.1. –and also in contrast with the usual word order inside the noun phrase–, the head is to the right, not to the left. We propose that the position of the head in the compound is related with the historical origin of the structure, which comes from a genitive construction.

As Booij shows in Dutch (1996b: 128), these compounds come from genitive constructions in Old Dutch that have become fossilised. In its origin, the LE was a genitive marker, but it has been reinterpreted and now it is a demotivated constituent (8).

- (8)
- |                     |                      |                     |
|---------------------|----------------------|---------------------|
| a. die coninx crone | > die coninxcrone    | > de koningskroon   |
| the king.gen crown  | > the king-gen-crown | > the king-LE-crown |
| b. die lants here   | > die lantshere      | > de landsheer      |
| the land.gen lord   | > the land-gen-lord  | > the land-LE-lord  |
| c. die siele rust   | > die sielerust      | > de zielerust      |
| the soul.gen peace  | > the soul-gen-peace | > the soul-LE-peace |

In our proposal about genitive case, we proposed that it is generated over little *n* (cfr. chapter three, 3.2.1.). Let us suppose that the original structures in Dutch must be analysed as in (9), where –s spells out the head Gen°:



Let us observe that, in accordance with this configuration, the word order of the N-N compound is the one that we expect if the tree is headed by the GenP: the argument is to the left and the head is to the right. We suggest that the fact that the speaker is not aware anymore that there is a genitive case relationship between the two nouns means that the GenP has been reinterpreted as a relational head unable to assign case –so the head is spelled out as a LE –, but it keeps the rest of its properties. In this case, we would obtain the actual order of elements.

There are some compounds in Spanish that have been considered similar to the N-N structures that we have just addressed, such as *publicesta*, ‘basket for propaganda’, *autocine*, ‘cinema for cars’, *autoescuela*, ‘driving school’, *gonzalezmanía*, ‘mania for González’, *castroestalinismo*, ‘Stanilism by Castro’, *fotorreportaje*, ‘report illustrated with photographs’, *fotomontaje*, ‘assembly of photographs’, *narcosala*, ‘room with drugs’, *narcoterrorista*, ‘terrorist that deals with drugs’, *radionovela*, ‘soap opera broadcasted by the radio’, or *rentaplán*, ‘plan of incomes’ (Rainer & Varela 1992: 126, Varela & Felíu 2003). It does not seem possible to propose the structure of Germanic languages to these formations, because it is not possible to modify or coordinate the first constituent (10):

- (10) a. \*[gran-auto]cine

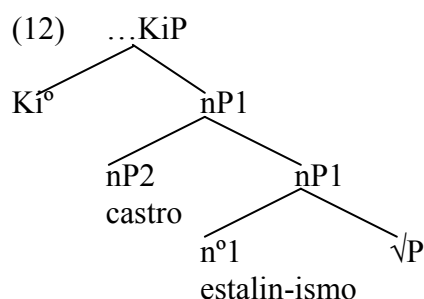
lit. big-car cinema  
 b. \*[auto y moto]cine  
 lit. car and motorcycle cinema

These structures are limited to two constituents, unlike the English, German and Dutch cases.

(11) \*/?? [[[castro]estalinismo]manía]

The same characteristics are exhibited by Latin compounds. As far as we know, constructions such as *[[agri et api] cola]*, something like ‘grower of the country and bees’, *[[magni agri] cola]*, ‘grower of a big country’ or *[[agricolae] gena]*, ‘of peasant origins’, are not attested.

These characteristics seem enough to us to preclude an analysis like the one in (4). On the contrary, these are the same characteristics that compounds with the structure A-A, studied in 4.2.1., exhibit. The structure that we want to propose for these elements is the one in (12).



It is impossible to have modifiers of the non-head, unlike in English or Dutch; this is explained by the impossibility of having phi features inside the structure. The fact that the structure is limited to two constituents can be explained by the fact that the reading of these compounds is always subordinative, and, as in the case of A-A compounds, the subordinate reading is restricted to two constituents.

Let us note that, as in the other type of compounds, the stems that are not heads in these words may have a special form, as *narco-* or *publi-*, which shows that they are formally dependent constituents.

Therefore, the structure of these formations is different from the English N-N compounds. It is necessary, still, to explain why the structure in (4) cannot be used in Spanish for this type of compounds. It is necessary to admit that we do not have an answer to this question at this moment, so it is a matter for further research.

## 1. Expected interactions.

In the previous chapters, we have argued for a theory where words are not constructed in the lexicon, but in the syntax, using the same principles that produce phrases. We have presented evidence to demonstrate that the grammatical category of a word, which is one of the crucial pieces of information that a word has, is defined in the syntax and does not belong to a pre-syntactic level, such as the lexicon in the Lexicalist paradigm. However, if words are constructed in the syntax, we expect to find some other characteristics in their behaviour. In particular, we expect that the morphological components of words interact with the syntax in crucial respects. In this last chapter we will present evidence in favour of the interaction between the internal components of a word and the syntax.

We will revisit the so-called Lexical Integrity Hypothesis (LIH) and we will argue that its predictions are not verified when we face real examples, and the actual data can be explained using only syntactic principles. We will present evidence that a word may be split in two different syntactic domains. Next, we will propose that morphological local domains are determined by the syntactic structure internal to the word.

In chapter one, when we presented the Minimalist Program (cfr. chapter one, 2.1.), we observed that an indispensable notion to it, the phase, would not be discussed until it will be crucial to the discussion. In the topics to be dealt with in this chapter, the phase will be a key concept, so the time to discuss it has come. In the next subsection we will present in detail the phase (Chomsky 2001, 2004, 2005b).

## 1.1. Definition and characteristics of Phases

In the Minimalist framework, the notion of phase (Chomsky 2001, 2004, 2005b) has been introduced, in order to restrain legitimate operations of dislocation and the establishment of formal relations to a domain strictly defined by a functional head. The concept of phase is used, then, to give account of a wide set of phenomena that was explained in the G&B framework with the combination of the Subjacency Condition and the notion of Barrier.

As we said in chapter one, in the Minimalist Program the syntactic derivation is built by recursive applications of Merge, which takes two units at each time and creates a set by putting them together. The series of Merge operations can go on endlessly. If this *were* the case, the structure may never be materialised phonologically, which is an undesired result. However, during the derivation, some chunks of structure resulting from Merge are semantically and phonologically autonomous, because they do not contain unchecked uninterpretable features and, therefore, can be materialised. Materialisation, then, takes place when a chunk of structure of this type is constructed through Merge.

There are theoretical reasons for the phase to exist in the Minimalist Program. As we said, in the MP, the Computational Space is the place where the units taken from the lexicon –interpreted as undecomposable bundles of features– are manipulated. The more elements present in this space, the bigger burden the working memory has to bear. This means that, due to Economy of Computation, if there is a piece of structure which has satisfied each one of the operations, there is no reason for it to stay in the Computational Space. This means that it must be transferred to the interpretative levels, which in the MF are the Conceptual-Intentional Interface and the Sensoro-Motor



Interface. A Phase is the piece of structure that is completely satisfied and must be transferred out of the Computational System to the Interfaces. This transfer avoids that any subsequent operation in the Computational System may refer to the constituents contained in it.

The head that dominates the structure defines a structure as a phase. This head must have the characteristics necessary to satisfy every unchecked uninterpretable feature contained in the elements which belong to the structure. Chomsky proposes the existence of two Phase-defining heads, C and v, as well as a possible additional head, D. As Eguren & Fernández Soriano note (2004: 322, footnote 108), these functional categories correspond to the cycles in the Standard Theory (Chomsky 1965) or barriers in G&B (Chomsky 1986).

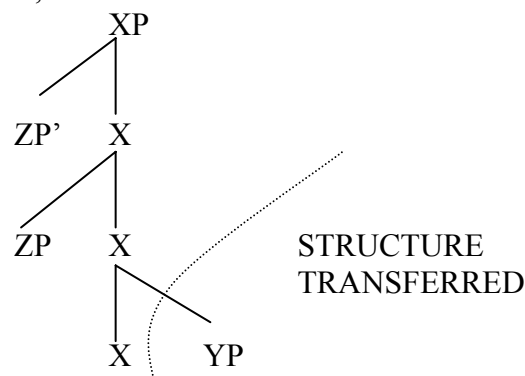
As Phases are defined by their dominating head, what is transferred to the interfaces is the domain of that head, that is, the elements contained in the set merged as complement of the head. The head is not transferred, for it may contain uninterpretable features which haven't been checked, because the element which would check them has not been merged yet into the tree. As a consequence, the specifiers of the head, which are higher up in the tree, are not transferred either. The elements in the position of specifier are in the so-called Edge position. A Phase corresponds to the schema in (1).

- (1) A Phase = <Edge, Head, Domain>

Head= X

Domain= Y

Edge= Z, Z'



One crucial property of Phases is that the elements in their domain are not accessible to further syntactic operations. This is logically derived from the fact that the domain is transferred out of the Computational System, where syntactic operations are performed. This property is called Phase Impenetrability Condition (PIC, Chomsky 2001, 2004): in any Phase, the domain of the head is inaccessible to operations that take place over the projection that heads the Phase.

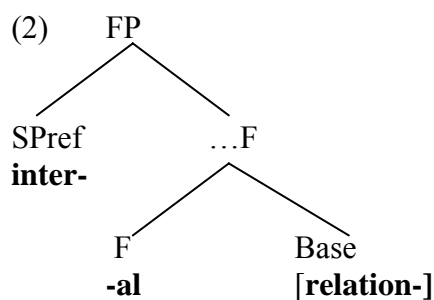
As Edges are not transferred in this theory, they are the position in which any element which is extracted from the Phase must be placed. The edge, then, performs the same function as specifiers in the G&B framework. The way in which an element occupies the edge is the following: when the head is merged, it may attract –if it has the appropriate features– some elements; if they are attracted, they will occupy the edge position. If the element is not attracted, it will stay inside the domain and won't be able to escape from the Phase.

## 1.2. Syntactic Phases and the internal word structure: predictions.

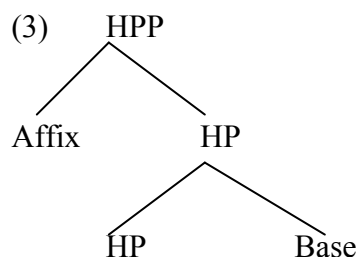
One obvious prediction in a proposal which states that words are constructed in the syntax is that the internal constituents of a word will interact with Phases. The natural expectation is that there will be some restrictions which determine the elements that can be extracted from a word and the elements which must be kept inside the part of the Phase that is transferred.

There are three logical possibilities concerning the relation established between a morpheme and the base to which it attaches.

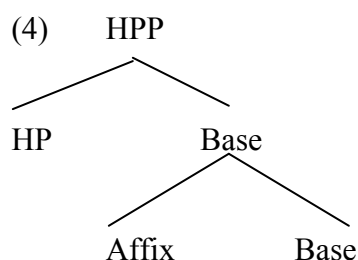
- A. The first possibility is that between a given affix and the morphological base there is no head that defines a phase (2). Later on, –cfr. section 2 in this chapter– we will study an instance of this case which involves quantifier prefixes attached to nouns and adjectives. In this situation, as the affix is not in the domain of the phase, it can be extracted from the word and, therefore, it is subject to displacement and, as a result of that movement, it escapes.



- B. The second conceivable possibility is that between the affix and the base there is a head that defines a Phase, Head Phase or HP for short (3). In this case, the affix must be transferred in a different operation than the base of the word. Therefore, this affix will not affect the base directly in relevant aspects that we will make explicit later.



- C. The last logical possibility is that there is a head able to define a Phase, but it dominates both the base and the affix (4). In this case, the affix and the base will be transferred in the same operation, leaving the HP that dominates them behind. We expect that the affix will affect the base directly.



In this section we will discuss the two last possibilities, which show by themselves that phases and words interact.

We will concentrate in the HP little *v*, which has causative meaning and therefore is able to select an external argument (Chomsky 2001). As little *v* is an HP, its domain is transferred to the interfaces, in such a way that the elements that are contained inside it will be inert for further operations. On the contrary, the elements transferred will access two lists, the Vocabulary –with the addition of phonological and idiosyncratic morphological information, with the consequence that the elements transferred may be subject to allomorphy processes- and the Encyclopaedia -where conceptual information associated to the elements transferred is added-.

Let us concentrate in the case of a prefix. If it is in the domain of little *v*, as in (4), it will abandon the syntactic derivation and, therefore, it will be inaccessible to syntactic operations. Specifically, the interpretation of the prefix will not affect the interpretation of the head little *v*, since in LF they are in different tree diagrams. If the prefix is transferred with the base, then we expect some properties to co-occur. First of all, with respect to those aspects of the meaning which depend on the syntactic structure, we expect that the prefix will only affect the base, and never little *v* itself; the reason is that the prefix has abandoned the syntactic derivation. Secondly, as the affix is transferred to the Vocabulary and the Encyclopaedia along with the base, we expect that the set formed by these two elements may have a joint entry in those lists. The result will be that the allomorphy of one of the elements may be caused by the other, and that the conceptual meaning of the two elements together may be different from the conceptual meaning of each element separately, which means that the two components may have a demotivated meaning.

On the contrary, if the prefix is merged over little *v*, as in (3), we expect the opposite phenomena to take place. In the structural semantics, the prefix will obligatorily affect little *v*, and not the base. As the prefix and the base are transferred in different Phases, their allomorphy will not be conditioned by each other, and, coherently, there would be no demotivation of meaning which takes the base and the prefix together.

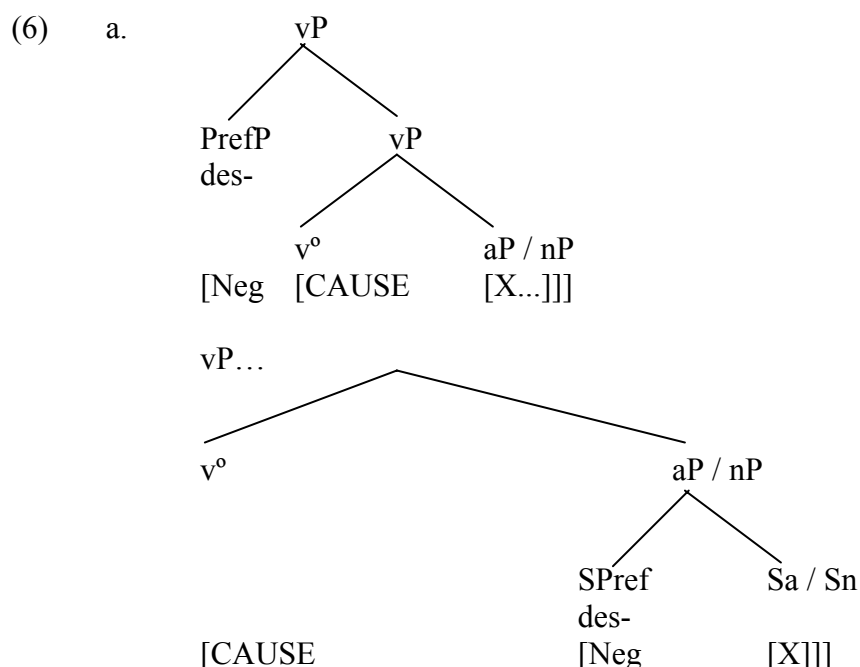
We propose that the situations in (3) and (4) may take place with the same prefixes, and sometimes, even with the same combination of prefix and base. We will start our discussion illustrating the difference in a straightforward manner taking the Spanish prefix *des-* as example. This prefix has two main meanings: one reversive, which implies to undo a previous action expressed by the base, and one privative, which implies to cause the non possession of a property or entity. Varela & Martin (1999: 5029), discussing this prefix, perspicuously observe that “Some verbs prefixed with *des-* may be ambiguous, as they present one reading as non parasynthetic reversive verbs and another as parasynthetic privative verbs, [as in *descargar*, ‘to discharge’; our example, AF] [...]. In the reversive reading, the prefix *des-* is added to a deadjectival or deverbal verb to denote the reversion of the action of the base [as in *desenamorar*, ‘to stop being in love’; our example, AF]. In the privative reading, the prefix *des-* is added, all together with a suffix, to an adjectival or nominal base in order to express the privation of what is denoted by the base noun or adjective [as in *destronar*, to dethrone; our example, AF].”

These authors propose that *des-* is a case of polysemic prefix, as the two meanings are tightly interrelated. We would like to propose that the polysemy of the prefix is determined by the syntactic structure in which the elements appear. The reversive reading is the negation of an action, while the privative reading is the negation of one of the semantic constituents inherent to an action. Therefore, the structural semantics of the

privative reading is the one in which the negation of the prefix affects the base (5a) and the structural semantics of the privative reading is the one in which the prefix denies the action (5b). We assume that in LF, the semantic translation of causative little *v* corresponds roughly to a semantic operator such as CAUSE, while *X* stands for whatever notion the base expresses.

- (5) a. Privative: [CAUSE ( [NOT [X]])]  
 b. Reversive: [NOT [CAUSE ([X])]]

The difference, then, between the two readings can be reduced to a difference in the structural semantics. What is crucial here is the structural position of the negative element; if it c-commands little *v*, it affects the meaning of cause, which is provided by little *v*, and the meaning is reversive; on the other hand, if it does not c-command little *v*, it only affects the nominal / adjectival constituent internal to the action and the meaning is privative. We propose that these two readings are a result of the two structures (3) and (4). (6a) corresponds to (3) and (6b), to (4).



The change of state inherent to causative verbs does not correspond directly to any head in the structure in (6); it is triggered by the structure itself. The relation of complementation between the noun or adjective and the verb is itself also interpreted at LF, where it constitutes a part of the structural semantics of the construction.

Interestingly, we expect that reversive verbs will not have demotivated meanings, as the prefix and the base will access the Encyclopaedia in different operations. Among those verbs with a reversive *des-* we find those in (7); none of them has a demotivated meaning. They are compositionally interpreted as the opposite action of causing something to become [a] or to have [n].

- (7) *des-abotonar*, ‘to un-button’, *des-acertar*, ‘to be wrong’, *des-acorralar*, ‘to take out of a corral’, *des-endeudar*, ‘to lose the debts that one had’, *des-agradar*, ‘to disgust’, *des-ahogar*, ‘to vent’, *des-alabar*, ‘to dispraise’, *des-arreglar*, ‘to

mess up', *des-armar*, 'to disarm', *des-articular*, 'to dismantle', *des-asear*, 'to untidy', *des-cabargar*, 'to dismount', *des-atender*, 'to neglect', *des-componer*, 'to decompose', *des-centralizar*, 'to decentralise', *des-coser*, 'to unpick', *des-embarcar*, 'to disembark', *des-calzar*, 'to take the shoes off', *des-cansar*, 'to rest', *des-centrar*, 'to de-center', *des-colar*, 'to take down', *des-comulgar* (vulgar for *excomulgar*, 'to excommunicate'), *des-conectar*, 'to disconnect', *des-confiar*, 'to be suspicious', *des-cuadernar*, 'to unbind', *des-cuidar*, 'to neglect', *des-decir*, 'to go back on something said', *des-embrollar*, 'to tide something which was muddled', *des-enamorar*, 'to stop being in love', *des-encajar*, 'to jolt', *des-endemoniar*, 'to be freed from the demons that possess someone', *des-enganchar*, 'to unhitch', *des-envolver*, 'to unwrap', *des-enzarzar*, 'to stop being involved with something', *des-gobernar*, 'to dis govern', *des-hacer*, 'to undo', *des-hinchar*, 'to deflate', *des-humanizar*, 'to dehumanise', *des-mitificar*, 'to demystify', *des-montar*, 'to dismount', *des-moralizar*, 'to demoralise', *des-ordenar*, 'to mess up', *des-peinar*, 'to mess up someone's hair'.

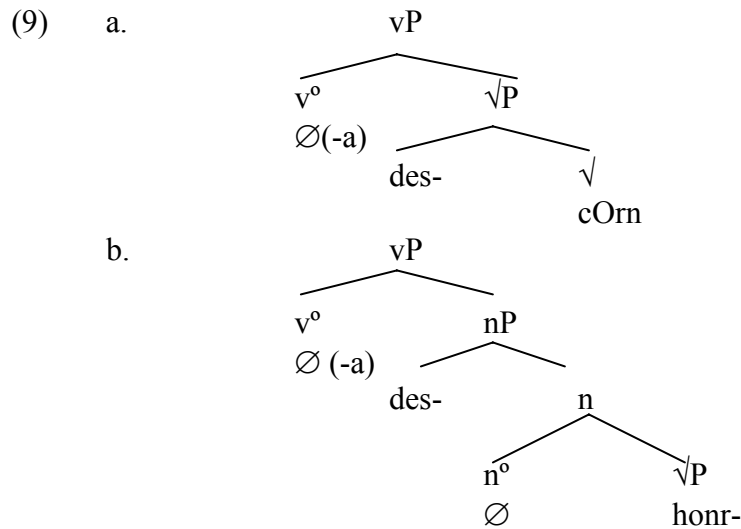
The parasynthetic verbs with a privative *des-* are exemplified in (8). We expect them to be able to have a demotivated meaning, for the prefix is transferred with the base. This prediction is borne out, as *descabritar* (to domesticate), *descalabazar* (to have a heavy fall), *descamisar* (to make more proletariat-like) and *descornar* (to do a big effort) are unrelated to the conceptual meaning of *cabrito*, 'baby-goat', *calabaza*, 'pumpkin', *camisa*, 'shirt', and *cuerno*, 'horn'.

(8) *de-capitar*, 'to behead', *de-formar*, 'to distort', *de-follar*, 'to defoliate', *de-capar*, 'to strip', *des-caderar*, 'to take off the hips of someone', *des-aceitar*, 'to take the oil out of something', *des-cabezar*, 'to behead', *des-cabitar*, lit. 'to take off the goat', 'to tame', *des-calabazar*, lit. 'to take off the pumpkin', 'to behead', *des-camisar*, lit. 'to take off the shirt', 'to become more proletariat-like', *des-cerrajar*, 'to force the lock on', *des-corchar*, 'to uncork', *des-cornar*, lit. 'to take off the horns', 'to try hard', *des-brozar*, 'to clear the bushes', *des-conchar*, 'to chip', *des-coronar*, 'to take off the crown of someone', *des-dentar*, 'to take off the teeth', *des-figurar*, 'to disfigure', *des-hollinar*, 'to sweep', *des-hojar*, 'to take off the leaves or petals', *des-honrar*, 'to dishonor', *des-lechugar*, lit. 'to take off the lettuces', 'to take off the grass', *des-maquillar*, 'to take off the make-up', *des-natar*, 'to skim', *des-orejar*, lit. 'to take off the ears', 'to cause someone to become tone-deaf', *des-pellejar*, 'to skin', *des-armar*, 'to disarm'.

Let's observe that in this case the prefix may appear as a special allomorph, *de-*, conditioned by the base with which it combines, something which does not happen in the reversive cases. It would seem, then, that phonological idiosyncrasies may appear in the same structures as semantic idiosyncrasies.

It is also worth mentioning that some of these verbs do not have a demotivated meaning, and their meaning is straightforwardly the action of losing some property or object. Although this is compatible with the theory, as we have already stated, -since it is not obligatory that elements transferred at the same time to the Encyclopaedia will have a collective entry for them-, we would like to advance at this point something which will be studied in detail in section 3. In this section we will propose and provide evidence that having a demotivated meaning is related with being merged with a root, and not with the set formed by the root and a functional projection (cfr. Arad 2003). In other words, only prefixes merged with roots, not into projections with nouns or

adjectives, can have demotivated meanings. In order to illustrate this, let's compare *descornar* with *deshonrar*, both of them privative verbs. In the second case, the meaning must be compositionally derived from the meaning of the noun *honra*, while in the first case it has a demotivated meaning. We propose that the obligatory compositionality of *deshonrar* is related to its being composed from the (existing word) *honra* (9b) while the demotivated meaning of *descornar* is justified because the parasynthetic verb is created over a root,  $\sqrt{\text{CORN}}$ - (9a). Let us observe that the sign 'O' stands for a vowel /o/, which may diphthongize when stressed; the fact that in this case it does not diphthongize is further evidence for our proposal, as will be explained later (see 3.2. *infra*).



At this point, we will go back to the difference between (3) and (4): as the difference is purely structural, we predict the existence of some ambiguous formations with two possible readings, depending on the place where the prefix is merged. This is the case of *descargar*, 'discharge', which may be reversive (the reverse of charging) or privative (to take a charge out of something); *desencadenar*, 'to unchain', reversive (to unbound) or privative (to take the chains out of something) and *desencantar*, 'to disenchant', reversive (to deceive) or privative (to take a spell out of someone, which is also demotivated, for *encanto*, 'charm', doesn't mean 'spell' in contemporary Spanish).

There have been recognised other classes of verbs derived by the prefix *des-* in the bibliography (Serrano Dolader 1999), which are neither privative nor reversive. The two relevant classes have been named ablative *des-* (10), where verbs that express separation from a place are contained, and effective *des-*, where the verb expresses the creation, out of a material, of the entity expressed in the base noun (11).

- (10) de-rrocar, 'to overthrow', des-peñar, 'to throw over a cliff', des-terror, 'to exile', des-riscar, 'to throw over a crag', des-orbitar, 'to put out of orbit', des-tronar, 'to dethrone', des-vainar, 'to put out of the leaf-sheath'...
- (11) des-pedazar, 'to cut into pieces', des-cuartizar, 'to quarter', des-pizcar, 'to harvest corn', des-hebrar, 'to take off the strings', des-gajar, 'to take off an orange's segments', des-flecar, 'to take off the fringes', des-migar, 'to crumble'...

What we propose is that these are not special instances of prefixes that haven't been identified in the previous bibliography, but they are just negative locative prefixes. In fact, the semantic interpretation of the first group of verbs is what we expect from a locative verb like *encarcelar*, with the only difference that the movement is not towards or into the base noun, but out of it, and, depending on the conceptual semantics associated to that entity, possibly 'falling out of'. Therefore, the meaning of *desorbitar* is "to be driven out of an orbit".

In the case of the verbs in (11), they are negative locatum verbs; instead of being interpreted as verbs whose meaning is to put the entity denoted by the base noun in some place, they seem to mean to take the entity expressed by the base noun out of some place; this is, *desmigrar*, lit. 'to crumble', means to take little portions of bread from a place, and so on.

Therefore, *des-* can also be a negative locative prefix, one of the counterparts of the locative prefix *en-*, which also creates parasynthetic verbs. The other negative counterpart of this locative prefix seems to be *ex-* (12).

- (12) *ex-carcelar*, 'to put out of the jail', vs. *en-carcelar*, 'to put in jail', *ex-humar*, 'to exhume', vs. *in-humar*, 'to bury', *ex-portar*, 'to export', vs. *im-portar*, 'to import', *e-migrar*, 'to emigrate', vs. *in-migrar*, 'to immigrate', *ex-culpar*, 'to exonerate', vs. *in-culpar*, 'to accuse'.

Apart from this locative value of *ex-*, this Vocabulary Item, as a prefix, also has semantic values that suggest that, like *des-*, it can also be merged over little *v* and under little *v*. Let's consider the two classes of verbs with prefix *ex-* (13):

- (13) a. *ex-foliar*, 'to exfoliate', *ex-propiar*, 'to expropriate', *e-rradicar*, 'to erradicate'...  
b. *ex-traer*, 'to extract'

The first class of verbs in (13a) expresses the privation of the property or the object denoted by the base; demotivated meanings and allomorphy are possible, as *erradicar*, 'to erradicate', witnesses, for it doesn't mean the literal 'cause not to have root', but rather 'to extinguish'. The variants without the prefix are not possible in these cases.

In contrast, the verb in (13b) means the reversive action of *traer*, 'to bring'; demotivated meanings are impossible and the verb exists as an actual word without the prefix. These are properties of prefixes merged over little *v*.

Let us consider now other examples of prefixes that give rise to the two classes which we have identified. Martín García (1998: 56-57) documents the existence of two *re-* prefixes; the first one only attaches to bases that have an aspectual meaning compatible with iteration –particular verbs– (14a). The other one has an intensifier meaning and attaches to nouns, verbs and adjectives (14b); depending on the base constituent, it may mean intensification of the action (as in *re-lamer*), reiteration of an action (*re-bote*) or gradation of the properties of the base (*re-amigo*, *re-frío*).

- (14) a. *re-conquistar*, 'to reconquer', *re-decorar*, 'to redecorate', *re-formular*, 'to reformulate', *re-escribir*, 'to rewrite', *re-adaptar*, 'to readapt', *re-construir*, 'to reconstruct'...  
b. *re-amigo*, 'best friend', *re-leche*, 'damn it!', *re-bote*, 'bounce', *re-bueno*, 'more than good', *re-meter*, 'to tuck in'...

We will propose, as in the previous case, that there is only one *re-* prefix that can be merged over and under little *v*. In the first case, being merged with little *v*, it can access the eventive meaning contained in this functional head, so it gives rise to a reading where there is repetition of the action or state; there is never demotivated meaning in this case.

In the second case, the prefix is not merged with little *v*, but with a noun or an adjective. Let us suppose that this noun or adjective merges with causative little *v*; in this case, the prefix will be under little *v*, and the verb will maintain the intensifier meaning of the prefix *re-*. In (15) there are some of the verbs that fulfil this prediction.

- (15) *reblandecer*, ‘to soften’, *refrescar*, ‘to refresh’, *renovar*, ‘to renew’, *reverdecer*, ‘to become greener’, *refinar*, ‘to refine’...

There is a further prediction, namely, that there must be some verbs with *re-* that are actually ambiguous between an iterative reading of the prefix or a reading in which *re-* is an intensifier. This is also fulfilled; let us consider (16).

- (16) *re-calentar*, ‘to overheat’ or ‘to reheat’, *re-bajar*, ‘to lower’, *re-nombrar*, ‘to rebrand’ or ‘renowned’.

*Recalentar* may mean to make something hot again or to make something unpleasantly hot; the participle *renombrado* may mean to have received a name again or to receive a *renombramiento* –a name of prestige–; *rebajar* may mean to cause something to become very low or to go down again. Let’s note that the iterative gloss can never have demotivated meaning, while the intensifier may (as in *rebajar*, which is predicated only from prizes or entities that are associated to a prize).

Martín García (1998: 207) observes that this very same thing happens with *repeinar*, which can be ‘to comb again’ or ‘to comb intensively’.

We would like to address, finally, the case of the prefix *entre-*, whose argument structure is studied by Felíu (2001, 2003). This author notes that there are reasons to propose that there is only one prefix *entre-*, which expresses abstract relationships between entities when it takes verbs as its base, but that there are two attested interpretations of this prefix (ibidem: 195). In some cases, the verb must be interpreted as expressing a relationship between the entities denoted by the element in the morphological base (17a), whereas some other verbs force an interpretation where the elements that relate to each other are external to the morphological constituents (17b).

- (17) a. *entre-comillar*, ‘to put in quotation marks’, *entre-rrenglonar*, ‘to put between lines’, *entre-linear*, ‘to put between lines’, *entre-vigar*, ‘to put between rafters’...  
 b. *entre-meter*, ‘to put something between something’, *entre-chocar*, ‘to collide’, *entre-cruzar*, ‘to intertwine’, *entre-mezclar*, ‘to intermingle’, *entre-tejer*, ‘to interweave’...

If we analyse *entre-* as an operator that takes pairs of elements, the identity of the entities that relate to each other depends on where the prefix is merged; if it is merged over little *v*, it has access to the arguments of the verb –and the meaning will be compositional–; if it is merged under little *v*, it won’t have access to the arguments, but will rather modify the element in the morphological base of the word, with the result that the elements related must be instances of the entity denoted by the base constituent.



We have still to address the first situation, that in (2), where there is no HP present in the word; in this situation, we expect that the affix may be able to escape from the word. We claim that this situation actually takes place, and it has immediate consequences for the so-called Lexical Integrity Hypothesis (LIH). Therefore, before discussing this situation, we will refer to the LIH.

## 2. The LIH in a syntactic framework.

The basic proposal of the LIH is that syntactic rules are blind to the internal components of the word. Syntax cannot have access to the affixes themselves or to the morphological structure internal to the word. One of the immediate consequences of this is that displacement rules, such as move-alpha in G&B (Chomsky 1981) or Copy in the Minimalist Program (Chomsky 1995), can apply to one of the internal constituents of a phrase, but not to word internal constituents (18a). In contrast, sentence internal constituents may be displaced (18b).

- (18) a. reconstitutionalization  $\rightarrow$  \*  $\text{ation}_i\text{-reconstitutionaliz-}t_i$   
 b. Peter took care to fix the car  $\rightarrow$  What<sub>i</sub> did Peter take care to fix  $t_i$ ?

The difference illustrated by (18) has been taken as one of the strongest arguments for analysing words and sentences as different structures, *since* this difference can be due to the fact that syntactic rules cannot apply on some levels, such as the word level.

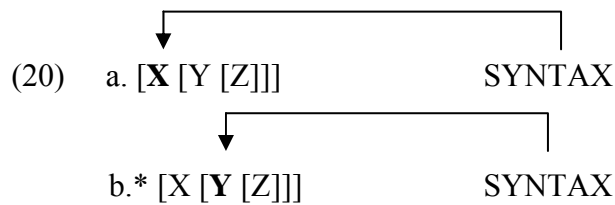
In a Lexicalist framework, these data fit perfectly in the architecture of the grammar. Words are defined as atomic structures that cannot be considered sentence-like constructs, although they share some properties with sentences and phrases, such as hierarchical disposition of constituents, binary branching, or thematic-role assignment. Data such as (18) show, according to Lexicalist Morphology, that syntactic operations are blind to their word internal constituents. A syntactic operation can be applied to a complete word, but cannot be applied just to a part of it.

There are other phenomena that have been interpreted as showing that syntax cannot access the internal components of words. We referred to them in chapter four, when we discussed the differences between phrases and compounds (sections 3 and 4). For convenience, let's remember here that coordination is another syntactic process which is claimed to be absent inside words: the components of phrases can be coordinated (19a), but the internal components of words cannot (19b).

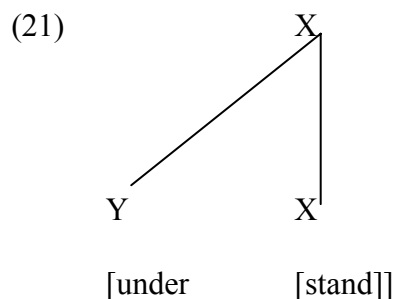
- (19) a. Pedro limpia [ventanas y botas].  
 Pedro cleans [windows and boots]  
 b. \*Pedro es limpia[ventanas y botas]  
 Pedro is [window and boot] polisher

This is the data, and the intuitions of the speaker about it are very strong. In the lexicalist tradition, there have been proposed two specific principles to explain the inaccessibility of syntactic operations to the internal structure of words.

The first principle proposed to give account of this restriction on the domain of syntactic rules was presented by Siegel (1974) and, later on, adopted by Selkirk (1982), and is known as the Adjacency Condition (AdC). What the AdC states is that the only information available is the information contained in the last affix added to a word. Therefore, syntax is able to read only the information contained in the outer shell of the word (20a), and if this information triggers a syntactic operation, it would apply to the whole word. Reading information in the inner shells of the word is banned (20b).

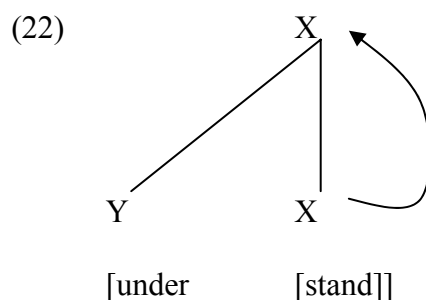


There is an alternative to the AdC in the literature. Williams (1981: 253-255) revises this principle and notes that, although it gives the correct result in most cases, there are some critical examples where it fails to predict the data. An example of this situation is found in the verb *under-stand*. Its past form is the irregular *under-stood*, in the same way that the past form of the verb *stand* is *stood*. The problem here is that the information that the verb has an irregular form of the past tense is contained in the verbal base *stand*, which is in an inner shell in the formation of the word (21).



Following the AdC, the past of *understand* should be *\*understanded*, since the information of its irregularity, being in an inner shell of the structure, should not be read by the syntax. Williams notes that, in order to account for data such as (21), it is crucial to revise the AdC taking into account the notion of head.

Williams proposes that the only information available for a syntactic rule must be in the last head added to the word, not in the last affix. If an affix is not a head, as it is the case with prefixes, it does not block access to more internal constituents of the word. This principle is known as the Atom Condition (AC): “A restriction on the attachment of  $af_x$  to Y can only refer to features realized on Y”. An example such as (21) would be explained, then, because *under-* is not a head; thus, independently of which shell it occupies in the word, it will not block access of syntactic rules to the last head of the word. To explain how the information in a head of an inner shell can be transferred to upper nodes of the word, so as to allow syntax to access it, Williams proposes the notion of percolation (22).



The AC, then, gives account of the data. However, let us observe that both the AdC and the AC are sustained on an assumption, namely, that a word and a sentence act in a different way regarding operations such as displacement. In the next section, in contrast, we will provide strong evidence that displacements are possible inside words, with the consequence that the predictions of the LIH are not fulfilled.

## 2.1. Against the LIH.

In chapter one, section 1.2.2., we observed that there is a variety of phenomena that seem to contradict the LIH. In this section, we will discuss one of these phenomena and we will argue that, indeed, it means a counterargument to the LIH. We will show that elements that belong to a word may be visible to syntactic operations. Some elements from the internal structure of words can be syntactically manipulated, something that the LIH prohibits. Therefore, we take the phenomena that we are going to present as evidence of the inadequacy of a grammar that states the existence of a principle such as the LIH<sup>100</sup>.

Let us remember, as we did in chapter one, that it is not the case that every constituent of every sentence can be displaced, elided, coordinated or modified. Productivity, which is one of the characteristics of syntax, does not imply mean unrestrictedness. Constituents must meet strong requisites to be subject to syntactic operations; in the Minimalist Framework, as it is presented until Chomsky (2005b), there are no free operations; every operation must be motivated. For example, to let something migrate from its base position it must be met a strict structural requisite: there must be an empty position available to act as a landing site. If this requisite is not met, we have an ‘island’ (Chomsky 1986) from which nothing can be extracted. Typical Islands are relative sentences, interrogatives and adverbial sentences, since they don’t have a specifier position available (23).

- (23) \*¿[qué niño]<sub>j</sub> no sabes quién<sub>i</sub> *t<sub>i</sub>* vio *t<sub>j</sub>*?  
 lit. which child not know.2sg. who saw?  
 \*Which child you don’t know who saw?

The fact that displacement is not unrestricted in the syntax is widely attested. In contrast, the fact that some things can be extracted from inside a word is more controversial and needs careful discussion. Pesetsky (1985) argued that some prefixes may rise in LF, at least in the case of certain bracketing paradoxes that have to do with the English comparative form of some adjectives. We will use different data. Let us consider the noun phrases in (24).

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<sup>100</sup> The LIH has also been questioned from inside the Lexicalist Paradigm for different reasons. DiSciullo & Williams (1987: 46) claim that the LIH simply has no reason of existence, because syntax and morphology are simply two different disciplines with different units: “We regard the need for the lexicalist hypothesis (especially the lexical integrity hypothesis) as arising from a fundamentally mistaken idea of what a grammar is. The hypothesis is true in that morphology and syntax are separate in the way that it says they are, but ideally it should “go without saying”, just as the principle that separates history from forestry goes without saying. Morphology and syntax are different (though similar) sciences about different objects, so the idea that the derivations in one could get mixed up with those of the other should not arise in the first place”. In this dissertation, we hope to provide evidence that words and phrases are constructed by essentially the same principles and that there are no differences between them with respect to their structural requisites. Anyway, even if they were just similar sciences, as these authors admit, the question whether they are different disciplines does not ‘go without saying’. Let us consider, for example, the relation between chemistry and physics.

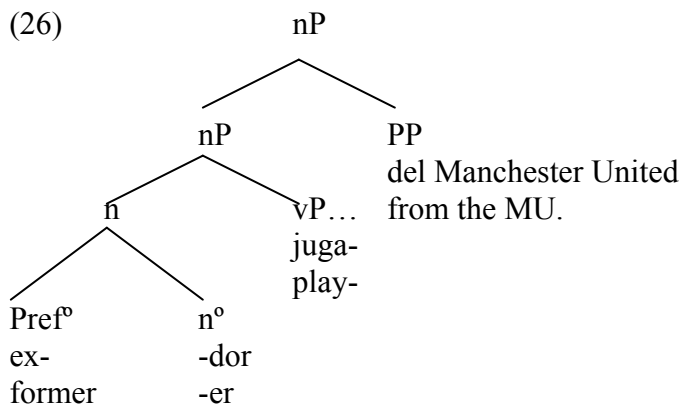
- (24) a. el ex-jugador del Manchester United  
lit. the former-player of.the MU  
the former player of the Manchester United.  
b. una situacion de postguerra nuclear  
lit. a post-war nuclear *situation*  
a situation of nuclear post-war

Similar data are discussed in Rainer (1993b: 119). Interestingly, the semantic interpretation of the prefix *ex-*, ‘former’, in (24a), is one that we would not expect if we consider the position the prefix occupies in the tree. As an element of the internal structure of the word *jugador*, we expect that its scope would be the root, *jug-*, ‘play’, and the suffix *-dor*, which conveys the concept of [Agent], triggering the meaning “a former player”. However, the interpretation of (24a) is not ‘someone who played in Manchester United and does not play anymore’, but ‘someone who played in Manchester United and does not play anymore in Manchester United’. This means that a former player of the MU can still be a player provided that he or she plays in another team. In other words, the scope of *ex* includes the PP ‘del Manchester United’, so the prefix has scope over the entire phrase.

It can be shown that *jugador del Manchester United* is not a compound, that is, this is not a single word, but a complete phrase. For example, in this structure we can coordinate two constituents (25a), we can put some structural material between the N and the PP (25b) and the head can be elided (25c).

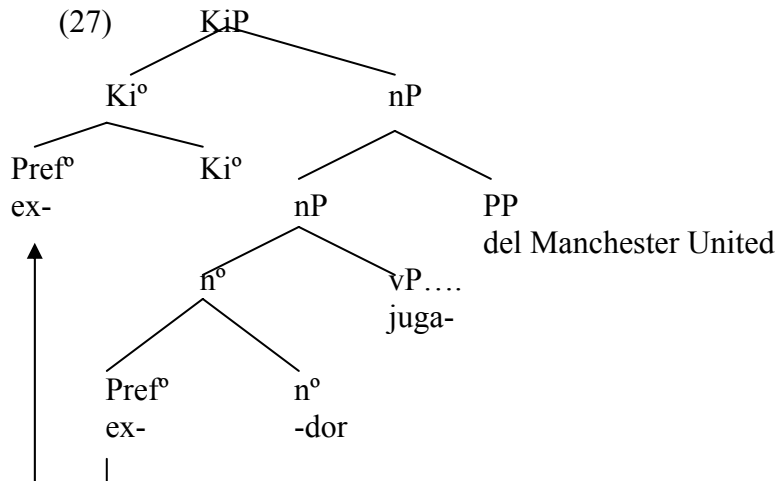
- (25) a. el ex jugador [del Manchester United y del Barça].  
Lit. “the former player from the MU and the B”.  
b. el ex jugador – hasta que dimitió – del MU.  
Lit. “the former player – till he resigned – of the MU”  
c. el ex jugador<sub>i</sub> del Manchester United y el *e<sub>i</sub>* del Barça.  
Lit. “the former player of the MU and the one of the B.”

If the structure formed by the PP and the noun is a phrase, and the prefix has control both over the PP and the noun, this means that the prefix has also control over a phrase. We analyse the prefix as an internal one (DiSciullo 1997b: 61 and folls., cfr. chapter one, 2.1.), and, this, as an adjunct to the head little *n°*; we will provide evidence for this in the following pages.



In this structure, the prefix does not have scope over the complete phrase. However, in our representation, it is a syntactic entity, and therefore we expect that it may suffer

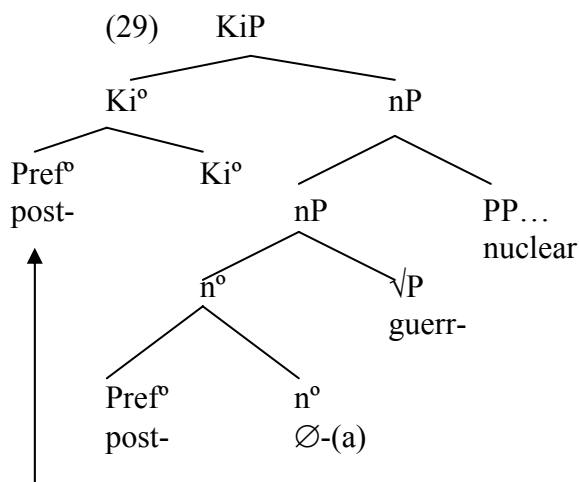
displacement. We propose that this is what happens, and *ex* rises to take scope over the whole nP, as an instance of movement without phonological output (27). We propose that the prefix adjoins to the head  $Ki^{\circ}$ . We assume that a constituent has semantic incidence on the constituents that it c-commands. Let us note that, following Kayne's (1994: 16) definition of c-command, and his differentiation between category and segment, the prefix adjoined to  $Ki^{\circ}$  c-commands this head.



A similar pattern of data takes place with the phrase *postguerra nuclear*, which, as we show in (28), it isn't a compound either.

- (28) a. una guerra [nuclear y bacteriológica].  
lit. a nuclear and bacteriological war.  
b. una guerra nuclear y otra bacteriológica.  
lit. a nuclear war and another one bacteriological

In a parallel way to the behaviour of *ex*, the meaning of *postguerra nuclear* is roughly 'a time after a nuclear war', not 'a nuclear time after a war'. Once again, the prefix *post-* must c-command the phrase, and not the word, for its scope includes the classificative relational adjective 'nuclear', adjoined as a PP to nP (cfr. chapter three, section 3.3.). Other cases exhibit the same behaviour even with prenominal adjectives: *segunda postguerra mundial* (Rainer 1993b: 119), lit. 'second world post-war', denotes a time after the second world war, not the second moment after the world war. The analysis, omitting irrelevant details, is as follows (29):



One first counterargument to the analysis just presented would be that there is no reason to merge the prefixes *into* the word, that is, to propose that the prefix is added to the whole phrase –which is Rainer’s (1993b: 119) analysis, who claims that *ex-* and *post-* are added to conventionalised phrases-. Even if this were correct, we would like to observe that the main theoretical consequence of our analysis would be maintained, because we would still have (at least) some prefixes –this is, morphological units– that must be constructed in a syntactic way. Let us observe that, even if the phrases that combine with these prefixes are conventionalised, as Rainer proposes, they behave like syntactic objects and not like lexical units –as (25) and (28) witness-.

However, there is evidence that *ex-* and *post-* must be merged into the word. The point is that there are strong semantic restrictions between the prefix and the noun base, which have been already pointed out in the morphological literature (cfr. Rainer 1993a: 333-334). The prefix *ex* selects a very specific semantic type of noun: *grosso modo*, *ex-* can only modify nouns that express properties that the referent can acquire or lose as a result of an externally caused change of state. When combined with a noun that doesn’t express this notion, because the noun does not denote a property that can be lost, such as being a man, or because it denotes a property that is lost internally, such as being young, either a pragmatically marked reading is triggered or the sequence becomes ungrammatical (30).

- (30) a. *ex-jugador, ex-presidente, ex-marido, ex-alcalde, ex-soldado...*  
*former player, former president, former husband, former mayor, former soldier...*  
 b. *# / \* ex-hijo, ex-alemán, ex-hombre, ex-morena, ex-joven...*  
*former son, former German, former man, former brunette, former youngster...*

As for *post-*, it can only combine with nouns qualified to express temporal notions; it is widely productive, thus, with event nominals (31), morphologically derived or not.

- (31) a. *post-guerra, post-parto, post-coito...*  
*post-war, post-birth, post-coitus...*  
 b. *\* / # post-mesa, post-niño, post-flauta...*  
*post-table, post-child, post-flute...*

This semantic selection affects only the type of noun, irrespective of its modifiers, so it can be explained if the prefix is merged into the structure formed by the root and the head noun, and not only into the nP. If the prefix performs semantic selection over this structure, this must mean that the prefix is tightly associated to these two elements. This is captured if the prefix is an adjunct to the head little *n*. Besides, the fact that the prefix is sensitive to the event structure of the noun is one of the characteristics that identify internal prefixes (Di Sciullo 1997: 56).

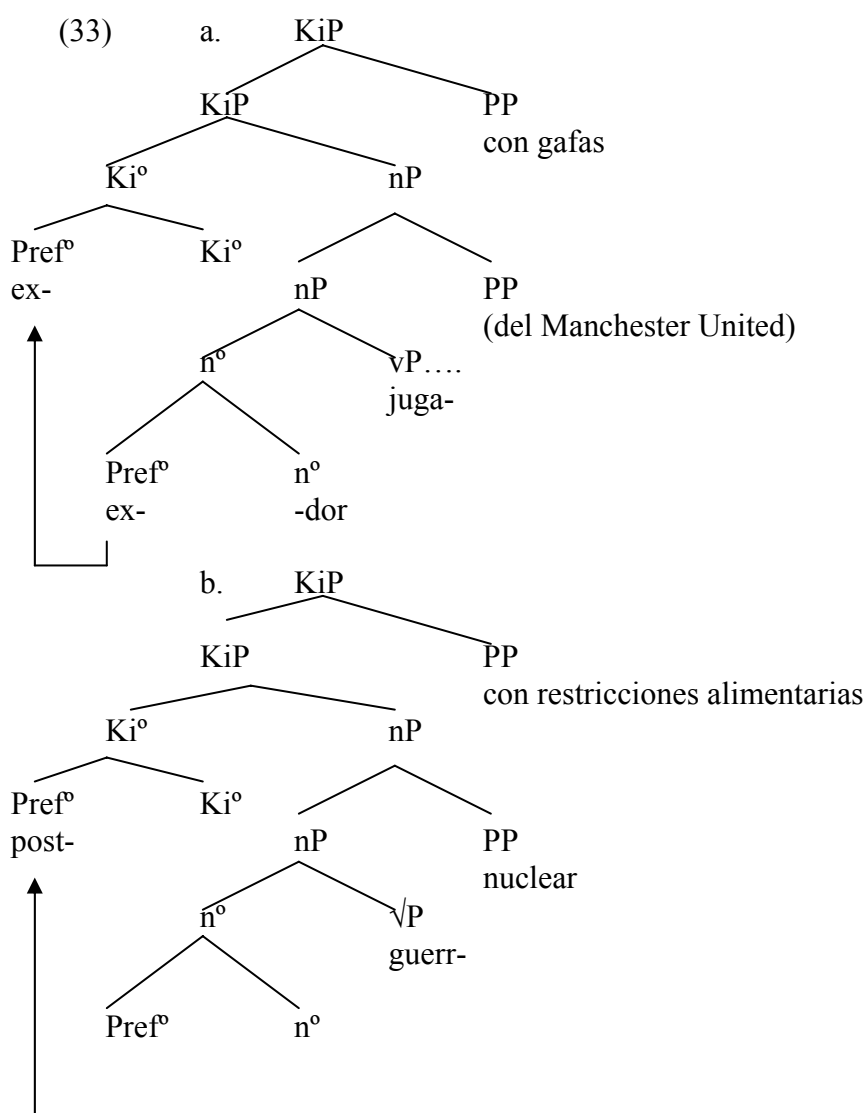
However, Rainer’s (1993b: 119) observation that the prefix only has scope over the whole phrase when the meaning of this phrase is conventionalised, that is, when it denotes a standardised notion, is correct and we would like to take it into account in our analysis. The prefixes *ex* and *post* do not have scope over the phrase in (32).

- (32) a. *el ex jugador con gafas*

- lit. the former player with glasses
- b. post-guerra con restricciones alimenticias
- lit. post-war with food scarcity

The intuition that is behind Rainer's proposal is –we believe– that the prefix can have scope over the phrase only when the modifiers of the head denote concepts that can be interpreted as defining properties of the entity expressed by the noun. The properties expressed by modifiers such as *nuclear* or *mundial* can be reinterpreted as properties that characterise a war; similarly, the property of playing in a certain soccer team can be interpreted as an inherent characteristic of a player. However, it is not possible to reinterpret the property of wearing glasses as a property that defines a soccer player, or that of having food scarcity as one that defines a type of war. It seems, rather, that these modifiers, *con gafas* and *con restricciones alimenticias*, characterise the entity in an external way, and are used only to determine the kind to which the referent belongs.

We think that this intuition can be accounted for in our framework if we propose that the first type of modifiers, that denote new properties which are added to those expressed by little *n*, are adjoined to *nP*. In contrast, the second type of modifiers, which denote properties of the kind to which the noun belongs, are adjoined to *KiP*. When the prefix rises, it c-commands the elements adjoined to *nP*, but not those adjoined to *KiP* (33), which explains the difference noted by Rainer.



post-            Ø-(a)  
 └─┘

Evidence that the crucial difference between these modifiers is their structural position, and not only semantic standardisation, is the fact that these prefixes can take scope over relative clauses that do not denote any entity that can be considered conventionalised in any habitual interpretation of this concept.:

- (34)    ¿Cómo vamos a ser post-algo que no se ha hecho?  
           *How are we going to be post-something that has not been done?*  
           [in *Comunicación* (Costa Rica), 03-01-2002]

The relevant question at this moment is what triggers the movement of the prefix to  $Ki^0$ . Our proposal is that the prefix must be in that position because it contains an uninterpretable gender feature and, therefore, it has to combine with a feature that contains this feature in the interpretable version, that is,  $Ki^0$ . In its base position as adjunct to little *n*, it is too far from the feature [Gen] contained in  $Ki^0$  and does not have access to it. Therefore, we propose that the prefixes *ex-*, *post-*, etc., contain a [uGen] feature in their matrix of features.

- (35)    Matrix of features of *ex-*, *post-*...  
           [...uGen...]

This proposal is risky, so it has to be tested with data. As is well known, affixes cannot materialise themselves as independent words. However, our proposal predicts that, if these prefixes contain [uGen], they will have to combine always with  $KiP$ , and, therefore, they will have gender and will be able to denote kinds. In consequence, we expect that they will be able to constitute independent nouns, or, at least, to constitute independent nouns in combination with another affix, without any base. This prediction is verified in a number of cases (36).

- (36)    a. el / la ex  
           lit. the.masc / the.fem. former, ‘the ex-boyfriend, the ex-girlfriend’  
           b. los pros (cfr. pro-defensores del aborto, ‘pro-someone in favour of abortion)  
           the pro.pl., ‘the circumstances in favour of something’  
           c. el súper (cfr. super-hombre de estado, ‘super-man of the State’)  
           the super, ‘the supermarket’  
           d. la post [=la postmodernidad, ‘the postmodernity’]<sup>101</sup>, el post-ismo, ‘the post-ism’ [Surrealist Spanish movement from the forties]

<sup>101</sup> Some of the cases presented can be analysed also as instances of clipping that only preserve the left edge of the word; in fact, in some cases it is not easy to decide between both analysis. Among the critical cases that let us decide between the two analyses we find this one. Clipping is a phonological process, so its output can be phonologically characterised. In particular, in Spanish, clippings are perfect syllabic trochees, but *post* or *ex* cannot be analysed as such. Secondly, in the other cases, a clipping analysis is not able to explain why the part preserved is identical to the prefix. Finally, a clipping analysis does not account for the fact that some elements in the left edge of the word, which can be analysed as trochees, are ungrammatical as nouns, as for example \**el proto*, ‘the proto’, (from *proto-hombre*, ‘proto-man’). A clipping analysis, unlike our proposal, predicts that these cases should be grammatical.



- e. el / la ultra, ‘extremely right-winged person’, (cfr. ultra-derechista de Falange, ‘ultra-right-winged from Falange), el ultra-ísmo, ‘the ultra-ism’ [Avant-Garde Spanish movement]  
 f. un mini, ‘a.masc. mini’, ‘a type of car’; una mini, ‘a.fem mini’, ‘a mini-skirt’

Later in this section we will provide a list of those prefixes that have scope over the phrase. As we will see, not all of them can become nouns by themselves, but, as is well known, in morphology it is not the case that every possible word is generated; it is necessary, also, that a concept that can be expressed by that word exists.

Moreover, we would like to claim that the conditions in which a prefix can be extracted from a word are syntactically conditioned. Let’s consider the complex pattern of facts in (37), taken from Feliu & Fabregas (2003)<sup>102</sup>.

- (37) a. inter-comunicación departamental.  
           *departamental inter-communication*  
           ‘communication between departments’  
           ‘communication between entities considered from a departmental point of view’  
       b. comunicación inter-departamental.  
           *inter-departamental communication*  
           communication between departments  
           \*‘communication between entities considered from a departmental point of view’

There is a reading that both (37a) and (37b) share: there exists a reciprocal communication between departments. In a sense, this is puzzling, since in one of the cases the prefix is adjuncted to the deverbal noun and in the other one it is adjuncted to the relational adjective, but in both cases the prefix can be interpreted as if it was adjuncted to the deverbal noun. The implication of this is that the scope of the prefix includes the arguments of the noun. This is explained if the prefix *inter-*, which is semantically a dyadic reciprocal operator (Feliu 2001, 2003), must have semantic control over the verb that acts as morphological base of the noun ‘comunicación’, irrespectively of where it is merged at first.

This operation of displacement is motivated by semantic reasons. The prefix *inter-* is an operator that binds a pair of elements, because it is reciprocal and reciprocity needs sets of more than one element. A noun or a relational adjective cannot provide it with two arguments, since they are non-relational entities. Only a causative verb can supply two arguments –in this case an agent and a goal– for the prefix to take them under its scope. One argument will be housed in little *v*’s edge position and the other will be the internal argument of V (the root). *Inter-*’s semantic structure is represented in (38), taken from Feliu & Fábregas (2003).

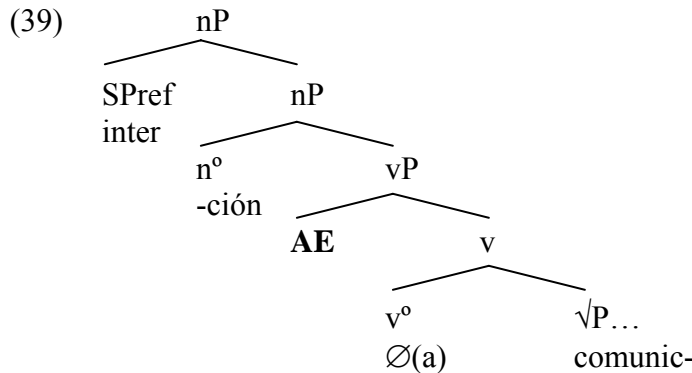
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<sup>102</sup> In Feliu & Fábregas (2003) the approach to the phenomenon under discussion in this dissertation was semantic, based on Jackendoff’s notion of Lexical-Conceptual Structure. In that article, my co-author and I argued that the data presented a piece of evidence that syntax is absent from word-internal phenomena. Later on, when I considered other related data, I realised that syntactic structure is able to explain in a principled way the phenomena discussed and to relate them to well-attested properties of displacement. The exposition of the data is similar, but not identical, to Feliu & Fábregas (2003), but the explanation provided in this dissertation is entirely my own.

(38)

$$\left[ REC \left( \begin{matrix} \text{thing} [ ]^{\alpha} & \text{thing} [ ]^{\beta} \end{matrix} \right) \right]$$

This forces the prefix to move to satisfy its semantic interpretation. We will assume that a deverbal noun with eventive interpretation contains a verbal projection (van Hout & Roeper 1998); the projection of little *v* offers the semantic elements necessary to give an interpretation where two arguments are contained. We propose to analyse this prefix differently from *ex-* or *post-*, because it is not adjoined to the head, but to the complete phrase. There are reasons to propose this different analysis. *Inter-* is a prefix that does not change the argument structure of the verb; on the contrary, it selects verbs that already have a certain argument structure, namely two arguments, and impose on them a particular semantic reading, in this case, reciprocity, which is an adverbial notion. Therefore, it seems plausible to propose that *inter-* is adjoined to a structure that has a complete argument structure. The argument structure is not defined in the head, but in the phrase. The fact that a prefix does not change the argument structure of the verb, but adds adverb-like semantic notions to the structure, is one of the characteristics that DiSciullo (1997b: 55) uses to identify external prefixes, which are adjoined outside the maximal projection. Taking this into account, the structure of *inter-comunicación*, ‘inter-communication’, is shown in (39), where EA stands for the External Argument (39).



When the deverbal noun is modified by a relational adjective, *inter-* may appear in this position, as in (37b), *comunicación interdepartamental*.

However, before making explicit the structure, we would like to observe that, interestingly, *intercomunicación departamental* allows two readings: one in which the relational adjective is a Thematic-R, which satisfies the roles of agent and goal (‘communication between department’s); and another reading in which the relational adjective is a Classificative-R (‘communication between two things considered from a departamental point of view’), where the arguments of the deverbal noun can be satisfied by another constituent. The difference between the two readings can be shown, therefore, adding an argument manifested as a DP with a preposition (40): the Classificative-R reading allows it (40a), but not the Thematic-R (40b).

- (40) a. *intercomunicación departamental* (entre Luis y Juan)  
intercommunication departmental (between Luis and Juan)  
*departmental communication* (between Luis and Juan)

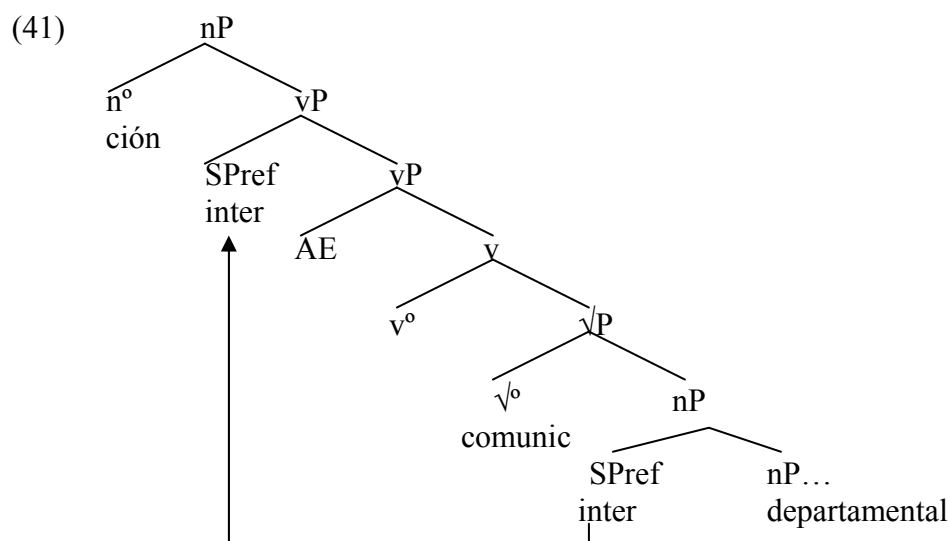
‘intercommunication between Luis and Juan which takes place from the perspective of their respective departments (while they don’t get on well personally)

b. intercomunicación departamental (\*entre Luis y Juan)

*intercommunication between departments*

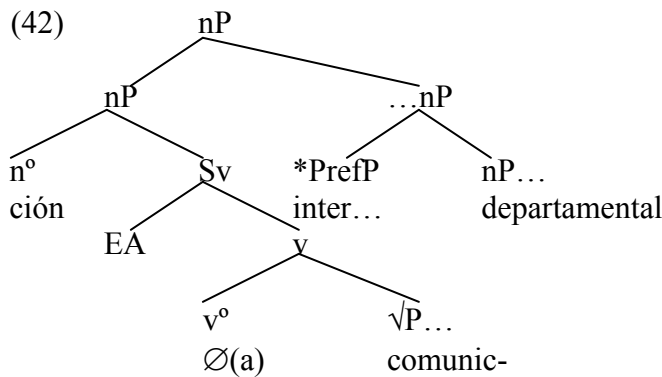
In a contrast which we consider as crucial, *comunicación interdepartamental* bans the Classificative-R reading. There is an explanation for this phenomenon in a syntactic model.

Remember that *inter-*’s scope must include the verb in order to satisfy its semantic requisites. If this prefix appears in the relational adjective, it must be displaced and merged into the verb phrase. Now, if thematic relational adjectives are selected by the root, as we proposed, following the Condition on Extraction Domains (CED), generally assumed since the Government and Binding framework (Huang 1982), this displacement will be licensed, because the category from which the element is extracted is selected by a lexical category that assigns a theta-role to it –in technical terms, the category is gamma-marked-. No condition on the licensing of empty categories, such as the Empty Category Principle (ECP, Chomsky 1986: 17) is violated.



The derivation in (41) is grammatical for the same reasons that an extraction from inside a complete sentences, as in *where<sub>i</sub> do you say [that you saw Mary t<sub>i</sub>]?*, is possible in English or Spanish.

Classificative-R are adjuncts, not arguments (cfr. chapter three, 3.4.); this means that if *inter-* is present inside them, this prefix wouldn’t be extracted, since that would be a violation of the principle that bans extractions from inside adjuncts, for adjuncts are not gamma-marked and, therefore, cannot license the trace that they contain, which means that they infrict the ECP. That is, to extract something from this adjoined relational adjective is as ungrammatical as the sentence *\*where<sub>i</sub> does Mary speak English [before studying the language t<sub>i</sub>]?* If *inter-* is not extracted, it doesn’t c-command the verb and its semantic requisites aren’t met. Therefore, the structure will be ungrammatical because the element cannot be extracted and, therefore, the prefix cannot be adjoined to the vP (42).



The case of *inter-* prefixation shows that the prefix may have to escape from the word and, moreover, that this displacement is restricted by the same requisites that determine the movement of syntactic elements. This means that one of the conclusions of Felíu & Fábregas (2003) was inaccurate: the case of *inter-* prefixation does not show that morphology is prior to syntax, but actually the opposite.

Of course, there are some prefixes that stay in their base position and do not exhibit the behaviour discussed in this section, so it is relevant at this moment to determine the characteristics that make this type of prefixes special. We propose that these elements have the special characteristic that they have a semantic interpretation similar to quantifiers. Such prefixes as *en-* and *a-*, in *en-carcelar* (to put in jail) or *a-grandar* (to make bigger) do not move out of the word, for instance. The prefixes that manifest this particular instance of displacement can be grouped in the following way:

- A. Quantifiers and intensifiers: *super-* (super-[cantante de ópera], ‘super opera singer’), *hiper-* (hiper-[defensor de los derechos humanos], ‘hyper- human rights fighter’), *mini* (mini-[pista de esquí], ‘mini- sky surface’)...
- B. Negative prefixes: *des-* (des[organización laboral], ‘laboral desorganisation’), *in-* (in-[comunicación sentimental], ‘sentimental lack of communication’), *anti-* (anti-[organizaciones abortistas],<sup>103</sup> ‘anti- abortionist organisations’)...
- C. Modalisers: *pseudo-* (pseudo-[comentario de texto], ‘pseudo- text commentary’), *ultra-* (ultra-[activista político], ‘ultra- political activist’).
- D. Temporal prefixes: *pre-*, *post-*, *ex-*... Examples of this class have already been provided in the preceding sections.

Those semantic groups are familiar in the literature because the units that belong to them usually manifest scope phenomena, which imply covert movement (Haegeman 1995, Kamp 1976, Lewis 1986, May 1985). Quantifiers such as *super-* or *mini-* can be paired with *mucho*, ‘many’, or *poco*, ‘few’; negative elements, such as *nada*, ‘nothing’, *no*, ‘not’, or *ninguno*, ‘none’, typically manifest covert movement, in the same way that modalisers such as *posiblemente*, ‘possibly’, probable, ‘probable’, and *presunto*, ‘presumed’, are typical examples of this type of behaviour. Finally, temporal elements such as *nunca*, ‘never’, *siempre*, ‘always’, and *a veces*, ‘sometimes’, also behave in this same way.

Ultimately, these elements are, all of them, quantifiers in a sense or the other, be it over possible worlds or over temporal intervals. Therefore, it is expected that, when they manifest themselves as morphemes, they show the same kind of behaviour.

<sup>103</sup> As for *pro-*, it can be grouped with *anti-* provided that the group were defined as assertive prefixes (negative and affirmative) instead of negative prefixes (see Laka 1990).

### 3. Morphological Local Domains.

Another relevant property of internal word structure is the existence of what we will call Morphological Local Domains (MLD), which will be discussed in detail in this section. We will propose that these domains are determined by the syntactic structure through clear principles which have become familiar in the course of this dissertation.

MLD's are chunks of structure which behave like closed domains where some operations are performed and information is computed without reference to operations or information outside of the MLD. This is the case, as we will see, of demotivated meanings and phonological operations which are not general, but apply only to specific lexical pieces in some contexts.

Some of the properties of MLD's are determined by the structure of grammar itself. Let's remember that morphology, in the DM framework, is a postsyntactic level which manipulates syntactic components once they have been transferred from the Computational System. This implies that elements contained in the same MLD will access the Vocabulary and the Encyclopaedia at the same time, with the possibility that the information of one constituent may affect the information of the other in those levels.

Morphology is an interface level that transforms syntactic terminals into positions of exponence where Vocabulary Items can be inserted, and those Vocabulary Items are connected with conceptual information contained in the Encyclopaedia. Elements belonging to the same MLD will access Vocabulary insertion in the same operation. From this it follows that a Vocabulary Item (VI) will be able to determine a phonological idiosyncrasy of another VI contained in its same morphological phase, but it will be unable to condition a phonological irregularity of an element that belongs to a different MLD. That is, the different types of Readjustment Rules (Chomsky & Halle 1968, Scalise 1984: 57-61) can only take place inside a MLD. In the same sense, we predict that regular phonological operations, such as stress assignment, will be performed using only the information contained in each MLD in the absence of information that is outside that domain.

As long as the encyclopaedic entries are concerned, we expect a similar behaviour. We expect that elements contained in the same MLD will be able to have conceptual entries for them as a group, in such a way that *their* meaning is not equal to the meaning of each one taken separately; or, in other words, we expect those groups of elements to develop demotivated meanings. Constituents that belong to different MLD's will not have conceptual entries for them as a group, so we expect that in those cases we will have compositional meaning, which will be constructed taking the meaning of each element separately.

The next relevant question is what defines a chunk of morphological structure as a MLD. In its discussion about the necessity of Phases in the Syntax, Chomsky (2004: 106-107) proposes that they are determined by economy conditions. As keeping a structure in the computational system implies a bigger load for memory, when a structure is formally complete, it is transferred to the interfaces. In the case of syntax, to be complete means to have satisfied uninterpretable features. In the case of Morphology, the problems seem to be different. The relevant requisite in this level of the grammar is that a certain element will have to access both Vocabulary and Encyclopaedia. In order to do this, it needs to have complete information regarding, at least, grammatical category, since this piece of information is crucial to determine the context of insertion of VI's. Once VI's have been inserted, they can access the Encyclopaedia to determine the conceptual information associated to them.

Let us note that, as we have discussed in the previous chapters, roots lack that type of information, which is provided during the syntactic derivation by functional projections. Therefore, roots, by themselves, cannot be assigned a VI with conceptual semantics; the case of Semitic word formation is very illustrative in this respect. A root by itself expresses a general semantic domain, which means that, by itself, it does not denote any particular concept. For this element to denote a particular concept, it must be assigned to a template, which is the phonological materialisation of a functional projection (cfr. Arad 2003 for the case of Hebrew). Let us consider the following example in Arab (43).

- (43)  $\sqrt{\text{KTB}} \rightarrow$  kataba, ‘to write’, kattaba, ‘to form a platoon’, ka:taba, ‘to send a letter’, aktaba, ‘to dictate’, ankataba, ‘to be a client of’, aktataba, ‘to be inscribed in something’...

Therefore, it seems necessary a functional projection for a morphological object to be complete and to be able to have access to the two levels that it contains. Therefore, roots alone don’t define MLD’s. The relevant question now is, of course, whether a functional projection by itself can constitute a MLD. Theoretically, given our justification of MLD, we expect that they can be, by themselves, MLDs, since they have all the information required to insert a VI and have access to the Encyclopaedia. Empirically, we will show that there is also evidence that this is the case and functional projections can be MLD’s alone.

### 3.1. Functional heads without root as MLD’s.

Let us consider now the case of the Spanish verb *ser*, ‘to be’, and we will argue that there are no reasons to propose that there is a root in the MLD that this verb defines. In the paradigm of the verb *ser* we do not find any Vocabulary Item that exhibits the behaviour that we expect from a root. A root is expected to be a Vocabulary Item that is spelled out as another grammatical category in a different syntactic context; it is associated with a certain conceptual semantics. As we will see, none of the constituents that can be isolated in this paradigm appear outside the verbal domain, as another category; this is accounted for if they are Vocabulary Items that spell out functional heads with a category, as for example little *v*, *T* or *Mood*. There are no morphological reasons to think that the Spanish verb *ser* contains a root.

The Vocabulary Items that spell out the verb ‘to be’ and their contexts of insertion are represented in (44). Let us note that we follow Oltra-Massuet (1999) in her proposal that each functional projection may have a theme vowel. We represent the modality of future and subjunctive with the feature <Irrealis>, to capture the fact that, when the speaker uses these forms, she or he is not committed to the truth of the proposition (cfr. Oltra 1999).

- (44)
- |    |  |
|----|--|
| SO | $\leftrightarrow$ [___T+Present]                                     |
| ER | $\leftrightarrow$ [T]  |
| ES | $\leftrightarrow$ [___T +Present, 3rd, sg]                           |
| S  | $\leftrightarrow$ [___T] in the context [Mood +Irrealis]             |
| R  | $\leftrightarrow$ [___Mood +Irrealis]                                |
| A  | $\leftrightarrow$ [___Theme vowel of Mood] in the context [Irrealis] |
|    | $\leftrightarrow$ [___Theme vowel of T] in the context [T +Past]     |
|    | $\leftrightarrow$ [___Theme vowel of T] in the context [T +2nd, sg]  |
|    | $\leftrightarrow$ [___Theme vowel of T] in the context [T +3rd, pl]  |

Given the Subset Principle (cfr. chapter one, 2.3.), these entries –where we are not accounting for agreement morphemes – generate the paradigm of the verb *ser* in the present form. Each one of the entries specifies information about the label of the node that it spells out, its features and, sometimes, also the immediate context of insertion. In our analysis the allomorphy that the verb *ser* shows is due to the different Vocabulary Items that spell out little *v*: we propose four possible materialisations of this node. The little *v* that appears in modal contexts, such as future and subjunctive, spells out as *s-*; if tense has a value [Present], the Vocabulary Item *so-* is inserted; if, in addition to this value, tense is specified for third person singular, this node spells out as *es*<sup>104</sup>. When nothing else is specified, there is a form by default that is inserted, *er-*. This happens, for example, in the past tense forms that do not have a modal value. This also happens in the second person singular in the present tense, so we assume that, in this case, a process of impoverishment has taken place, erasing the feature [present] in the presence of the features [2<sup>nd</sup> person] and [singular].

Evidence that *e* is the theme vowel of little *v* in the verb *ser* can be found in the non personal forms *ser*, ‘to be’, *sido*, ‘been’, and *siendo*, ‘being’, which follow the patterns of the verb *beber*, ‘to drink’, whose participle is *bebido* and whose gerund is *bebiendo*.

From our analysis follows that the theme vowel by default should be *e*, because it is inserted in a context where there is no root to specify the information about the conjugation. This contrasts with the theme vowel by default that Oltra (1999) proposes for little *v*, which is *a*, an analysis that is strengthened by the fact that new verbs belong always to the first conjugation in Spanish (*cliquear*, ‘to click’, *zapear*, ‘to zap’, *chequear*, ‘to check’...). Our proposal states that this difference in the theme vowel used by default follows from the fact that in this paradigm the verb does not have a root. That is, in our proposal, the theme vowel by default is *a* when there is a root, but it is *e* when there is no root.

Let us now consider the paradigm. The Vocabulary Items that spell out agreement are the regular ones, with the only exception of a special marker for the first person singular, the form /-i/. This Vocabulary Item is shared with other verbs, such as *dar*, ‘to give’, or *estar*, ‘to be’.

(45) Paradigm of the verb *ser*

v	ThV	Mood	ThV	T	ThV	Agr
so						i
er	e				e	s
es						
so						mos
so						is
so						n
er					a	
er					a	s
er					a	
er					a	mos

<sup>104</sup> Even though it is possible to relate historically the second person singular *eres* and the third person singular *es*, in contemporary Spanish it is not possible to derive one from the other, because, unlike Latin, Spanish does not have a rule of rhotacism that transforms an /s/ into an /r/ between vowels, so it is not possible to turn *es-es* into *er-es*.

er				a	is
er				a	n
s	e	r	é		
s	e	r	a		s
s	e	r	a		
s	e	r	e		mos
s	e	r	e		is
s	e	r	a		n
s	e	Ø	a		
s	e	Ø	a		s
s	e	Ø	a		
s	e	Ø	a		mos
s	e	Ø	a		is
s	e	Ø	a		n

Let us observe that the elements isolated *fu-*, *so-*, *s-* and *er-* do not show the behaviour of roots, for they do not appear in word formation processes of any other lexical category. Therefore, they must be the spell out of a head with grammatical category, little *v* in our proposal.

Additional evidence that there is no root in these forms is found in the fact that there are context where the verb *ser* lacks any conceptual semantics, as for example equative or identificative sentences (46). It is well known, moreover, that Classical Arabic or Russian, among other languages, lack a present form of the verb *ser*, but this does not preclude the predicative structure from taking place. This suggests that this verb does not provide conceptual semantics in the attributive uses (47):

- (46) a. Yo soy el estudiante.  
*I am the student.*  
b. La última composición de Mozart fue el *Requiem*.  
*Mozart's last composition was the Requiem.*
- (47) a. Pedro es calvo.  
Pedro is bald.  
b. Pedro es médico.  
Pedro is a doctor.

This analysis illustrates that it is possible that a given morphological object has no root, provided that it has one functional projection. This leads us to the following definition of what a MLD is (48).

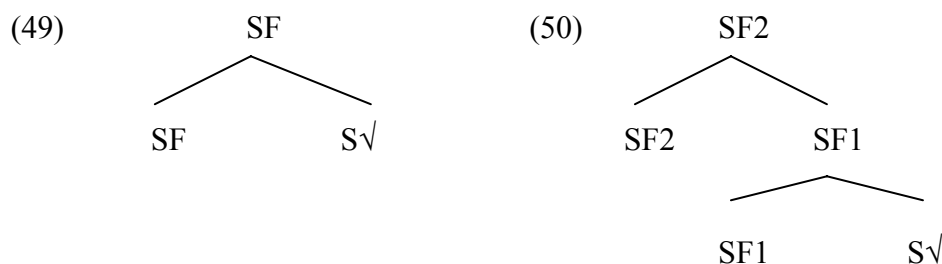
- (48) A Morphological Local Domain is defined by a functional projection.  
a. Any number of roots without a functional projection don't define a MLD.  
b. A functional projection on its own defines a MLD.

### 3.2. The role of Morphological Local Domains.

What the previous definition predicts is that there would be two different types of word formation processes, depending on whether a given functional projection



dominates a root (49) or a structure that is already headed by a functional projection (50). In the first case, which we call word formation over roots, the whole structure in (49) will count as only one MLD; in the case of (50), which we call word formation on words, there is a second MLD internal to the structure.



This difference between two word-formation processes has been observed by Arad (2003) and Don (2004), as far as we know.<sup>105</sup> Some of the phenomena that these authors note in their languages of study are similar to the Spanish data that we will invoke in the following pages, even though their analysis is different.

We will explore the empirical relevance of this theory in the next sections. The properties that we have already discussed are theoretical predictions which should correspond to MLD's if we take into account the current architecture of grammar. In the next sections we present some case studies which show that the properties predicted by this architecture are empirically confirmed and that some phenomena that had not received (to our mind) an appropriate answer are explained using our proposal.

### 3.2.1. Illustration: two types of parasynthetic verbs.

Halle, Harris & Vergnaud (1992, from now on HH&V), in the context of a discussion about the nature of lexical strata, propose that there is a cross-stratal difference between cyclic and non cyclic constituents. Cyclic constituents are those elements that, after having been added to the previous structure, trigger the reapplication of some phonological operations –crucially, stress assignment–; a non cyclic constituent, on the other hand, is a constituent whose addition does not alter the structure that had been built forcing the reapplication of those operations. HH&V note that some affixes, those that belong to Strata I in Siegel's (1974) terminology, are cyclic, as they force the

<sup>105</sup> The intuition that is behind this proposal, technical details apart, can be traced back, to the extent of our knowledge, to Brame (1974: 55 and folls.). This author proposes that only some constituents internal to a word constitute a domain for the application of phonological rules. In his analysis, only the phonological sequences that are independent words can be a domain of application. That is, only those constituents that are independent words by themselves constitute a domain; roots, which are not independent words, are not domains of application. Brame (1974: 57) also notes that the English word *prohibition* has two different pronunciations, depending on whether the speaker is aware that there is a verb inside or not. When used in the nominal sense, as in 'the days of Prohibition', the phonological result is the one expected if the base is not a phonologically independent domain, and the meaning is demotivated; on the contrary, when it is a normal event noun, its phonology shows that the base constitutes an independent domain, and the meaning is compositionally constructed from the meaning of the base. There are differences between Brame's proposal and the one that we will present here. Given that Brame is led by a criterion of phonological identity (or equipotence in his terminology, 1974: 56) with an actual word, he predicts that Greek stems such as *ortho*, *doxo*, *crata* or *aristo* cannot be independent domains (1974: 57). Our proposal predicts that, to the extent that these stems have a grammatical category, they are independent domains, which agrees with Chomsky & Halle's (1968) analysis of words such as *orthodoxy*.

reassignment of stress (51), while other are non-cyclic and respect previous stress assignment (52).

(51) /árte/-/art-ísta/, /tónto/-/tont-ería/...

(52) /kantá-r/-/kantá-do/

The process, omitting details which are not of immediate concern now, is technically implemented stipulating that there is a rule of Stress Erasure that deletes stress from the previously built structure when the new element is added, if it is a cyclic constituent. Then, the structure is parsed again with a new assignment of stress. The process is represented in (53).

- (53) a. Stress assignment: /kan·tá/  
 b. Addition of the new constituent: /kan·tá/ + /dor/  
 c. Stress erasure: /kan·ta·dor/  
 d. Reassignment of stress: /kan·ta·dór/

However, if a constituent is non cyclic, stress erasure doesn't apply and, consequently, the stress stays where it was. The process is represented in (54)

- (54) a. Stress assignment: /kan·tá/  
 b. Addition of the new constituent: /kan·tá/ + /do/  
 c. Result: /kan·tá·do/

In contrast with this clear-cut situation, these authors note a puzzling fact about Spanish verbs. Let's consider the data in (55):

- (55) a. **aviejar**, **amueblar**, **afierecer**, **enmielar**...  
 to become old, to put furniture, to make fierce, to put honey  
 b. **contar**, **moler**, **venir**, **pensar**...  
 to count, to grind, to come, to think

There is something in common to the two groups of verbs in (55). They are all constructed on roots that contain a vowel which, when it bears stress, diphthongises,<sup>106</sup> due to historical reasons that are not pertinent now.<sup>107</sup> The roots in (55a), when combined with cyclic affixes which trigger stress erasure, manifest themselves as single vowels (56).

- (56) **vej**-estório, **mobil**-iário, **fer**-óz, **mel**-óso...  
 old relic, furniture, fierce, sticky

In the case of the roots in (55b), in their paradigms as verbs, when the root bears stress, the vowel diphthongises (57).

- (57) **cué**nto, **mué**lo, **vié**ne<sup>108</sup>, **pié**nso...

<sup>106</sup> The literature about diphthongisation in generative grammar is very extense (cfr. Brame & Bordelois 1973, Harris 1969, 1977, 1978, 1983, 1985, Schuldberg 1984, García-Bellido 1986, Carrerira 1991, among many others).

<sup>107</sup> About the historical characteristics of diphthongisation, cfr. Menéndez Pidal (1968).

<sup>108</sup> This general consideration is stated apart from some exceptions that can be considered more complex irregularities, as for example 'véngo', without diphthongisation.

count.1<sup>st</sup>.sg, grind.1<sup>st</sup>.sg, come.1<sup>st</sup>.sg, think.1<sup>st</sup>.sg

The analysis of each one of these groups of verbs is clear if they are considered in the absence of the other. The group in (55a) can be analysed if it is assumed that the theme vowel is non cyclic, so that it maintains stress on the root to allow application for the rule of diphthongisation (58). Capital letters in the vowel represent a middle vowel which can diphthongise when stressed.

- (58) 0. Initial form: /avEx/  
 a. Stress assignment: /avÉx/  
 b. Addition of a new constituent: /avÉx/ + /a/  
 c. Diphthongisation rule application<sup>109</sup>: /aviéxa/

Thus, the theme vowel must be non cyclic for these examples to be analysed. Consider now the data in (55b). In these cases, the vowel of the root cannot be stressed in order not to allow the rule of diphthongisation to apply, since in that case the forms that should have emerged would be the unattested \**cuentar*, \**muelar*, \**vienir* and \**piensar*. It is crucial that the stress has been deleted from the root and reassigned to the theme vowel.

- (59) 0. Initial form: /kOnt/  
 a. Stress assignment: /kÓnt/  
 b. Addition of the new constituent: /kÓnt/ + /a/  
 c. Stress erasure: /kOnt/-/a/  
 d. Stress reassignment: /kOn·tá/  
 e. The rule of diphthongisation cannot be applied to the structure.

The problem is that this forces us to reach the opposite conclusion than in the previous analysis, namely that the theme vowel must be cyclic. The conclusion, then, should be that the Theme Vowel is cyclic in some cases and non-cyclic in other cases.

To solve this dilemma, HH&V note that the forms in (55a) are cases of parasyntetic verbs, while the cases of (55b) are plainly suffixed verbs. Therefore, in the first set of examples there is a morphological component /a-/ which is not present in the second series of elements. Their proposal is that the differences are a result of this peculiarity. Imagine that the theme vowel is always cyclic, and the prefix /a-/ is non cyclic, which is a reasonable assumption considering that a prefix never changes the phonological form of the base.

With these assumptions, their account considers that the prefix /a-/ in the examples in (55a) produces as a result that the theme vowel must be reanalysed as a non cyclic component. Assuming that the prefix is added to the verb form before the suffix (cfr. Corbin 1987), let's observe that the bracketing of this verbal form is the one in (60), where 'c' stands for 'cyclic' and 'nc', for 'non-cyclic'.

- (60) [c [nc a [c viej]] a]

<sup>109</sup> We assume that the diphthongisation rule is applied after every phonological and morphological process in a given domain. In consequence, the status that we assume for the rule of diphthongisation is the one of a post-cyclic rule, in the sense of Booij & Rubach (1987: 4), that is, a rule that takes place after every other rule in a domain, but before the post-lexical rules. If, inside a domain, stress is assigned to different positions, the rule of diphthongisation is not sensitive to these changes; when the operation of stress erasure takes place, the vowel has not diphthongised yet, and, therefore, it is not necessary to assume that the diphthong has been undone.

The problem with this is that there is a non cyclic constituent embedded between two cyclic constituents, something which is impossible (cfr. Harris 1989) because non cyclic constituents must always be external to cyclic ones. Therefore, to save well-formedness criteria in the phonological level, the theme vowel is reanalysed as a non cyclic constituent (61).

(61) [nc [nc a [c viej]] a]

In the absence of a prefix, the theme vowel won't have to be reanalysed, with the result that it is a cyclic constituent that triggers stress reassignment, giving account of the data in (55b).

However, we consider that HH&V's account is not correct. Let's consider another set of parasynthetic verbs, which is illustrated in (62). The verbs in (62a) are morphologically related to the nouns or adjectives in (62b).

- (62) a. a-vejent-ar, a-sol-ar, en-terr-ar, en-gros-ar, em-pedr-ar, ...  
to age, to devastate, to bury, to join, to pave...  
b. viej-o, suel-o, tierr-a, grues-o, piedr-a  
old, floor, earth, thick, stone

The problem is that these parasynthetic verbs, unlike those in (55a), do not diphthongise, so they must have lost stress in their roots by the time when the rule of vowel diphthongisation applies. Therefore, the theme vowel must have kept cyclic despite the presence of a prefix which we have determined to be non cyclic. Then, by implication, the data in (62) should be handled in a HH&V system, assuming that in those cases the constituent corresponding to the prefix is now cyclic (63)

(63) [c a [c [c sol] a] r]

The obvious problem here is that the prefixes *a-* and *en-* seem to be identical in (55) and in (62). The solution of assuming two different but homophonous prefixes would be an *ad hoc* solution which does not provide a deeper understanding of the facts.

Our analysis will be different and is crucially based on the existence of Morphological Local Domains defined as we have proposed.

Let's observe at this point that the two sets of parasynthetic verbs in (55) and (62) don't only differ in the phonological level. They differ also in two interesting characteristics. First of all, parasynthetic verbs in (55) are semantically compositional, while those in (62) may develop demotivated meanings. Secondly, verbs in (55) use the morphological pattern which is most productive for the semantic category expressed in that set of examples, while the verbs in (62) sometimes use non productive morphology, as for example the etymologically locative prefix *en-* for a verb of change of state. To illustrate these two further differences, consider the three pairs in (64), representative of three classes of parasynthetic verbs.

- (64) a. encielar vs. enterrar (locatio verbs, Hale & Keyser 1993, 1998)  
to put in heaven vs. to bury  
b. enmielar vs. empedrar (locatum verbs, Hale & Keyser 1993, 1998)  
to put honey vs. to pave  
c. agruesar vs. engrosar (change of state verbs)

to become thicker vs. to join

Let us consider first the locatio type of verbs, namely, those verbs whose base is interpreted as the place where an element is put. The locatio verb *encielar*, ‘to put something in heaven’, with diphthongisation of the root, is interpreted as putting someone or something in heaven, which is the compositional meaning of the base *cielo* and the locative structure. The meaning of the verb is constructed over the meaning of the noun *cielo*, in such a way that an event of *encielar* cannot be an event where someone or something is put in a place similar to heaven but which is not heaven. Observe also that the meaning of the verb is constructed over the meaning of the word ‘heaven’ as a noun, not just as a root, this is, the meaning of *encielar* presupposes the existence of a certain thing that has the properties of heaven. In contrast, the meaning of the verb *enterrar*, ‘to bury’, which shows no diphthongisation of the root /tEr-/, is not strictly compositional, because it is not interpreted literally as putting something or someone in the earth (*tierra*). An event of putting someone or something in pyramids or in cells called *nichos* is also an event of *enterrar*, so it is clear that the meaning is not constructed over the meaning of the word *tierra*, which is a noun.

Considering now the case of locatum verbs, this is, those verbs whose meaning implies that the noun of the base is put in some place, we would like to note that we find the same semantic asymmetry. *Enmielar*, the verb with a diphthongised root /mEl-/, is interpreted compositionally, and it is paraphrased as ‘to put honey (*miel*) on/in something’. If what is put is another sweetener, as for example sugar, the event cannot be considered an event of *enmielar*. In contrast, another locatum verb, in this occasion without diphthongisation, *empedrar*, is not to put stones (*piedra(s)*) on/in something, but to make up a road, no matter what the particular materials are –possibly concrete–; thus, it is not compositionally interpreted as a function of the meaning of the morphological base.

Finally, the case of verbs whose meaning is a change of state is not different. If we take a parasyntetic verb whose base diphthongises, as *agruesar*, we will observe that its meaning is compositionally constructed over the meaning of the adjective ‘grueso’, in such a way that every object from which it can be predicated the adjective ‘grueso’ can participate in an event of ‘agruesar’. In contrast, the parasyntetic verb *engrosar*, constructed over the same root and without diphthongisation, is not compositional and seems equivalent to ‘to increment’, in such a way that it doesn’t mean ‘to make something thicker’.

Let’s consider now another relevant property of these pairs, morphological productivity. In the pairs in (64), there is always one parasyntetic verb that is constructed using the schema of prefix and suffix, which is productive for the semantic category that the verb expresses –locative verbs or verbs of change of state-. Clearly, locative verbs, both locatio and locatum ones, are productive with the schema that consists on *en-* as prefix and a zero morpheme as a suffix (65).

- (65) enharinar, ‘to coat with flour’, enjalbegar, ‘to whitewash’, encalar, ‘to coat with lime’, empapelar, ‘to wallpaper’, encarcelar, ‘to put in jail’, ensartar, ‘to skewer’, ensillar, ‘to saddle’, encartelar, ‘to put posters’...

The relevant point here is that compositional and diphthongising parasyntetic verbs are also, consistently, derived using the productive schema. Non compositional and non diphthongising parasyntetic verbs may use the non productive schemata, such as *aterrorizar*, which is ‘to terrify or terrorise’, from *terror*, a locatio verb that uses the

prefix *a-*; or, in the case of locatum verbs, *acerrojar*, which is ‘to put a lock (*cerrojo*) to something’.

As a contrast, the productive schema for verbs expressing change of state seems to be the prefix *a-* plus a zero morpheme (with theme vowel) as suffix (66).

- (66)    *agrandar*, ‘to enlarge’, *alejar*, ‘to move further away’, *abombar*, ‘to become convex’, *agigantar*, ‘to increase considerably’...

The point is that compositional and diphthongising parasynthetic verbs that express change of states are consistently related with the schema *a-* plus zero morpheme. When the verbs are not compositional and also non diphthongising, it is possible that the more unproductive schema *en-* plus zero morpheme is used, as in *engrosar*.

What is relevant here, to our mind, is that there are three different properties that distinguish two types of parasynthetic verbs (67), in such a way that the presence of one of the properties is parallel to the presence of the other two.

- |      |                  |                      |
|------|------------------|----------------------|
| (67) | Diphthongisation | Non-diphthongisation |
|      | Compositionality | Demotivated meaning  |
|      | Productivity     | Lack of productivity |

The property of diphthongisation can be considered from a more abstract perspective. In (55a), *aviejar*, the root diphthongises in the parasynthetic verb just in the same way that it must diphthongise when the root appears without any other overt morpheme, this is, without any other Vocabulary Item. Considered from this perspective, the diphthongisation stays because the root has defined the relevant phonological information necessary for stress assignment without reference to the rest of the phonological information present in the word.

The same can be said about the semantic properties in (55a). The meaning of the whole verb must be constructed over the meaning that the root has when it receives a category; the meaning of the parasynthetic verb, then, must be constructed over the meaning of the base. This part of the meaning of the word cannot be altered. The addition of verbal affixes must respect the information that had been defined in the noun or adjective which is contained inside the verb.

Let us now consider the third characteristic. Given that the concept of productivity is not easy to define, we will make explicit the sense in which we take it. If we consider the insertion of Vocabulary Items, we expect that, for every morpheme, there is an unmarked item. This element should be inserted by default in a node specified for a certain set of features. A special form may be inserted if there is another Vocabulary Item that conditions the appearance of a particular allomorph. We will consider the first Vocabulary Item as productive, whereas the second one will be understood as unproductive. Now, if a set of words can only use the productive set of affixes, what is being implied here is that there is no other Vocabulary Item which conditions the insertion of a special form; if it uses unproductive morphology, that must be due to the fact that another Vocabulary Item imposes the insertion of the special form. Therefore, it seems that, to the extent that Vocabulary Insertion is concerned, the morphologically productive parasynthetic verbs determine the items of Vocabulary selected in the absence of information regarding the Vocabulary Items of the base.

To sum up the discussion, the three properties discussed can be reduced to one condition: in one case, (55a), the semantic, morphological and phonological information of the base of the parasynthetic verb is autonomous, while in the other case, (62a), that

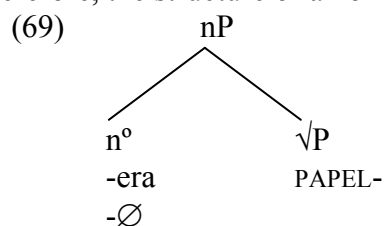
information is defined by the word as a whole, without maintaining the information of the root alone.

The crucial question is how to give account of this difference. We will propose that the difference between the two cases is caused by the fact that in (55a) we have word formation over stems and, in the second case (62), we have word formation over roots. This produces in each case a different number of MLD's, which determine the difference between the two sets of parasynthetic verbs.

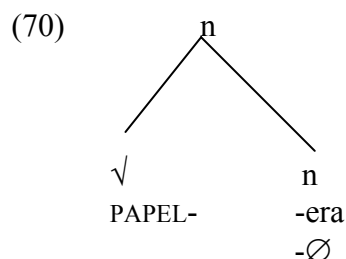
Let's remember, for convenience, the two different types of heads that exist in the grammar, according to DM: roots and functional heads (cfr. chapter one, 2.1.). A stem is created through combination of a root and a functional head (68).

- (68)
- a. **Root:**  $\sqrt{\text{PAPEL}}$ . Stored in the narrow lexicon. No grammatical category, no argument structure. Conceptual semantics.
  - b. **Functional Head:**  $n$ . Stored in the narrow lexicon. It has grammatical category and determines a special Argument Structure (AS) (no complement, no specifier).
  - c. **Stem:** *papel-0*, *papel-er(a)*. Stored nowhere; merged into the syntax. It has grammatical category, argument structure, and conceptual semantics.

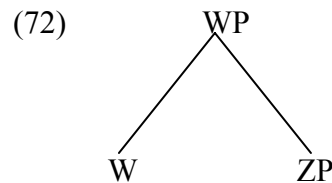
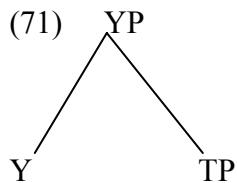
Therefore, the structure of a nominal stem in the syntax is the one in (69).



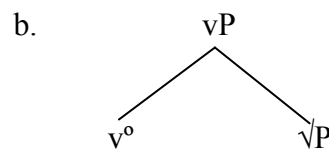
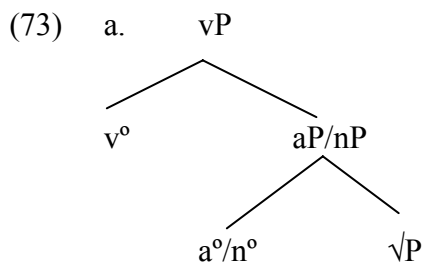
These heads surface in a different order because in the morphology they undergo a Morphological Merger operation (Marantz 1984), which we have already discussed in detail in chapter one, section 2.2.1.1. (70).



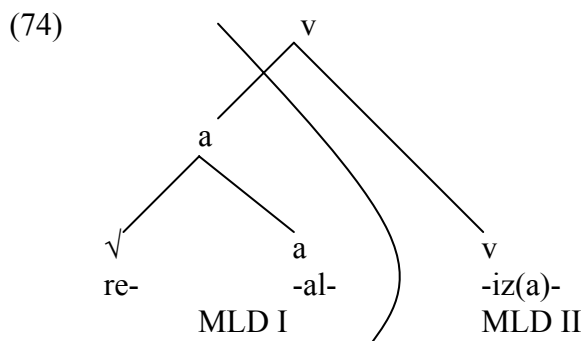
If words are syntactic structures, it is reasonable to think that stems must meet the requirements of syntactic structures. We propose that morphological objects, in order to have access to Vocabulary and Encyclopaedia, must meet the syntactic requisite of having a grammatical category. This forces a Morphological Local Domain to be defined by a functional projection able to assign a category to a root. Let us consider (71) and (72). If Y is a functional projection, the structure (71) will have access to the Vocabulary and the Encyclopaedia, but not the structure in (72), if W is not a functional projection able to categorise.



Let's suppose that the two classes of parasynthetic verbs under discussion are distinguished by their morphological structure with respect to the entity that merges *into* the head little *v*. In one case, this head merges into a structure that already contains a functional projection (73a); in the other case, little *v* is merged with a root without functional projection (73b). That is, (73a) is an instance of word formation over stems; (73b) is an instance of word formation over roots.



The first structure contains two functional projections, while the second structure contains only one. If MLD's are defined through functional projections, this means that (73a) contains two MLD's, whereas (73b) only contains one. Each functional projection makes the word complete, in a sense, because it provides it with a grammatical category.



Let's note that, consequently, in Spanish *real* and *realiza(r)* are possible words, but not *\*re*, for it does not correspond to a MLD. The root *re-* would never surface in the absence of a functional projection.

What our characterisation means is that each of the two chunks of structure signalled in (74) will access the phonological and semantic lists as an independent unit, with the result that the phonological operations and the conceptual semantics of each piece of structure will ignore the elements outside each respective MLD.

Our proposal to account for the three different characteristics of the two different classes of parasynthetic verbs derives from our proposal of MLD's without the need of any further assumptions.

First of all, as each MLD accesses the Vocabulary independently, phonological information is defined in any MLD in the absence of the information pertinent to define any other MLD. In the case of (74), the information in *real* is independent of the information of the MLD's defined by *-iz(a)-*. The functional heads implied in these



operations may or may not have phonological information associated to them: this has to be decided when Vocabulary Insertion takes place. It is possible that a functional head defines a MLD but is not associated with a Vocabulary Item. The result of this is that the functional head doesn't add phonological information, with the result that every operation in the phonological level will take into account only the elements of the root.

With respect to the phonological level, our proposal makes some predictions which are fulfilled. Let us consider the case of a root merged with two functional heads, as in (73a). The first MLD will contain the root. The second functional head will never have access to the root, because it defines the second MLD. Therefore, the second functional head will be unable to intervene in the phonological structure of the root, and any phonological operation that has been performed in the root will be maintained irrespective of the situation with the second functional head.

Therefore, if the root received stress in a certain syllable as a result of the phonological operations, any other element added to the word in a different MLD would be unable to shift stress, with the result that the diphthongisation rule will be applied.

Let us show with a possible abstract structure what we mean. Let us imagine that a root (R1) is included in the syntax in a structure with two functional projections, F1 and F2. The first one of the functional heads, F1, is not associated with any phonological information. The first MLD is defined by R1 and F1. The Vocabulary is accessed and only R1 is associated with phonological information, so the phonological operations will only consider the root. We assume that in Spanish stress is assigned by constructing trochees (Harris 1983, 1987, Roca 1986, Halle, Harris & Vergnaud 1991), versus some proposals that analyse Spanish stress with iambs (Roca 1988). If stress is defined in this way, the result will be that stress falls in the root (75).<sup>110</sup>

	*	
	(*)	
(75)	σ	∅
	R1	F1

When the second MLD defines its phonological structure, as it is a different MLD, it won't change the result of (75). This second MLD will also define stress, considering only the elements that it contains (76).

<sup>110</sup> Among the pieces of evidence that argue for an analysis with trochees, we find the fact that the three-syllable window (Harris 1983) in lexical stress assignment can be accounted for with trochees. An oxytone word can be analysed as a degenerate trochee (ia); a paroxytone word, as a perfect trochee (ib), and a proparoxytone word, as a complete trochee with an unparsed syllable (ic). With iambs, it would not be possible to explain the existence of proparoxytones in a straightforward way.

(i)	a.	(*)	(*)	
		tro	pel	
	b.	(*	)	
		frá	gil	
	c.	(*	)	
		bár	ba	ro

Moreover, trochees emerge as the unmarked pattern in some word-formation processes, such as clippings (ii; in these examples, the tilde is not orthographic, but is only used to signal the stressed syllable).

- (ii) úni, prófe, fácu, Mánu, síle, nóle, cóle...  
uni(versity), profe(ssor), Manu(el), 'I've got', 'I've got not', colle(ge)...

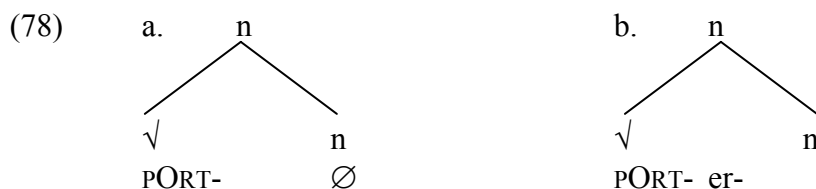
	*			*
	(*)			(*)
	$\sigma$	$\emptyset$		$\sigma$
(76)	R1	F1		F2

This does not mean that the word will have two stressed syllables. Once stress assignment is performed in each MLD, the different MLD's must be put together, and, then, one of the stressed syllables is promoted. This is justified by the fact that, as part of the Vocabulary entry of the functional projections, it is specified that these elements cannot constitute independent words. When they are combined, a rule that determines which stress is promoted is applied; in Spanish, the rightmost position is promoted (77).

	(*)			*
	(*)			(*)
	(*)			(*)
	$\sigma$	$\emptyset$		$\sigma$
(77)	R1	F1		F2

As a first empirical illustration, let's see the difference between a pair such as *portero*, 'guardian', and *puertero*, 'something related to *puertas*, doors'. Let's note that between this pair of words it is possible to perceive the differences under discussion. *Portero*, the first element, has non compositional meaning, for its denotation cannot be constructed over the meaning of the base element *puerta*; a guardian does not have to be next to a door necessarily. As an opposition, a *puertero* will be any person or thing that performs an activity that is somehow related to something that can be called a door (e.g., someone that makes doors, someone that is specialised in doors, someone that waits in front of a door, someone that sells doors...); however, a *portero* can only be someone that performs the particular job of letting people come into a certain building, and we would like to observe that it may not be a door involved in the process –it could be an open entry to a courtyard-.

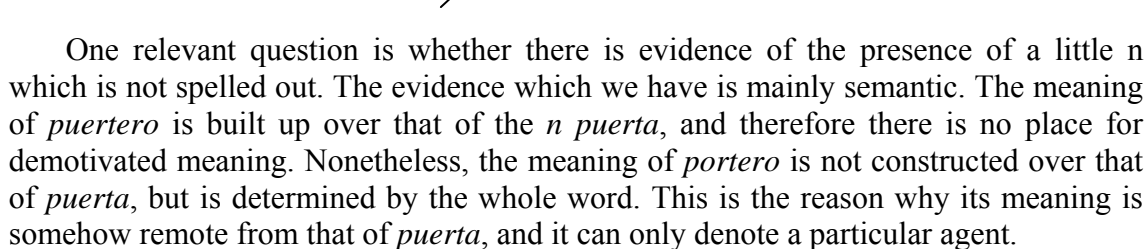
To give account of the differences, we will proceed as in our abstract example. A root *port-* is merged with a functional head little *n*. This constitutes the first MLD, and it could be the last. The two elements of the pair in (78) are identical in their structure; the difference is that, in *portero*, this first (and last) little *n* is associated with some phonological content, while in the first it is not.



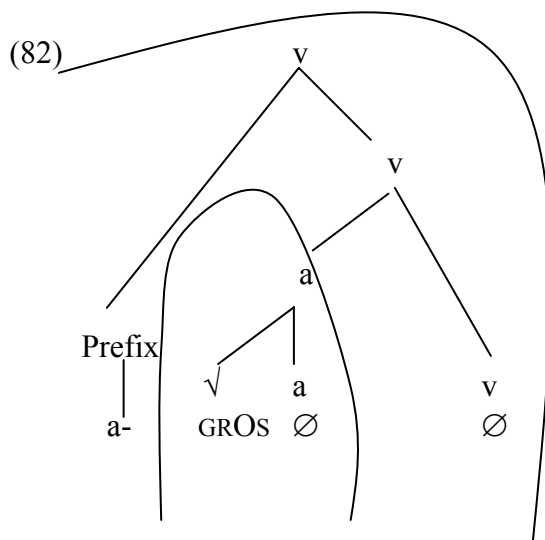
This means that in (78a), when stress is assigned, the only phonological material available is the one contained in the root, so the stress must fall on the vowel O, giving diphthongisation as a result (79).

	*
	(*)
(79)	pOrt $\emptyset$

(80)  $\begin{matrix} & & * \\ (*) & & (*) \\ \text{pOrt} & & \text{er} \end{matrix}$

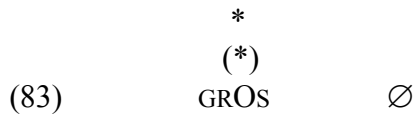
$$(81) \quad \text{---} \overbrace{\hspace{1cm}}^n$$


(82)



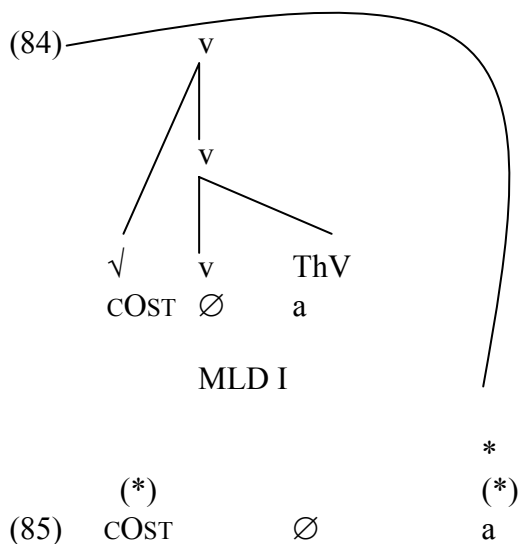
# MLD I      MLD II

In consequence, the phonological structure of the first MLD is represented in (83).

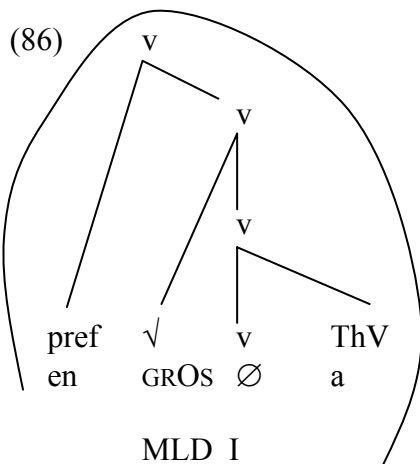


The addition of the successive MLD's won't alter this pattern.

A different process takes place with a diphthongising verb like *costar*, where the meaning of the verb is not compositionally derived from the meaning of words such as *costa*, *coste* or *costo*; therefore, there is no reason to believe that the root has not been merged with *v* in one step (84). As little *v* forces the insertion of a Theme Vowel, this constituent receives stress and doesn't allow the root to diphthongise in the infinitive form (85).



In cases such as *engrosar* or *costar*, the root combines with the verb in only one step, without first defining an adjective or a noun. In this case, the theme vowel also takes stress on it with the result that the root vowel doesn't diphthongise (86), (87).



				*
	(*)	(*)		(*)
(87)	en	GROS	Ø	a

The same can be claimed about pairs such as *enmielar* / *empedrar*, *encielar* / *enterrar*, and so on, which constitute counterexamples to the HH&V analysis.

Let us now consider idiosyncratic meaning. We assume that Encyclopaedic entries have the structure in (88), for Spanish *gato*, ‘cat’. These entries are always associated with Vocabulary Items, and never with syntactic terminals directly.

(88) GATO  $\leftrightarrow$  feline animal, which drinks milk, has nine lives...

As they are associated with Vocabulary entries, per force, something which is a MLD in terms of VI insertion must also be an MLD in terms of Encyclopaedic entries. This type of entries must be able to contain the meaning of groups of VI’s, with the result that demotivated meaning arises, and the conceptual meaning of the structure cannot be predicted from the meaning of each piece considered separately. Obviously, the elements of the group entry must be in the same MLD. Therefore, constituents in the same MLD may have a non compositional meaning. We illustrate this in (89).

(89) EN-TERR-A  $\leftrightarrow$  to bury someone (not #to put someone in the earth).  
 EM-PEDR-A  $\leftrightarrow$  to make roads (not #to put stones on something)  
 EN-GROS-A  $\leftrightarrow$  to add elements (not #to make something thicker)  
 ...

The fact of a word being associated with idiosyncratic meaning is not unrestricted, though. Elements contained in different MLD’s won’t be able to have group entries. This explains why an entry such as (90) is impossible:

(90) \*EN-MIEL-A  
 \*TIEND-ERO  
 \*EN-CIEL-A  
 \*A-VIEJ-A

The reason is that these verbs are constructed from stems -that is, they are the result of merging at least one root with, at least, one functional head-, and constitute two different MLD’s. This means that the Vocabulary Items present in these words will access the Encyclopaedia in two different moments, so this level would never have as input formations such as those in (90), but, instead, separate entries for *miel*, *tienda*, *cielo*, etc... and *en...a*, *a...a*, etc... Then, to construct the conceptual meaning of the whole word, it will have to combine the meaning of the two separate elements, as in (91).

(91) MIEL  $\leftrightarrow$  yellow sweetener made by bees.  
 CIELO  $\leftrightarrow$  place where all goodness is contained  
 TIENDA  $\leftrightarrow$  place where goods are sold  
 ...  
 EN ... A  $\leftrightarrow$  to cause something be in X  
 A... A  $\leftrightarrow$  to cause something become X

Therefore, the meaning of these words must be compositional, for there is no place in the grammar to store an idiosyncratic meaning associated with them.

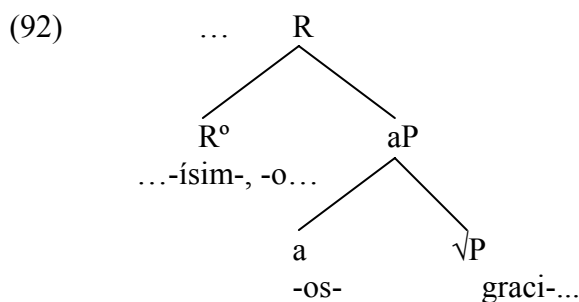
In the next section we will provide more evidence of this difference between word formation over stems and over roots, with its implications for the definition of MLD's.

### 3.3. Morphological construction over stems and over roots. Further evidence.

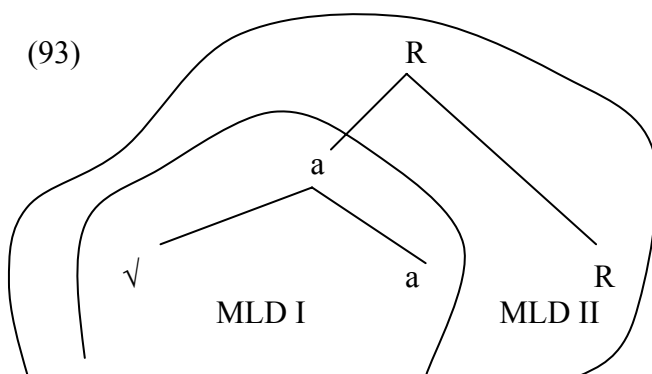
In this section, we will explore some of the implications of our theory and will also find some other empirical data that are evidence for this proposal.

#### 3.3.1. Inflectional morphology in nouns and adjectives.

In contemporary Spanish there is at least one clearly gradative morpheme, which is the superlative morpheme *-ísimo-*. This is a polysyllabic morpheme which is marked to receive stress in its first vowel. We have argued that it appears in the head  $R^\circ$  (chapter two, 2.2.2.), as a result of the checking of the feature [uG] when it has a superlative value. Therefore, the structure of the construction is (92), for the word *graciosísimo*, 'funny.SUP'.



Grade morphemes are syntactically merged with a functional head, with the intervention of RP between them. What this means is that the root and the functional head little *a* will constitute a MLD. Thus, the gradative morpheme will be contained in a different MLD, in such a way that the phonological phenomena will be defined in the absence of this gradative morpheme and its information will not be considered for further phonological operations. The diagram in (93) shows the previous explanation.



Given our proposal, there are some phonological and semantic predictions that can be pointed out. The main semantic prediction is that we won't have demotivated meanings for the set formed by an adjective and a gradative morpheme, this is, that *grand-ísimo*, 'big.SUP', will mean just the same as *grande* and the gradative *ísimo*, combined in a certain way. This prediction is confirmed. The set formed by an adjective

and the gradative morpheme never has a demotivated meaning. This situation contrasts with the case of the so called adverbs derived with *-mente*; let us note that these elements can have a demotivated meaning (94).

- (94) SEGUR-A-MENTE  $\leftrightarrow$  possibly [this is, just the opposite of what *seguro*, ‘certain’, means by itself].

What is most relevant here is that, if there is a gradative morpheme inside the projection of the adjective that forms the adverb with *mente*, the demotivated meaning is lost. (95) cannot mean ‘most possibly’, but means ‘most certainly’, this is, the addition of the gradative morpheme forces the word to give up its possible demotivated conceptual meaning.

- (95) segur-ísim-a-mente  
certain-SUP-fem.sg.-ly  
most certainly

The presence of the morpheme *ísim* shows that there must be a DegP inside the word and, therefore, it forces the adjective and *mente* to be assigned a conceptual meaning in two different operations, since *-ísim* and the adjective are in two different MLD’s.

In the phonological level, the prediction is that it is impossible that there exist phenomena of formal idiosyncrasies between the adjective and its gradative morpheme. For example, spirantisation –to transform /t/ or /d/ into /s/, cfr. *decidir-decisión*, ‘decide-decision’- cannot take place between the adjective and the gradative morpheme. Let us consider the case of diphthongisation.

Let’s observe that the following adjectives –just like the parasynthetic verbs considered previously- show diphthongisation of the root (96).

- (96) a. buén(o) (vs. bon-dád)  
good (vs. kindness)  
b. grués(o) (vs. gros-éro)  
thick (vs. bad-mannered)  
ciért(o) (vs. cert-éro)  
sure (vs. accurate)  
tuért(o) (vs. tort-ic-éro)  
one-eyed (vs. wicked)  
muért(o) (vs. mort-ál)  
dead (vs. deadly)

The surprising fact here is that, even though in some cases normative grammars ban this operation, when these adjectives are combined with the gradative morpheme, which is stress-bearer, the diphthong is maintained (97).

- (97) a. buen-ísimo  
b. grues-ísimo  
c. ciert-ísimo  
d. tuert-ísimo  
e. muert-ísimo

This is because the degree morpheme is in a different MLD than the adjective itself, so the fact that it bears stress does not precludes the adjective to bear stress on the diphthongising vowel as well.

The analysis of these adjectives implies no problem for our proposal. In the first MLD, constituted by the root and the first functional head, stress must be borne in the root because the adjectival head is not spelled out. We illustrate this using the root *cert-*.

$$(98) \quad \begin{array}{ccc} & * & \\ & (*) & \\ \emptyset & \text{ert-} & \emptyset \end{array}$$

This contrasts with the adjective *certero*, where the functional head materialises as *er(o)* (99).

$$(99) \quad \begin{array}{ccc} & * & \\ & (*) & (*) \\ \emptyset & \text{ert-} & \text{er-} \end{array}$$

When (99) is combined with the gradative morpheme *-ísimo*, as they are in two different MLD's, stress is not erased from the root and diphthongisation is maintained (100a); the operation that puts together the MLD's of the word then promotes stress on the right-hand (100b).

$$(100) \quad \begin{array}{ccccc} & * & & * & \\ & (*) & & (*) & (*) \\ \text{a. } \emptyset & \text{ert-} & \emptyset & \text{i} & \text{sim} \\ & & & * & \\ & (*) & & (*) & \\ & (*) & & (*) & (*) \\ \text{b. } \emptyset & \text{ert-} & \emptyset & \text{i} & \text{sim} \end{array}$$

The result is, of course, a word constructed over a diphthongising root that, although it apparently doesn't bear stress, maintains diphthongisation: *ciertísimo*.

These data are parallel to those that we studied in 3.2. regarding parasynthetic verbs, with the difference that there are not two groups in the case of adjectives and gradative morphemes. The reason is straightforward. There are two classes of parasynthetic verbs because a head little *v* can form verbs optionally from roots or from already categorised words, so it is possible that the parasynthetic structure be analysed in one or in two MLD's. However, the head *R°* can only be merged with an adjectival structure, since, due to its selectional syntactic properties, it cannot be merged directly with a root. Therefore, *R°* will always be contained in a different MLD than the root.

In the case of nouns, the morpheme which is equivalent to degree is number, because it is hosted in a functional projection which dominates *nP*. Therefore, it will always be in a different MLD from the noun as such. The prediction is that number morphology will never change the phonological shape of the noun, and will not be able to displace stress. This prediction is straightforwardly fulfilled.

There are only two apparent counterexamples of this. These are constituted by the two nouns *carácter*, 'character', and *régimen*, 'regime' or 'diet'. Their plurals show stress in different syllables from their singulars (101).



- (101) a. **régimen** – **regímenes**  
 regime.sg. – regime.pl.  
 b. **carácter** – **caractéres**  
 character.sg – character.pl

Let us observe, first, that the stress-change in the word *carácter* as a result of addition of the plural is a normative recommendation which is very frequently ignored. Most speakers, in a colloquial context, would use the plural *carácteres*, not *caractéres*. However, if this word is derived with other functional projections, such as little *v*, no speaker would keep stress where it is (102).

- (102) *carácter* - *caracterizár* (not \**carácterizar*)  
*character* - *characterise*

This suggests, to our mind, that, in contrast with the case in (102), where there is a morpheme that bears stress and a rule which puts together the MLD's in order to construct a whole word, in the case of the plural, the change in the position of the stress is not motivated by any grammatical reason, but is a historical accident extended through normative statements.

In the case of *régimen*, the reason seems to be different, since no speaker of Spanish would say \**régimenes*. However, the reason for this is motivated by the fact that *régimen* is a proparoxytone which ends in a consonant. This means that, as a result of the addition of the plural morpheme, it becomes a superproparoxytone, but in Spanish it is impossible to have this type of constructs –unless clitics intervene-. As this pattern of stress is impossible, an independently motivated rule which bans this type of structures is triggered, with the result that the position of stress is changed.

Finally, we would like to account for another possible example counter to our proposal, which is the case of those nouns that seem to have a different meaning in the singular and in the plural form (103).

- (103) a. *celo* – *celos*  
 fervour - jealousy  
 b. *esposa* – *esposas*...  
 wife – hand-cuffs

The words in this group may be counterevidence to our proposal if the root and the plural morpheme have a special entry in the Encyclopaedia, with a demotivated meaning. It can be shown, though, that this is not the case and, on the contrary, the root has both meanings, the one that the singular form exhibits and the one of the plural form; in consequence, it is not necessary to propose that any of the meanings is a result of a group entry in the Encyclopaedia that includes the plural morpheme. In the words in (104), where the base appears without the plural morpheme, the root has the same meaning as the plural forms in (103), as the gloss shows.

- (104) a. *cel-oso*, (someone who suffers from jealousy), *en-cel-ar* (to cause jealousy)  
 b. *espos-ar* (to put hand-cuffs)

If the special meaning depended on a group entry that includes the root and the plural morpheme, we would expect that the words in (104) would not be able to have that meaning, because they lack a plural morpheme. As they do have that meaning, we conclude that this meaning emerges also in the absence of the plural morpheme, so there is no group entry in the Encyclopaedia.

If this is correct, the prediction is that the correlation between the special meaning and the plural morpheme is not perfect. This prediction is verified for so-called *pluralia tantum*, which are, as is known, those words that are supposed only to appear in the plural form, such as *tijeras*, ‘scissors’, *pantalones*, ‘trousers’, and *gafas*, ‘glasses’. Nonetheless, *pluralia tantum*, when they do not denote collective entities –such as *viveres*<sup>111</sup>, ‘provisions’- have a tendency to regularise and appear in the singular form. We find in CREA some cases of *gafa* (“es mejor utilizar una gafa especialmente destinada al uso del ordenador”, ‘it is better to use a glass specially suited for computer use’, *El Mundo*, 18-05-1997), as well as 37 cases of *alicate*, ‘plier’, 117 of *tenaza*, ‘forceps’, 368 of *tijera*, ‘scissor’, and 2.307 of *pantalón*, ‘trouser’. This illustrates a tendency to denote both meanings independently of the presence of a certain number morphology.

This situation can be found in other languages apart from Spanish. As Allen (1978: 112) notes and Scalise (1984: 122) confirms, English *pluralia tantum* appear without a plural morpheme when they are the base of some word-formation processes (98), and even in this case they keep their meaning:

- |       |              |   |  |
|-------|--------------|---|--|
| (105) | a. scissor-s | → | scissor-handle, ‘one of the handles of the scissors’ |
|       | b. trouser-s | → | trouser-leg, ‘one of the legs of the trousers’       |

Therefore, we conclude that the cases in (103) are not counterexamples to our proposal.

### 3.3.2. Appreciative morphemes.

As it is well-known, appreciative morphemes (App) are unable to change the grammatical category of the element with which it is merged. If the base is a noun, we obtain a noun (106a); if it is an adjective, the result after the addition of appreciative morphemes is also an adjective (106b).

- |       |                        |   |                       |
|-------|------------------------|---|-----------------------|
| (106) | a. [niño] <sub>n</sub> | - | [niñito] <sub>n</sub> |
|       | b. [alto] <sub>a</sub> | - | [altito] <sub>a</sub> |

This justifies that some authors have considered appreciative morphology as an instance of inflectional morphology, for, just like this class of morphemes, it reflects the category of the base.

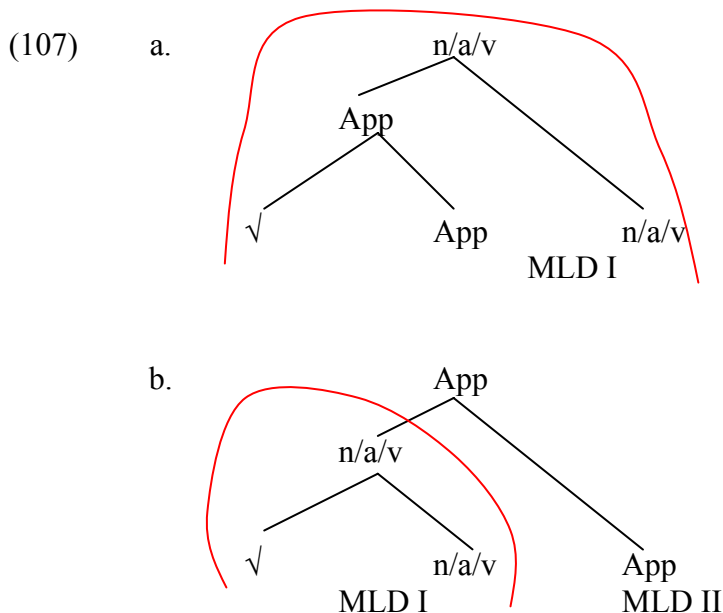
Eguren (2001) relates appreciative morphology with prefixation, because they share some characteristics. This author argues that appreciative morphemes are a class of prefixes that are spelled out on the right-hand position of the word because of the order of movement operations.

The fact is that appreciative morphemes lack category features. The immediate consequence of this is that they cannot be functional heads that define MLD’s. This, they cannot categorise roots by themselves.

<sup>111</sup> However, also in this case there are some examples where the singular form appears: “[el plátano es] el único vivero que siempre sale bueno”, ‘the banana is the only provision that is always good’, *Hoy Digital*, journal of the Dominican Republic, 20-05-2003.

At least in this sense, appreciative morphemes behave as prefixes, which are also morphemes that are combined with roots without assigning them a grammatical category<sup>112</sup>. This predicts that appreciative morphemes will give as a result two groups of words, depending on the place of the structure where they are merged.

If they are merged under a functional category, they will be contained in the same MLD than the root (107a). We predict that phonological processes will be sensitive to the information contained in that morpheme, and, also, that the root and the morpheme may have an Encyclopaedic entry for them. However, if they are merged over the functional head that categorises the root, they will be contained in two different MLD's and we predict that the phonological information of the appreciative morpheme won't be accessible for the root; forcefully, compositional meaning will have to arise (107b).



The two possibilities exist, then, so we expect to find two different groups of words derived by appreciative morphemes.

Let us consider first nouns. From the diphthongising roots in (108a) there are two groups; the first group of words maintain diphthongisation (108b); the second group, more restricted, do not show diphthongisation (108c).

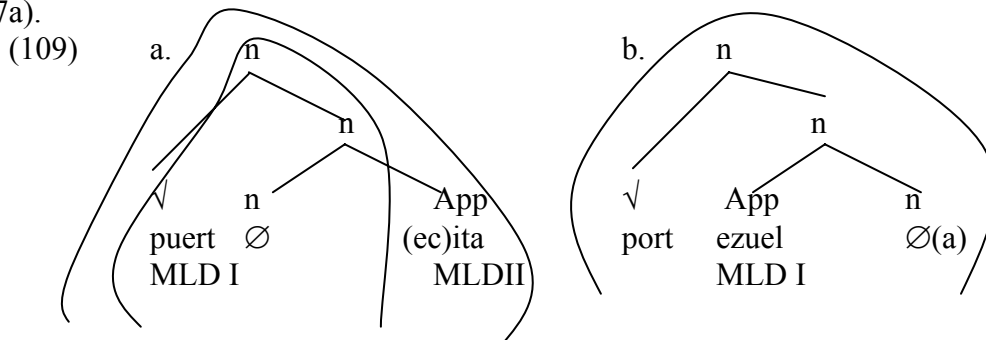
- (108) a. puerta (vs. *portal*), cuerpo (vs. *corporal*)...  
 b. puert-ec-ita, cuerp-ec-ito...  
 c. port-ezuela, corp-úsculo...

Most interestingly, the properties of the elements in (108b) are those predicted by our theory: coherently with diphthongisation, the meaning must be compositionally derived from the meaning of the noun *cuerpo*, 'body', or *puerta*, 'door', and the *one of the* appreciative morpheme used, which is the most productive one in contemporary Spanish. However, the elements in (108c) have a demotivated meaning. A *portezuela* is not just any little door, but is specialised for doors in a special type of car; a *corpúsculo* is not any little body, but is a medical term restricted to special organisms or pieces of matter. Let's note that, correlatively, the morphemes which are used in these words are

<sup>112</sup> The fact that these elements have a gender feature does not mean that they can assign a grammatical category. In fact, gender is contained both in nouns and adjectives, so having a gender feature does not equal assigning the word to a certain category.

not productive at all. The morpheme *-zuela* is not found in many words, and the same can be said about the suffix *-úsculo*.

It is clear from our analysis that the way to explain these two classes is to propose that in the group (108b) the appreciative morpheme is merged over the functional head, as in (107b), while the group constituted by the words in (108c) is formed with an appreciative morpheme that is merged with the root, under the functional head (cfr. 107a).



In the case of adjectives, the situation seems to be the same (110).

- (110) a. **bueno** (cfr. *bondad*), **fuerte** (cfr. *forzudo*)...  
 b. buenecito, fuertecito...  
 c. bonachón, fortachón...

The properties are also shown coherently, as in the other case. Someone called *fortachón* is not a person that displays the property of being strong in a certain degree or with a certain consideration, but it can be predicated only from a particular type of person, which has brute force and is also stubborn; the same can be said about someone *bonachón*, which is not only *bueno*, ‘good’, but some special type of goodness, light-minded and naif. The morphemes used to derive these words are also different with respect to their productivity. The morpheme *-achón* is not the typical augmentative morpheme in contemporary Spanish: it would rather be used *-on* or *-azo*.

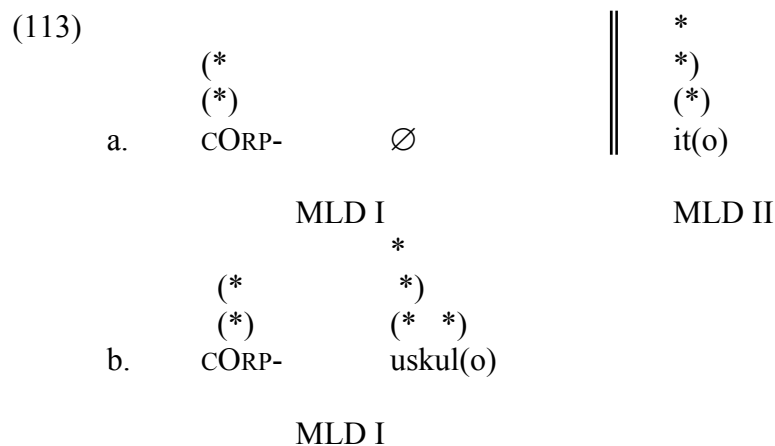
There is another observation worth making. One of the well-known arguments of the proposal that appreciative morphemes are inflectional morphemes is the fact that appreciative morphology is external to derivative morphology (111a). It has been noted that this claim is not correct, since it is possible that appreciative morphology be internal to derivative morphemes (111b) provided that, crucially, the meaning is demotivated. This is evidence that the appreciative morpheme is merged under the functional head that materialises as a derivative morpheme, so it accesses the encyclopaedic list with the root, and the meaning can be demotivated.

- (111) a. \*zapat-it-ero vs. zapat-er-ito, \*port-it-al vs. port-al-ito, \*liber-it-ad vs. libert-ad-ita...  
 b. bander-ill-ero, cam-ill-ero, gat-ill-azo...

What is interesting for our proposal is that from a word like the one in (110c) it is possible to derive a deadjectival verb which means ‘to behave typically as having the property of being *bonachón*’, but not from the words in (112b).

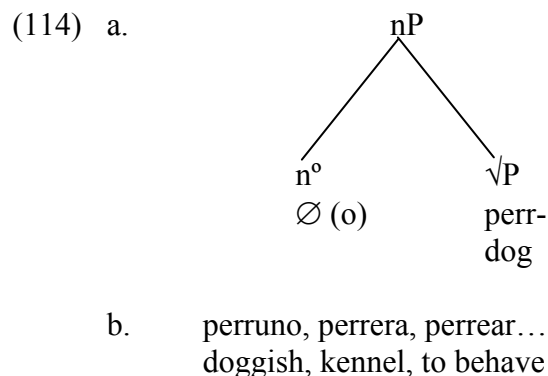
- (112) a. bonachon-e-a(r), fortachon-e-a(r)...  
 b. \*buenecit-e-a(r), \*fuertecit-e-a(r)...

The reason of this is clear now. In a structure like the one in (110c) the appreciative morpheme is merged under the functional projection, so there is no problem of that functional projection being a verb. In the words, in (110b), the appreciative morpheme is merged over the functional projection, which is little *a*. For explicitness, in (113) we show how diphthongisation is different in the two types of words with appreciative morphology. (113b) illustrates the case where the appreciative morpheme is contained inside the same MLD as the root; (113a) illustrates the case where it is outside, with the subsequent diphthongisation of the vowel in the root.



### 3.3.3. Morphological Local Domains and conversion.

In the chapter two, section 3.6.4., we noted a problem in our proposal about how to explain the ordering between the operations of derivation and conversion. We argued that the speaker must be able to identify the functional categories that are not spelled out in order to parse the word correctly. To perform this task, the speaker uses the inflection associated with the empty category. This, if the categorising empty functional head is not associated with overt inflection, it is not possible to parse the word. In this way we have explained the ungrammaticality of *[empalagosear]<sub>v</sub>*, ‘to behave like someone cloying’, from the adjective converted into noun *[empalagoso]<sub>n</sub>*, ‘someone cloying’, but we were unable to explain data such as this one:



In Spanish, it is possible to derive a converted word only if the empty functional head is the first to assign a category to the root. At this moment, we can account for this phenomenon. The first categorising functional head behaves differently from the rest of the elements, because it constitutes a MLD with the root. As it is computed independently, it can be identified, so the words in (114) are grammatical.

### 3.4. Other proposals.

Our proposal is indebted with that of Arad (2003), even though there are crucial characteristics that differentiate it from hers. This author presents a theory where the difference between word-formation over roots and word-formation over roots with functional projections –‘words’ in her terminology- is also used to give account of some phenomena.

Arad’s analysis is to propose that the first category that merges with a root defines a syntactic Phase (2003: 748, and also cfr. footnote seven). As Arad herself admits, this is not a trivial assumption, because from here many characteristics are expected. We would like to emphasise that we do not claim that the local domain is syntactic; we propose that it is a morphological construct that is driven by a requisite of word well formedness, namely, that every word must have a grammatical category.

Arad proposes that this first head defines a phase because this element defines a step in the derivation where the structure constructed by the computational system materialises phonologically and semantically. Nonetheless, this is not the only characteristic that we expect from a head that defines a phase. Phases are, of course, impenetrable chunks of structure, in the sense that the elements that are external to them cannot operate on the constituents that are inside it. However, to have this characteristic is not enough to define something as a Phase.

In the first place, given that phases are chunks of structure that are transferred to the interfaces, the heads that define phases must have formal features to establish agreement relationships with other elements, and, crucially, to check the case of an element that is in its domain. If these features are missing, case is not checked, and consequently the derivation will be non convergent, for there will be uninterpretable features in the interfaces. The problem is that little *n*, for instance, does not have these features. In this dissertation we have already argued for this idea; leaving aside the reasoning that we could present about Morphological Merger, let us remember an example that we invoked in chapter two, repeated here as (115). An *nP* that plays the role of a predicate in a copulative sentence cannot be modified by a post-nominal adjective; we argued that this is due to the fact that little *n* lacks the features necessary to check the adjective’s agreement.

- (115) a. Juan es [médico]<sub>nP</sub>.  
lit. Juan is doctor  
b. Juan es [un médico]<sub>NumP</sub>  
lit. Juan is a doctor  
c. Juan es [un médico bueno].  
lit. Juan is a doctor good.  
d. \*Juan es [médico bueno].  
lit. Juan is doctor good.

If little *n* is able to define a phase, we would expect that it will have the formal features that are needed to license the adjective’s agreement. If little *n* defines a phase, it will transfer as part of its domain entities with unchecked uninterpretable features.

On the other hand, to prove that categorising functional projections define phases, it is necessary to prove that they can assign case, which is not obvious by itself. For the same reasons that (115d) is ungrammatical, we expect that little *n* will not be able to assign case.

Another property of phases that the phenomena discussed here do not exhibit has to do with the possibility of extracting elements from their domain by displacing them to

the edge. This possibility does not take place inside a word, for example, with the displacement of an affix. However, we will not claim that this is a counterexample to Arad's proposal, because it may be the case that this displacement is blocked because functional heads have to be associated with phi features, so that they cannot be extracted.

Moreover, Arad notes that it is not possible to extract constituents from inside the words, but she suggests a solution that we consider unsatisfactory. Her proposal is that the phases defined by these heads are weak phases (cfr. footnote 7), whereas only strong phases (Chomsky 2001) license movement. The problem is that the chunks of structure that Chomsky calls weak phases cannot be transferred to the interfaces, because they are not headed by heads with complete sets of formal features. Therefore they have unchecked uninterpretable features in their domains. If these words are weak phases, then we do not expect that they can be transferred, which is a reason to reject Arad's answer.

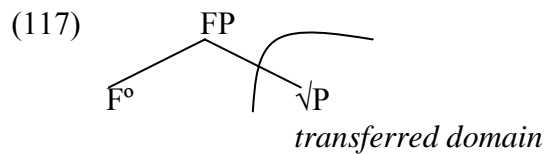
Related with this idea, if these elements are indeed phases, we expect to find two different types of little *v* heads, because there are two little *v*'s, one that defines a strong phase and whose domain can be transferred, with a causative reading, and another one that is interpreted as inchoative and does not define a phase. We would expect, then, that the locality phenomena identified by Arad would take place in causative verbs, but not in their inchoative counterparts, because an inchoative little *v* does not define a strong phase. This is not the case. In fact, Arad (2003: 750, examples 16c and 16d) analyses –correctly, we think– in the same way the verb *to consider*, Hebrew *hexshiv*, which is causative, and the verb *be considered*, Hebrew *hithaxshev*, which is inchoative. We think that this shows that we cannot consider these constructions as syntactic phases, but as morphological constructions, MLD's.

The proposal that the phenomenon that she studies is determined by syntactic phases forces Arad not to take into account the head little *a*. Maybe the reason is that this head is not considered a phase defining head. However, as we have seen, the head little *a* behaves like little *v* and little *n* with respect to the characteristics that we have observed. Possibly, Arad leaves aside the head little *a* because this constituent cannot be associated with any particular morphological case, whereas little *v* may be associated with accusative case and little *n*, with genitive case, even though we have argued that genitive is not assigned by this head. However, with respect to locality phenomena, little *a* behaves like the other two heads, as the examples in (116), which we have already discussed, witness.

- (116) agruesar, aviejar...  
           *to make something thicker, to make something older...*

Moreover, the idea that these locality phenomena depend on the transference of the domain of the phases implies a point of view where the only element that is expected to have a special meaning is the root (2003: 740). This is caused by the fact that in a phase what is transferred is only the domain, not the domain and the head (cfr. section 1.1. in this chapter). We do not expect the same result if we have MLD's, because in this case the head must be grouped with the root, for the head is the element that has grammatical category. In Arad's proposal, we expect that the root will be transferred without the functional projection (117). Our question is the following: how do the Vocabulary and the Encyclopaedia know if they are dealing with a root categorised as a noun or as a verb, to assign the correct conceptual semantics to it? Unless the root has acquired a category label in the syntax, in which case the presence of the functional head would be

redundant, we expect that the interfaces will not be able to differentiate a root categorised as a verb or as a noun, for the root is the same in both cases.



Arad also notes that the reading that the root has is determined and cannot be changed due to a strict locality principle which holds between the root and the functional head. Locality is a relation that depends on semantic and formal selection, and, therefore, it only takes place between heads, in the absence of specifiers or adjuncts; it can only be interrupted by other heads (cfr. Hale & Keyser 2002: 60 and folls., 103). In any case, we would expect the meaning of the root to be defined by itself, without prefixes or appreciative morphemes. This prediction is not verified, as we have already seen. Let us remember some examples, such as those in (118).

- (118) portezuela, engrosar, asolar, corpúsculo...  
 small door of some cars, to increase, to devastate, micro-organism...

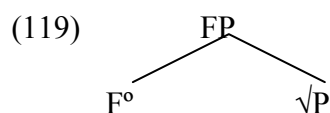
However, if this is not a matter of locality, but of the definition of a domain that includes the functional projection and everything that merges under it, be it a head or an adjunct, we expect that the Encyclopaedia will be able to determine the category of the root and that the prefixes and other adjuncts will contribute to the demotivated meaning of the word.

Finally, Arad (2003: 774) notes a parametric difference between the languages of the world. There are languages whose roots can have a variety of different meanings depending on the morphosyntactic context –for instance, Hebrew-, whereas there are others whose roots have a quite stable meaning in each category –as English -. This difference –which is, in our mind, descriptively correct- does not seem motivated in Arad’s framework, because it would be just a stipulation that affects the encyclopaedic entries in a given language. However, if the definition of local domains is a morphological matter, we expect, in fact, that two languages with radically different morphological processes, as English and Hebrew, will have different characteristics with respect to the interpretation that a given Vocabulary Item can get. This proposal has to be technically implemented, though.

There is one more difference between the predictions done by Arad’s theory and ours. We will discuss this last difference in the next section.

#### 4. Chains of functional projections and MLD’s.

To justify the existence of MLD’s, we have invoked the fact that a root must have a grammatical category to make insertion of Vocabulary Items possible. This explains that the set formed by a root and the first functional head that categorises it constitute a MLD, as we represent in the diagram (119) for the sake of the argument.





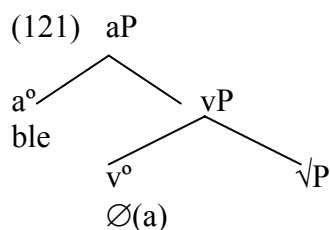
However, as far as we understand this, this theoretical proposal is not enough to determine whether each of the functional heads that may merge over FP in (119) will constitute their own MLD's or, on the contrary, they will constitute, together, only one MLD. It may be the case that each functional head will access the Vocabulary separately; it may also be the case that, once that the root gets a grammatical category, the other functional heads that dominate (119) constitute only one MLD once they have been combined with phi features. We believe that the theory is not enough to make a decision here, and therefore it is necessary to consider the empirical predictions that each one of the alternatives implies.

Let us remember that one of the predictions that we did with respect to MLD's is that they are a closed domain for Vocabulary Item insertion, and, therefore, for the definition of idiosyncrasies. From here it follows that a Vocabulary Item is not able to force the insertion of an allomorph unless it is in the same MLD. Therefore, to make a decision between the two proposals, we must determine if the functional heads that may dominate (119) can interact one with another, determining the insertion of allomorphs.

To solve the problem, let us consider derivatives in *-ble*, illustrated with an example in (120).

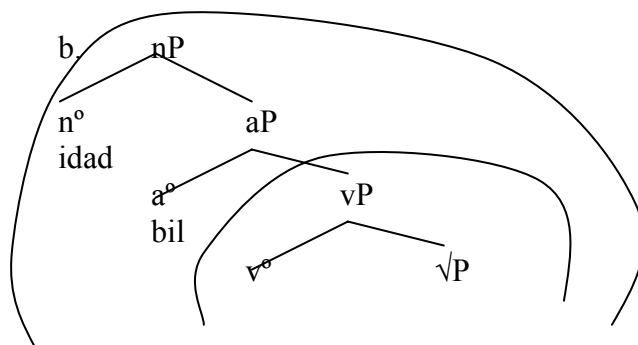
- (120) *manejable*  
lit. manageable

Every derivative in *-ble* is built on a structure such as the one in (119), because the root must be already categorised by a functional projection before *-ble* is added to the structure. Evidence of this is the presence of the Theme Vowel, which -following Oltra (1999) and Oltra & Arregi (2005)- we take as a morpheme added to little *v*. Therefore, the structure of *manejable* must be –at least– the one in (121).



That is, the little *v* and the root constitute a MLD that does not include little *a*. The question is whether little *a* defines its own MLD or it constitutes a single MLD with the other functional heads that may merge with this structure. The answer is found when we add the nominalising suffix *-idad*, ‘-ity’, to the word (122).

- (122) a. *manejabilidad*  
*manageability*



The presence of a certain Vocabulary Item in the little *n* projection causes an allomorphy in the item that spells out the little *a*, which does not materialise itself in the form by default *-ble*, but as a special allomorph *-bil*. Thus, little *n* and little *a* must be in the same MLD in the structure represented in (122). The consequence is that, as this data shows, it is not true that each functional head constitutes its own MLD; on the contrary, from the second functional head on, every categorising functional head belongs to the same MLD's.

This is another difference between our theory and Arad's (2003). In Arad's theory, where local domains are defined by syntactic phases, we expect that, if little *n* or little *v* define a local domain –which means that they must be phase defining heads-, they will always define such a domain. Consequently, there should not be differences in the behaviour of a functional head when it is the first one to merge with the root and when it is the second one or the third one. In both cases, it should act as a head that defines a weak phase, so it should define a new local domain. Thus, we would expect that each functional head would define its own local domain, and, therefore, we would expect that the functional head spelled out as *-ble* would not have an allomorph whose insertion is conditioned by a functional head manifested as *-idad*, because they would not be in the same MLD.

## 5. Morphological Local Domains and the Encyclopaedia

The theory proposed implies that roots access the Encyclopaedia with the first functional projection that dominates it, if it is able to assign a grammatical category to them, but not with the other projections.

Now, this proposal has, if nothing else is said, an unwanted consequence, and this is that there should not be phrases with demotivated meaning, for phrases are formed with more than one functional projection. Counterfactually, we should not have entries for expressions such as those in (118).

- (118) a. ojo de buey  
       b. pie de atleta  
       c. sacar [a alguien] las castañas del fuego  
       d. estirar la pata  
       e. mentar la sogá en casa del ahorcado

According to our theory of MLD's, these expressions –as they all are formed by more than one word with its own desinence or theme vowel– would access the Encyclopaedia separately, since, each time that a functional head merges with a root, it will be separated from the rest of the structure. Therefore, some more things need to be said about this.

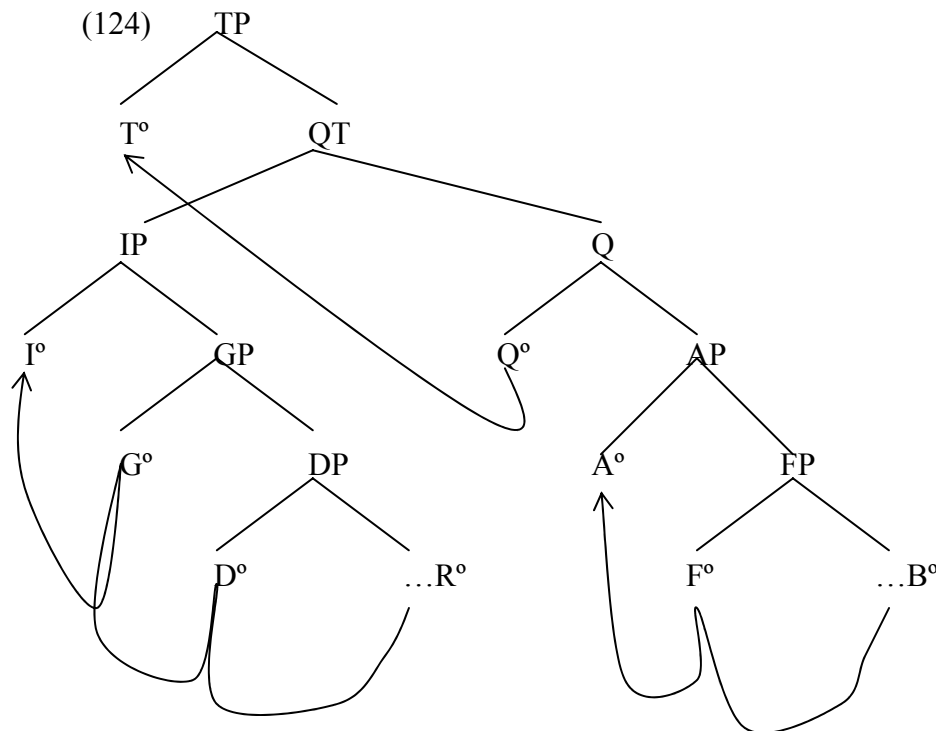
To propose an answer to this, we will consider the process from the first details. Syntactic structures are formed in the computational system, through merge, agreement and copy. When a chunk of structure is completed in the formal and semantic sense, it constitutes a phase and is transferred to the interfaces, the PF and the LF branches. The PF branch is where morphology is.

Therefore, syntactic structures determine the material which morphology manipulates. This doesn't imply that all the material that syntax provides is used in the morphology.

As we said, some of the elements that are contained in the syntax will be subject to a special operation, Morphological Merger. This operation only takes into account heads and is subject to a requisite of strict dominance: in order to allow one element to be morphologically merged with another it is necessary that one of the elements immediately dominates the other. We proposed in the first chapter, also, that morphological merger can only take place between two nodes that agree in at least one feature if there are no phi features between them.

After merging has taken place, there will be two classes of elements in the structure that has come from syntax: a sequence of terminal nodes merged in one position and a series of constituents that have been not morphologically merged. We propose that the Vocabulary, the Encyclopaedia and the Phonology treat them in a different way.

In the phonological tradition, it has always been a difference between lexical phonology and post lexical phonology. This has been taken to imply a difference between a lexicon and a syntax, which were supposed to be two different components. This proposal makes it unnecessary. We propose that rules of lexical phonology are rules of phonology that only apply to structures that have been morphologically merged; post lexical phonology refers to the phonological rules that apply to structures that have not been merged one with another. Let's take the structure in (124) as an illustration.



Let's assume that this structure is the domain transferred in a syntactic phase, so that these are the operations that morphology is able to perform in that structure. After morphological merger takes place, there will have been created three structures with terminal nodes:

- (125)
- a. Q-T
  - b. R-D-G-I
  - c. B-F-A

At the same time, there is a sequence of phrases which are not subject to this morphological operation:

(126) [TP T [QP [IP I[GP G [DP D [R]]]] Q [AP A [FP F [B] ]]]]

Our proposal is that both phonology and the Encyclopaedia process these two classes of structures in different ways. Structures such as those in (125) are subject to the conditions imposed on morphological cycles, but phrases such as those in (126) enter into the Vocabulary and the Encyclopaedia as one unit; their only constraint is imposed by the heads that define syntactic phases. However, the structures that are a result of merge operations will access the Encyclopaedia following the principles of morphological cycles that we have discussed. That is, first the root(s) with the first functional projection that has the power to categorise and then the rest of the functional projections.

The result is that (124), as a phrase, may have a demotivated meaning, but not the isolated words that result from the application of Morphological Merge to (126) if they are constituted by more than one functional projection. The possibilities are the following:

- (127) a. A word does not have a demotivated meaning, but is included in a phrase that has a demotivated meaning. This is the case of the participle *encerrado*, ‘locked’, in the expression (i).

i. Haber gato encerrado, ‘to be something fishy’

- b. A word has a demotivated meaning, and is also included in a phrase with a demotivated meaning. This happens with the noun *castaña*, ‘chestnut’, whose meaning is unpredictable, in the expression (ii).

ii. Sacar las castañas del fuego, ‘to solve someone’s problem’

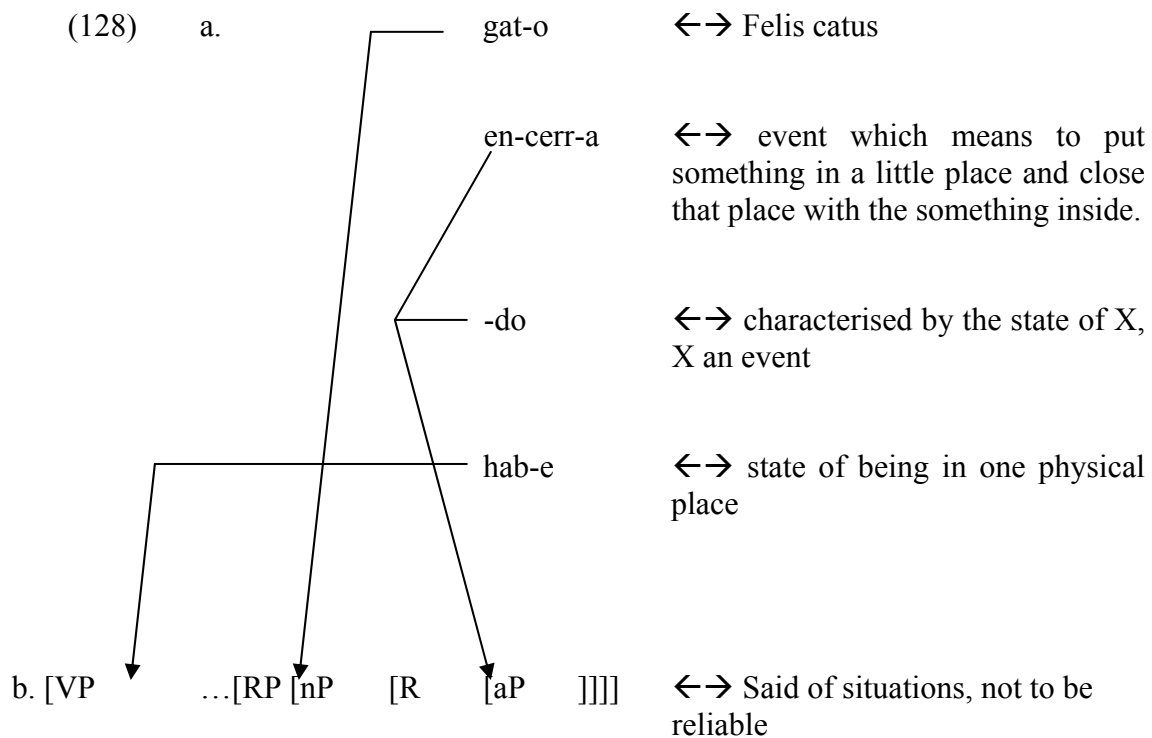
- c. A word does not have a demotivated meaning and is included in a phrase which also lacks a demotivated meaning. This happens with the eventive noun *construcción*, ‘building’, in (iii).

iii. Visitar la construcción del puente, ‘to visit the building of the bridge’.

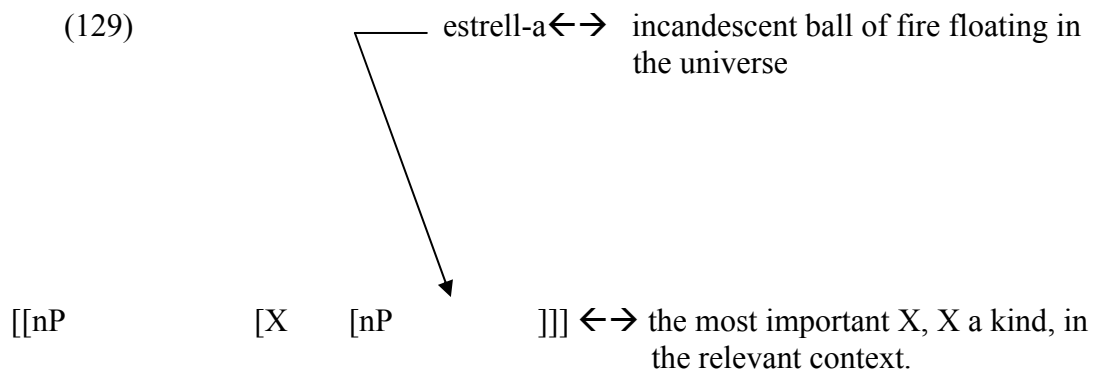
- d. A word has a demotivated meaning and is included in a phrase without a demotivated meaning. This happens with the word *tesina*, ‘preparatory dissertation’, in the expression in (iv).

iv. Escribir la tesina, ‘to write the preparatory dissertation’.

This has some implications for the structure of the Encyclopaedia. If this combination of demotivated and predictable meanings is true, *it* basically means that the design of the Encyclopaedia must be one in which the words have meanings in isolation, but some words can be also connected to different meanings. So, basically, the structure of the Encyclopaedia must be something like in (128), which we illustrate for the idiom *haber gato encerrado*. What must be represented are not only entries for the chunks of Vocabulary Items that enter together the Vocabulary (128a), but also a combination between those elements (128b).



The structure in (128b) is not identical to what Booij (2005) calls a compositional idiom, for the Vocabulary Items that fill it must be exactly those with which it is associated. Compositional idioms, this is, expressions where one element has a special meaning but can be combined with a variety of different Vocabulary Items, can be represented as in (129). Let's take as an illustration the series of appositions where the second term is the noun 'estrella', giving the noun it accompanies the meaning of "being the best member of its class", as in 'oferta estrella', 'cliente estrella', 'cantante estrella', 'acusado estrella', 'testigo estrella', 'juez estrella', 'periodista estrella', 'programa estrella', 'promesa estrella', etc...



It has been tested that in an idiom, the individual words are activated, all together with their meanings. A word is primed if it appears in an idiom, and it does not only

activate its own phonological form –something expected-, but it also primes other words that have to do with its meaning when considered in isolation. This is something that implies that the conceptual meaning of the word in isolation is accessed, and, with it, its encyclopaedic entry.

Adjuncts to the head are merged with the rest of the structure because they are also heads. Therefore, a prefix adjunct to the head is inside the same morphological cycle than the head.

In brief, then, our point is that in the Encyclopaedia there must be entries both for words and for complete phrases. Words always have to be paired to conceptual information of their own, but occasionally, they can also get conceptual information because of its being in a certain phrase. Encyclopaedic entries that refer to phrases can have all its positions associated to particular words or they can alternatively leave some positions as variables that can be filled by any Vocabulary Item that belongs to any category. In the first case we obtain an idiom, whereas in the second a compositional idiom is obtained.

To sum up, in this chapter we have considered the consequences of the fact that words have an internal syntactic structure and that the proper domains inside a word are determined by syntactic heads. The phenomena discussed show, to our mind, that the relation between syntax and morphology can be restated in a framework where the internal structure of words is basically visible to syntactic processes; this is –we propose– what the case of prefixes such as *ex-* and *post-* show. At the same time, we have revised some cases which posed a problem to common accounts of morphology, such as preservation of diphthongisation in cases where it shouldn't be expected, and we have argued that they can be explained if inside words there are domains where phonological and semantic information is defined autonomously. We have also argued that the requisites which determine if something is a morphological domain are basically syntactic and depend on the presence of certain syntactic heads, namely those able to assign a grammatical category. Finally, we have addressed a problem which our theory finds in the case of phrasal idioms and we have argued that they can be explained if heads and phrases are computed differently in the interfaces.

## 1. Conclusions.

When we started this dissertation, our intention was to contribute to the debate about the status of word formation in the language faculty. In Chapter 1, we referred to two different questions which we would like to consider in the course of the dissertation. The first one is a general problem, so theoretical that it cannot be addressed in the absence of specific problems and data; it refers to the nature of Morphology and whether it determines syntax or it is determined by it. We presented two opposite views about the place that Morphology occupies in the architecture of grammar, the Lexicalist framework and the Distributed Morphology framework. This implies, of course, a somehow arbitrary selection among the wide set of theories which have addressed the status of Morphology. However, the selection is motivated since, although Lexicalism and Distributed Morphology share a general view of grammar (Generative Grammar, Chomsky 1957), they also maintain, within the same theory, views which are diametrically opposed. We presented some evidence which may back DM against Lexicalism. The second question that we presented in the first chapter refers to a problem which, being more specific, can be analysed independently and straightforwardly with recognisable phenomena: the way in which information about grammatical categories is obtained. After a short overview about the possible ways in which grammatical categories have been considered in Linguistics, we observed that Lexicalism, as it proposes the existence of a pre-syntactic Lexicon, can simply postulate that grammatical categories are defined idiosyncratically for each root; in contrast, DM, as it views Morphology as a post-syntactic level, must claim that grammatical category is obtained through combination with functional heads in the syntax.

The next chapter, Chapter 2, presented arguments which constitute evidence for a definition of grammatical categories in the syntax. After a historical overview of different proposals to determine grammatical categories, we discussed conversion from adjectives to nouns, and we argued that to a great extent it is possible to predict which adjectives and under which circumstances can become nouns. We propose that the basic difference between nouns and adjectives is that the first ones denote properties with a fixed value, while the second ones denote properties with variable value –because they need to be graduated-. We proposed that, when in the syntax there is some kind of element which fixes the value of the adjective, the resulting structure can be categorised as a noun. This proposal is more principled than to postulate the existence of an ad hoc rule of conversion which transforms entities from one category into entities of another, since this rule cannot explain why some words can be an input, while others can't. Our account, on the other hand, can explain many regularities, but it crucially proves that a word is assigned a category after it has combined with other units in the syntax.

However, we noted that a great counterexample to the proposal that categories are defined in the syntax may be found in the case of words which, even though they show a morphological form of a certain category, they have a syntactic or semantic behaviour which is proper of another theory. This kind of mismatch receives the name of transposition in the literature. In the case of adjectives and nouns, there are two conceivable mismatches: adjectives which behave like nouns and nouns which behave like adjectives. Both mismatches are attested.

Chapter 3 is devoted to the first mismatch, adjectives which behave like nouns, which is illustrated by relational adjectives. Relational adjectives, among other characteristics, have noun semantics and are arguments of the noun they modify. We

argued that, even though they have a morphological shape of adjectives, these entities are syntactically nouns. The presence of the agreement features is motivated precisely by the fact that these entities are arguments, but do not combine with a determiner, so they cannot receive a theta-role in the usual way. Agreement features make the noun active, in a syntactic sense, so it can interact with another functional projection. Theta-role assignment is interpreted in LF as a result of the establishment of this relation with the other functional projection. Without the presence of the agreement features, the noun would be inactive, it wouldn't interact with another functional projection and, therefore, it could not be interpreted as an argument in LF. Therefore, we concluded that apparent cases of transposition may be proved to be a result of the interaction of certain syntactic principles that force the presence of certain matrixes of features in heads which usually don't have them.

In Chapter 4, the other case of mismatch –nouns which behave like adjectives- is studied. We addressed nouns which have a predicative use, but in this enterprise we have also made a selection of data, to the extent that we have focused on cases of predicative nouns without intervention of a copulative verb. This leaves us with N-N appositions, which we have claimed to be predicative because of the intervention of a relational head with a predicative meaning, in the spirit of Bowers (1993, 2000). Therefore, nouns are never predicates, for they need to combine with a special projection to become predicates. In the process, we identified two cases of appositions of non-predicative nature, kind appositions and proper noun-surname appositions. We argued that every N-N construction with a predicative meaning is a case of apposition, against the commonly held view that some N-N constructions are cases of compounding. In relation to this matter, then, we shortly revised the notion of nominal compound and we suggested that there should be no reason to propose that some structures are compounds only because they do not display the expected syntactic behaviour: most properties are predictable, given that some matrixes of features may be defective or may become inactive during the syntactic derivation.

In Chapter 5, we went one step further and we investigated two consequences of the structure proposed for the word. If words are –at least- the result of merging one root projection into one functional head that provides the root with grammatical category, we expect, first, that, as words are syntactic objects, the Lexical Integrity Hypothesis should be revised and, second, that the set formed by a root and the functional projection that assigns a grammatical category to it has some special status in morphology. With respect to the first prediction, we argued that there are interactions between the internal structure of words and the syntactic notion of phase, in such a way that the same element, merged into different positions, has different properties which can be syntactically predictable. In order to prove that word internal constituents may be able to move out of the word, we argued that prefixes may escape the rest of the word in LF and in FF, something which in principle constitutes contrary evidence to the Lexical Integrity Hypothesis. As for the second prediction, we argued that the set formed by a root and a functional head defines a Morphological Local Domain inside which some operations are performed without reference to the elements outside. We revised a set of data which we suggested that can be explained based on the notion of Morphological Local Domain. Therefore, we study parasynthetic verbs which diphthongise in unexpected environments, the role of gender and number inflection in the noun and the role of degree morphology in the adjective. In the process, we established a principled difference between word formation over roots and over stems.

To summarise, in this dissertation we have tried to give serious thoughts to one proposal about the architecture of grammar: Morphology is determined by Syntax. We



have focused on the nature of grammatical categories. We have shown first that if grammatical categories are defined in the syntax –and not merely stipulated by individual lexical items- we gain a deeper understanding of conversion and the relation between a root and its (possible) categories. We have shown, then, that two apparent counterexamples to a syntactic definition are not such, since relational adjectives are actually nouns with a set of agreement features able to receive a theta-role and nouns in apposition are actually nouns with a predicative relational head. Finally, we have studied two properties of words which should be expected to be the result of roots and functional heads syntactically combined.

As a result of studying these main problems, we addressed also other questions which are critical to a theory of morphology, such as the nature of compounding –in chapter four-, the principles which determine the formal limits of the word –in chapter one-, or genitive case assignment and the nature of prepositions –in chapters three and four-. We believe that this proves that to determine the nature of a phenomenon implies to take a glance at the nature of any other phenomena in the same field of study.

## 2. New questions.

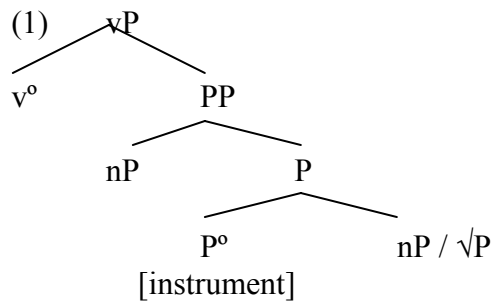
It is commonly said that most merit of a scientific proposal resides in the new questions that it brings to light. In this dissertation we have tried to be scientific, so we would like to point out the new problems that may arise as a result of our proposal.

### 2.1. Other grammatical categories.

#### 2.1.1. The status of verbs as a grammatical category.

For methodological and practical reasons, we have focused in the relations which hold between the two nominal lexical categories noun and adjective. We have left out from our research almost entirely the category of verbs, but there are some pertinent questions which are related to this category to the light of our analysis in this dissertation.

First, with respect to conversion, we would like to observe that conversion from noun / adjective to verbs is not exactly as conversion from adjectives to nouns. When an adjective is converted into a noun, unless some encyclopaedic entry is involved, we obtain exactly the same meaning that we had with the adjective. The only difference is that, instead of having that meaning as a relational category which can be graduated, we have it in a non relational category which avoids gradation. This is, if the adjective *gordo* means ‘fat’, when it is converted into the noun *gordo*, the noun means ‘someone who is fat’. This is not the case with verb conversion. From the noun *sierra*, ‘saw’, the verb *serrar*, ‘to saw’, does not mean ‘to be a saw’. It means to perform an action with the help of a saw. As Clark & Clark (1979) noted, many of the pairs noun / verb involve an instrumental meaning, and we would like to suggest that this is not casual. Nouns are a grammatical category quite similar to adjectives, but they seem to be much more different from verbs; in fact, it seems an almost universal fact that any language has two main categories: noun and verb. Adjectives may be collapsed with verbs or with nouns. This may mean that it is not possible, or not easy, to take a root which can play the role of a noun in the syntax and construct a verb with it, since nouns and verbs have very little in common. Maybe this is not possible in one step, but if the root is combined with another element first, it is –in a sense- adapted to perform a verbal meaning. One obvious candidate would be a preposition, as in (1). This preposition may be responsible of adding the instrumental meaning to these noun-to- verb conversions.



Of course, this is a question which requires much more refinement.

Another related question which involves verbs has to do with their (apparent) inherent predication nature. We have argued that adjectives need to combine with a relational head to have a subject, following Hale & Keyser, and we have argued that nouns may also combine with a head of this type to become predicates. In contrast, verbs seem to be able to have a subject –in their case a CAUSER- just by themselves, through the properties of the little *v* head. They do not seem to need a predication head to select a causer. This approaches them to prepositions, which are the other grammatical category which is able to have a subject by themselves. To our knowledge, a relation between prepositions and verbs vs. nouns and adjectives has not been developed in depth in the Generative Grammar framework. This would be also a matter for further research.

Let's consider now compounding cases which involve a verb. In (2), the modifier of the head –a verbal theme, maybe turned into an agentive noun (Varela 1990a)- holds a thematic relation with the head. In fact, it is its internal argument.

- (2)    [[limpia]botas], [[corta]plumas]...  
          lit. polish-boots, cut-feathers...

In chapter three, we have taken very seriously the principle that only DP's are arguments, and we have derived most properties of relational adjectives from this principle. The relevant question is how the theta-relationship between the non-DP argument and the deverbal head is established. As the modifier is a noun in shape, it seems that the procedure is not the same as in the case of relational adjectives. This aspect of the behaviour of compounds and the relation of their characteristics to theta-assignment would be an interesting topic to be studied.

#### 2.1.2. The nature of prepositions.

During this dissertation, we have identified several types of relational heads, this is, prepositions. We have proposed that there is a predicative relational head in noun appositions, and we have followed Hale & Keyser when they propose that another relational head provides the adjective with a subject. These two relational heads may be related, even though they realise themselves morphologically in different ways. We have also proposed that some sort of relational head assigns genitive case in the noun domain, but, in this case, the relational head is semantically very weak, as the interpretation of genitive case is always underspecified. Therefore, our dissertation puts the nature of relational heads under a new light: why do some of them seem to be devoid of semantics? What is the difference between a relational head such as the one which provides nouns and adjectives with a subject and another as the one which is realised as a lexical element *por*, 'by' or *en*, 'in', that is, what is the role of the feature

[Def]? What determines that a relational head realises as a set of agreement features, as it seems to happen with the adjective, or as zero or a weak preposition *de*, ‘of’?

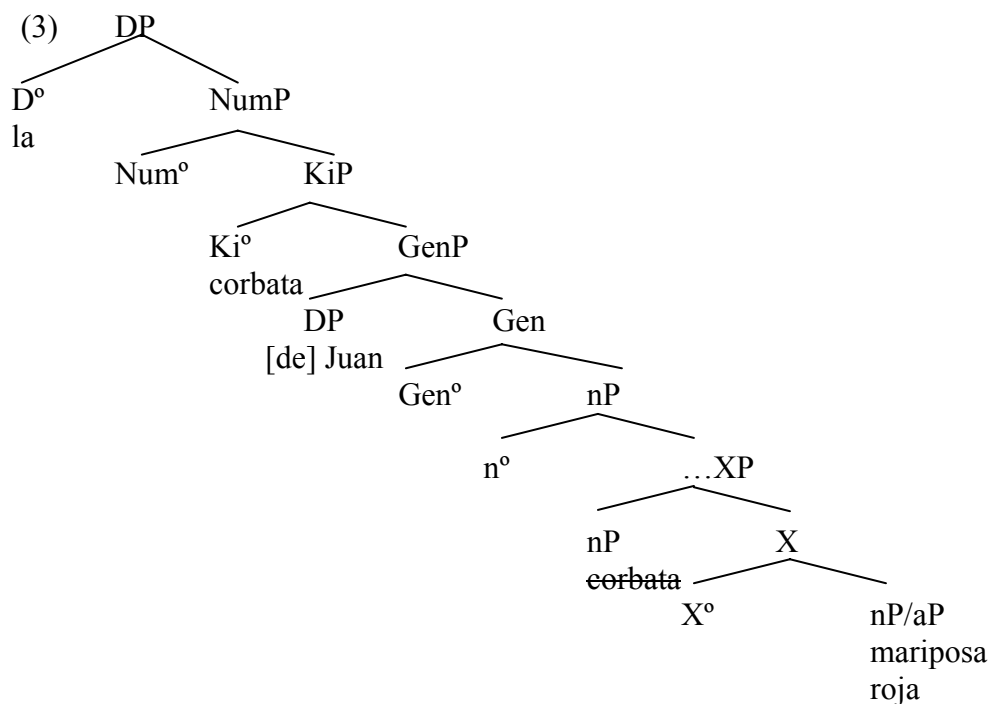
From another perspective, we have consistently characterised relational heads as elements which contain phi features. In the Morphological literature, it has been observed that prepositions cannot be used as bases for derivation of new words. A promising line of reasoning to explain this may be found in the fact that words cannot have phi features internal to them.

These problems are clearly questions which are in need of a deeper analysis.

## 2.2. The structure of the noun phrase.

### 2.2.1. Other modifiers of the noun phrase.

Our dissertation has addressed the nature of grammatical categories and has taken a glance at the relationships between nouns and adjectives, but we have not discussed the structure of the noun phrase. This has had consequences. Many important questions about the organisation of the noun phrase have left unanswered. One of these questions has to do with the different modifiers of a noun head and the relative ordering between them. Let us remember that, when the nP is dominated by a GenP and there is also a predication structure –an apposition or a post-nominal adjective–, the whole structure is the one represented in (3), where XP stands for RP and PrP.

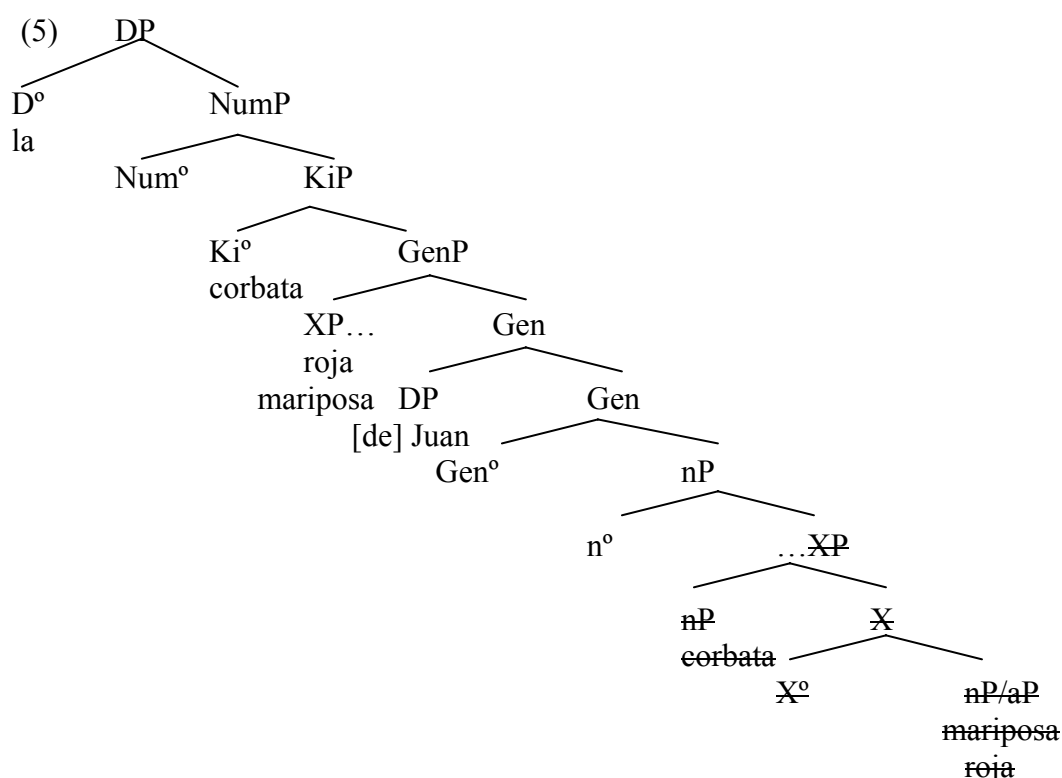


As can be seen in this structure, even though we obtain the correct order between a relational adjective and a qualitative adjective (4a), the unmarked word order between the genitive modifier and the predicate of the noun is just the opposite of the actual attested data (4b, 4c).

- (4)
- a. la corbata francesa roja.  
lit. the tie French red.
  - b. \*la corbata de Juan roja / mariposa.  
lit. the tie of Juan red / butterfly.
  - c. la corbata roja / mariposa de Juan.

lit. the tie red / butterfly of Juan, ‘the red tie of Juan, the bow tie of Juan’

This shows that the structure that we have used to account for the noun phrase is not complete and there are crucial aspects of its behaviour that we have not understood in our research. It is not impossible to generate the actual ordering of elements in our structure, though. If it were possible to propose that, due to some reason, the predicative structure rises to the edge of the GenP of its noun phrase, once genitive case has been checked, we would obtain the correct surface sequence (5).



It would be necessary to analyse in detail the characteristics of this type of operation, and also to explain why the operation does not take place when the constituent that gets genitive case is a relational adjective. We have not even sketched these problems in our dissertation, so, for us, the structure of the different modifiers of the noun head in (4) remains an extremely complex matter where almost everything still has to be studied carefully.

### 2.2.2. Prenominal adjectives.

In our research about adjectives we have also performed a selection of data, to the extent that we have not addressed certain elements, which have been traditionally classified as adjectives, and must appear in prenominal position. We have also ignored the appearance of normal post-nominal adjectives in prenominal position, as in (6).

- (6) la fácil pregunta  
lit. the easy question

The properties of these elements have not been discussed in this dissertation. However, our account of normal post-nominal adjectives may throw some light on these

elements. It has been noted that prenominal adjectives have a tighter association to nouns they modify, are not restrictive, and cannot have selected PP modifiers (7).

- (7) \*la fácil de responder pregunta  
lit. the easy to answer question

In our account of post-nominal adjectives, we proposed that it is needed a relational head to provide them with a subject. Let's assume that for any reason a prenominal adjective is an adjective which lacks this projection; this would force the adjective to be associated with the noun that it modifies in another way, which may have the result that it would be tighter associated with it. Moreover, if the preposition of the complement of the adjective is a manifestation of the relational head of the adjective, the absence of the complement may be explained by the absence of the relational head itself.

Naturally, this problem needs further research.

### 2.3. Other morphological constraints: argument structure.

In this dissertation we have concentrated entirely on problems which are primarily concerned with the grammatical category of a lexical item. This should not make us forget that another major cause of restrictions on word formation is to be found in argument structure. To the same extent that roots lack grammatical category, they should lack a complete argument structure of their own, for this information cannot be stored in a presyntactic Lexicon, but has to be defined in the course of the syntactic derivation.

Therefore, this means that, in a framework like Distributed Morphology, argument structure should be treated in a way similar to grammatical categories, and the restrictions that in Lexicalism have been explained through the valency of the base must be revisited.

Hale & Keyser's system, to the extent that it proposes that theta-roles are determined by syntactic configurations, is a promising starting point to perform this enterprise. The strategy could be to propose that affixes, which are the manifestation of functional heads, are sensitive to syntactic configurations, and not to features that may be in their bases (as DiSciullo 1997a proposed). In this sense, it could be argued that some affixes require a configuration with a specifier and no complement, while others require a configuration without specifier and with complement, and so on. Of course, it would be necessary not simply to stipulate the configuration required by each head, but to derive these properties from independent syntactic principles, such as case assignment.

This is clearly another matter for further investigation.

### 2.4. Some intriguing characteristics of word formation.

#### 2.4.1. Lexical Strata.

When Siegel (1974) first proposed the existence of Lexical Strata, one of the main questions that she wanted to address is how to substantiate morphologically the two types of junctures that had been defined by Chomsky & Halle in SPE. There were morpheme boundary, or also 'formative boundary', represented as '+', and word boundary, represented as '#'. Siegel proposed to answer this question differentiating two classes of affixes, named 'Class I' and 'Class II', which are associated, respectively, with the + boundary and with the # boundary. Siegel's proposal in the year 1974 is that Class I affixes attach to stems, this is, incomplete morphological units that are bounded, while Class II affixes attach to words, and that is the reason why they

basically don't change the phonological shape of their bases. In the later versions of Lexical Strata theory that are built on Siegel's work, such as Allen (1978) and Kiparsky (1982a, 1982b), the emphasis is put on different matters, such as level orderings of the lexicon, or the stratification of phonological and morphological rules, and this basic difference between the different entities to which the two classes of affixes attach becomes somewhat blurred.

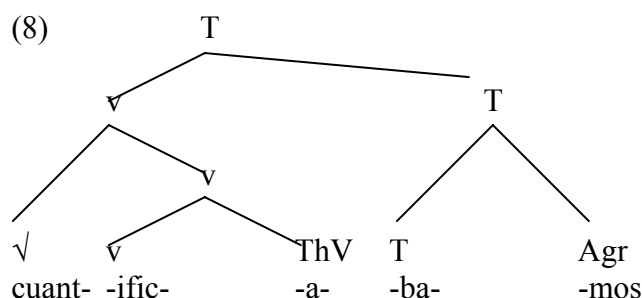
This intuition can be kept in this dissertation, since we have a difference between word formation over roots, which may imply demotivation of meaning and has an effect on phonology, and word formation over stems, which is unable to change the meaning and the phonology of the base. This new perspective implies to define lexical strata by the bases involved in the morphological processes (cfr. Giegerich 1999), not by the affixes contained in each level. As is known, a definition that concentrates on the affixes of each level encounters many problems and counterexamples, which are identified as soon as 1976 (Aronoff 1976: 84-85). This is, again, another matter for further research.

#### 2.4.2. The role of features in word formation.

In this dissertation we have maintained that the effects described by Greenberg's Universal number 28 –namely, that inflection is external to derivation– are due to a principle that blocks Morphological Merger between two heads when between them there is a head that has these features. This proposal was stated in chapter one, section 2.2.1.1.

Several questions come from here. The first one is why Morphological Merger should be restricted by a characteristic such as this one. We suggested that it may be due to the fact that phi features trigger some agreement processes that determine central aspects of the behaviour of a word in syntax, such as the relationships with its modifiers. This answer is not complete, because it does not solve the problem, but simply substitutes it for a more general problem, namely, why phi features determine some relationships. This question may give rise to a research program aimed to determining the role of agreement in the languages of the world.

A second problem related to this one is whether there is any deep reason to prevent a word, once it has acquired phi features, from morphologically merging with other constituents that have this type of features. We have argued that the noun morphologically merges with  $Ki^{\circ}$ , where number inflection is spelled out, and the adjective materialises itself in  $R^{\circ}$ , where agreement and degree inflection are materialised. It seems, then, that none of these categories morphologically merges with the functional heads that are higher to the first head that contains phi features. In the case of the Spanish verb, the situation may be similar, if we assume that  $T^{\circ}$  is the first functional head with phi features.  $T^{\circ}$  fissions and produces two positions of exponence, one to spell out the interpretable feature [T] and another to spell out the uninterpretable phi features that produce agreement (8).



Verbal morphology has to be studied in detail, to determine if the behaviour of a verb is identical to that of the nominal categories with respect to morphological merger. The relevant question is whether it is true that there is not a word formation process that merges two or more heads with phi features. Although it is possible to suggest a reason not to let words manifest themselves without phi features, it is not so clear that the same reasoning is enough to prevent a word from having more than one head with phi features; provided that the phi features are compatible, this could be possible.

Finally, another question that we have not explored in this dissertation is the role that other types of features may play in word formation. We have developed a proposal about phi features, but we have left aside, for example, the features that play a role in the so-called A-bar movement operations, such as the interrogative feature [Wh] or the focus feature [Focus]. We have not taken these elements in account, so the questions that arise are very basic and important. To begin with, it would be necessary to know if it is possible that a word without phi features would be licensed by the presence of these features, which are also able to establish syntactic relationships with other elements. At least, it would be necessary to provide an answer to this question by studying interrogative pronouns and particles, to determine if any of them lacks phi features. The second question is whether the presence of these features are able to block Morphological Merger. Works such as Artstein (2004) about the existence of a focus internal to the word seem to suggest, in principle, that the focus feature does not block this morphological operation, but in any case this is a matter that needs to be investigated. Thus, there is still a lot of work to do to begin to understand the nature of the word formation rules.

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