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The internal syntax of DP

Valois, Daniel, Ph.D.

University of California, Los Angeles, 1991

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UNIVERSITY OF CALIFORNIA

Los Angeles

The Internal Syntax of DP

A dissertation submitted in partial satisfaction of the requirements for the degree

Doctor of Philosophy in Linguistics

by

Daniel Valois

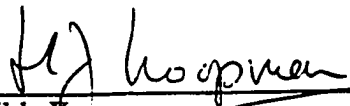
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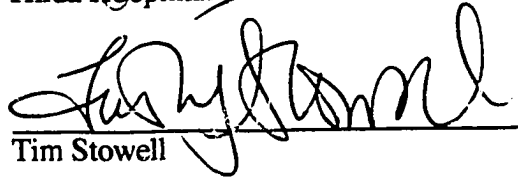
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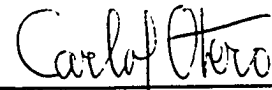
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1991

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ABSTRACT OF THE DISSERTATION

The Internal Syntax of DP

by

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Doctor of Philosophy in Linguistics

University of California, Los Angeles, 1991

Professor Dominique Sportiche, Chair

The purpose of this study is to argue that rules of grammar apply similarly in both Noun Phrases and clauses. This claim has important consequences for some common assumptions concerning the syntax of Noun Phrases, in particular with respect to the projection of arguments and modifiers, case assignment, and word order. I argue that, except for functional projections, X'-structures are similar in both clauses and Noun Phrases, and that Noun Phrases contain an A'-specifier (Szabolcsi 1983), as well as an inflectional head which is a projection of the number features of the noun (Ritter 1990). I propose that affixation of these number features is parametrized similarly to V-movement, which accounts, among other things, for word order asymmetries between French and English. I also argue that noun arguments are

DPs, and that they receive structural case, as opposed to the common assumption that they receive inherent case.

I propose that non-canonical orderings of Noun Phrase-internal constituents are not the result of a random process, but rather that they are regulated by the same principles which govern PP-extraposition and Heavy-NP Shift at the clausal level.

I also develop a theory of case and θ -role assignment in which affixes, such as nominalizing morphemes, play a central role.

My proposals are based on the assumption that X'-structures are such that each argument is contained in a phrasal projection of the θ -marking head, and that case positions coincide with agreement positions (Sportiche 1990). This, coupled with a strictly local theory of movement (Sportiche (1990), accounts for a wide range of facts with respect to extraction, binding, LF-movement, and extraposition.

Chapter 1

Introduction and theoretical assumptions

1. Introduction: Noun phrases and clauses

The purpose of this study is to argue that rules of grammar apply uniformly in both clauses and Noun Phrases. We will see that this claim has far-reaching consequences with respect to the internal syntax of Noun Phrases, and that, at the same time, it challenges a number of common assumptions concerning their structure.

As a point of departure, I propose that there is no asymmetry in the way arguments are projected in clauses and Noun Phrases, i.e. that, aside from functional projections, X'-structures are identical in both cases. Superficial differences between French and English word order are argued to be a consequence of an asymmetry already existing at the clausal level, i.e. head-movement to inflectional morphology (chapter 2); this account of word order phenomena contrasts significantly with Giorgi & Longobardi's (1991) claim that these word order differences are the result of a parameter setting difference which affects the projection of arguments itself (the Head-Subject Parameter).

Another important aspect of this study is to propose that case assignment operates essentially similarly in both Noun Phrases and clauses. This implies that arguments of a noun receive structural case (Sportiche 1990), as opposed to the common assumption that they are assigned inherent case (Kayne 1984, Chomsky 1986b). It also means that noun complements are Noun Phrases, not Prepositional

Phrases, a claim supported, among other things, by the fact that, unlike PPs, they license parasitic gaps (chapter 3).

Concerning noun modifiers, I will show in particular that the position of adjectival modifiers in event nominals reflects that of adverbs in clauses (chapter 4), i.e. the distribution of adjectives can be predicted from their meaning. Differences between French and English will again be argued to be a consequence of the same factor which accounts for the word order facts alluded to above, as well as for the relative position of adverbs in the two languages (cf. Emonds 1978, Pollock 1989): X^0 -movement to inflectional morphology.

Another common assumption I challenge is that word order in French Noun Phrases is not free (e.g. as in Milner 1982), but that it is rather regulated by syntactic operations such as Heavy-NP Shift and PP-extraposition, and that these processes are subject to the same constraints in both Noun Phrases and clauses. Apparent asymmetries, for instance the fact that extraposed PPs are clause-bound but can appear outside of Noun Phrases, are argued to be illusory. Rather, I argue that these cases are the result of a two-step process involving Heavy-NP Shift and movement of a lower segment of the shifted DP to a non- θ position (chapter 7).

In chapter 5, I discuss additional symmetries between Noun Phrases and clauses, and show that ellipsis in DP allows for the same range of interpretations than VP-ellipsis (e.g. sloppy and strict identity interpretations). I then discuss a surprising asymmetry between French and English, i.e. that only French allows sloppy identity readings when the head noun is not similar in the two conjuncts; I argue that this

supports the claim made in chapter 2 concerning the parameterization of head-movement in the two languages.

Finally, in chapter 6, I present an analysis of indefinite, partitive and quantificational Noun Phrases, and propose that all three types are headed by a Q(uantificational) head, while variations in their internal structures account for a number of syntactic differences between the three types. As a result of this proposal, it is argued that there is no such process as N'-pronominalization or relativization, and that all cases of en-pronominalization and dont-relativization involve genitive DPs. I also provide an account of the pre-verbal quantifier beaucoup in French which reconciles the fact that only a sub-set of quantifiers can appear in pre-verbal position with the fact that the empty category bound by this quantifier cannot be part of an island.

Another central aspect of this study is to argue, following Sportiche 1990), that X'-structures are such that each argument is contained in a phrasal projection of the θ -marking head, that case positions coincide with agreement positions, and that movement is strictly local. We will see that these proposals are instrumental in providing a natural account of a number of syntactic phenomena, such as the well-known fact that extraction out of Noun Phrases must make reference to the most prominent argument of the noun (Milner 1982, Torrego 1986, Zubizarreta 1987, Stowell 1989, Sportiche 1990, Giorgi & Longobardi 1991).

Much of the data I discuss is drawn from French, with relevant cross-linguistic comparisons (mostly with English) where appropriate.

2. Previous studies

All along the course of this dissertation, I will be drawing on a number of earlier studies in the syntax of Noun Phrases, many of which have pointed one way or another to certain parallelisms between Noun Phrases and clauses. Abney (1987), for instance, proposed that Noun Phrases are headed by the functional category D(eterminer), to which he attributes properties similar to that of the morphological head INFL in clauses. Among other things, his analysis provides an interesting account of English ing-nominals (which I modify in chapter 3) in which he reconciles the verbal and nominal properties of ing-nominals by proposing that they, just like other Noun Phrases, are headed by D, while at the same time containing a projection of V. I will agree with Abney that Noun Phrases are DPs, although I will argue that the properties of D are those of a sentential complementizer rather than an inflectional head.

The parallel between DP and CP has been discussed in a series of articles by Szabolcsi (1983, 1987, 1990).¹ Tellier (1988) also proposes that DP-internal parasitic gap constructions in French involve movement of a silent operator to the specifier of DP. We will see throughout this thesis that, coupled with the version of movement theory I am adopting (see below), the fact that the specifier of DP is an A'-position accounts for a good number of phenomena concerning (long-distance) extraction out of Noun Phrases, QPs, and PPs.

The existence and nature of Noun Phrase-internal functional categories has also been the object of much research recently (e.g. Ritter 1988, 1990, Longobardi 1990,

¹ See also Cowper 1987, Horrocks & Stavrou 1987, Lamontagne & Travis 1986, Stowell 1989, Siloni 1990 who also discuss the parallel between DP and CP based on different facts.

Picallo 1990, Cinque 1990, Szabolcsi 1983, 1987, 1990, Carstens 1991). Following some of these authors, I argue for the existence of a functional category between D and N which contains the number features of the Noun Phrase. As mentioned above, a good number of asymmetries between French and English will be accounted for by the fact that the number features attach to the noun via head-movement in French, but through the process of Affix-Hopping in English.

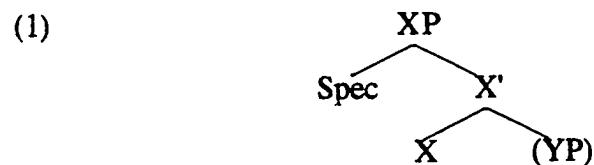
Finally, much light was shed on the internal structure of Noun Phrases in recent works by Giorgi & Longobardi (1990) and Grimshaw (1990). Among other things, one of Giorgi & Longobardi's contributions was to show quite convincingly that DP-internal arguments are structurally organized along the hierarchy: possessor > agent > theme. They also supply an extensive discussion of the differences between Romance and Germanic languages with respect to the distribution of DP-internal arguments, and other asymmetries. For her part, Grimshaw's important contribution is to provide a better understanding of the argument structure (or absence thereof) of different types of nominals in English. I will develop, or argue against, a number of ideas in these two studies, as well as borrow much relevant data. For instance, I argue that syntactic asymmetries between event and result nominals (e.g. the fact that only event nominals allow genitive external arguments in French, and that only result nominals allow pre-nominal objects in English, cf. Grimshaw 1990) are a consequence of asymmetries in their syntactic structure.

3. Background assumptions

The general framework I am adopting is that of Government and Binding, as developed in Chomsky (1981, 1982, 1986b); I will also follow in large part Sportiche's (1990) assumptions about movement, agreement, and case.

3.1. X'-Theory

I adopt a strong version X'-theory whereby all heads, including morphological heads, project in the syntax, and contain a specifier and an optional complement; all categories are thus of the basic form in (1):



Specifiers are either A- or A'-positions. I adopt the following position:

- (i) Specifiers of lexical items are A-positions;
- (ii) Specifiers of functional categories are A'-positions, except when they are either case or agreement positions (Mahajan 1990, Sportiche 1990); a list of specifiers of functional categories appears below:

Specifiers of functional categories

A-position

SpecTP
SpecAgrP
*SpecNum(ber)P
*SpecNo(un)P

A'-position

SpecCP
SpecDP

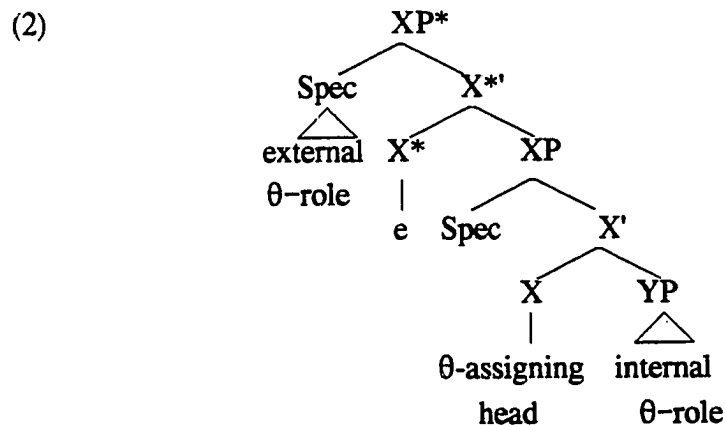
(*The Number and Noun projections are discussed in chapters 2 and 3 respectively.)

In addition to the list above, I will propose (and argue that) some specifiers are unspecified for A versus A'. One such case, SpecQP, is discussed in chapter 6.

3.2. θ -role assignment

The basic assumption about θ -role assignment is that it must take place within a projection of the θ -assigning head. At the clausal level this translates into the VP-Internal Subject Hypothesis (cf. Koopman & Sportiche 1990, Kitagawa 1986, Kuroda 1986, etc.).

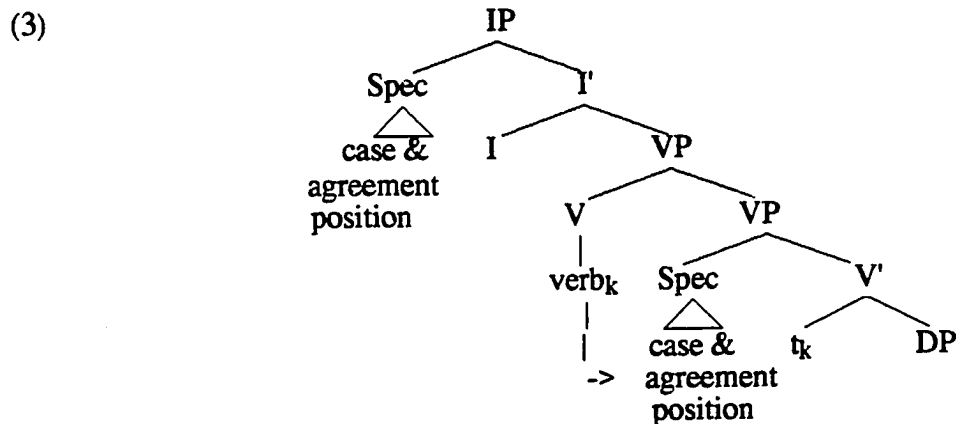
I adopt Sportiche's (1990) version of Larson's layered structures in which each argument is contained in a phrasal projection of the θ -marking head, while maintaining the standard view that direct objects are generated as sisters to their θ -marking head. X'-structures are thus as in (2) for all θ -marking categories:



Head-movement of X^0 to X^{*0} must take place in order to license the external θ -role of X (Sportiche 1990). If no external θ -role is assigned, no XP^* shell is projected.

3.3. Case Theory

I assume the Visibility Condition whereby all arguments, including clauses, must be case-marked in order to be visible for θ -role assignment. An XP may receive case either inherently or structurally. Structural case is a configurational notion, while inherent case is dependent on θ -role assignment. Following Sportiche (1990), I argue that there is a one-to-one correspondence between case and agreement positions: subjects receive case in the specifier of some morphological head (i.e. one of the components of INFL), while objects are assigned case through government by the verb in a specifier which corresponds to the position in which agreement is also triggered. This is schematized in (3):

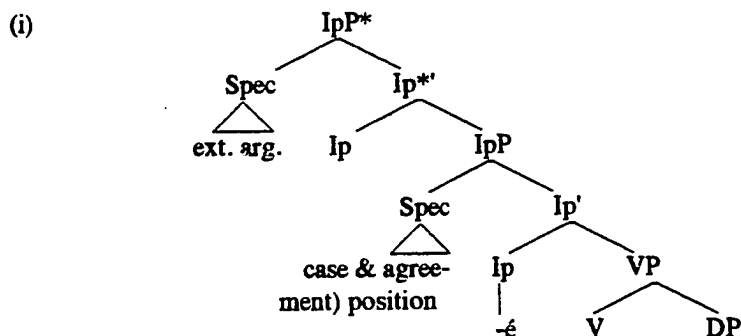


French past participle agreement illustrates the connection between agreement and structural case in that only structurally case-marked objects trigger past participle agreement:

- (4) a Quelles lettres Gustave a-t-il écrites?
which letters did Gustave write
- b Les lettres que Gustave a écrites.
the letters that Gustave wrote
- (5) a Combien de lettres a-t-il été écrit(*es)?
how many letters was it written
- b Combien de lettres est-il arrivé(*es)?
how many letters did it arrive

On their way to SpecCP, the direct objects in (4) transit through the structural case position, triggering agreement (no agreement is triggered if the object moves through adjunction to VP). In both the impersonal passive construction in (5a), and in the unaccusative construction in (5b), the direct object is inherently case marked (Belletti 1988), hence it cannot move through the case/agreement position. Lack of past participle agreement follows.²

2 The structure of a periphrastic tense clause is shown in (i)- where Ip represents past participle morphology. External θ -role and case assignment are a combined property of the affix and the verb which attaches to it (see chapter 3 for details). As a result, the agreement (or case position) is lower than the subject, preventing SSC violations to occur when a direct object moves to the case position:



4. Movement theory

As is standardly assumed, movement is either X^0 - or XP-movement; X^0 s only move to head positions and XPs to maximal projections, with movement proceeding either by adjunction or substitution. By stipulation, adjunction is allowed to IP, AP and VP, but not to NP, CP and PP. Traces are subject to the condition in (6):

- (6) Condition on Chain Links (Sportiche 1990)
Traces must be antecedent-governed at S-structure.

Government is defined as in (7):

- (7) Government
A governs B if A i-commands B and no barrier intervenes between A and B;
i-command
A i(mmediately)-commands B if the first constituent containing A contains B.

As for barrierhood, it is defined as in (8), where inclusion is formulated in terms of segments as in May (1984) and Chomsky (1986a):

- (8) Barrierhood
Given B some constituent, and Y some category (with B not a projection of Y), if for some n , Y^n is not L-marked and includes B, then YP is a barrier for B.

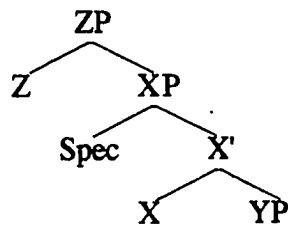
L-marking

X^0 L-marks YP if X^0 governs YP.

Informally, the definition in (8) implies that: (i) the projections of a given head are not barriers for movement of that head, as long as the head it moves to i-commands the trace; (ii) every X^0 (including functional heads) L-marks its complement, and (iii) movement is strictly local.

To illustrate, movement of YP directly out of XP is not allowed in (9), since in this case, X' would contain the trace of movement, and by (8) XP would become a barrier. There are two ways for YP to escape XP: (i) if allowed, YP adjoins to XP; in this case, YP is not included in XP, and no barrier is crossed; or (ii) before moving out of XP, YP first moves to SpecXP; if XP is L-marked, movement can proceed out of it.

(9)



Chapter 2*

The projection of arguments in Noun Phrases

0. Introduction

In this chapter, I develop the idea that the structure of DP is essentially parallel to that of CP, and that the two structures differ only in the type of functional projections they contain. This proposal implies the following: (i) arguments are projected similarly in both DPs and clauses; and (ii) there is an A'-position in DP similar to SpecCP in clauses (cf. Szabolcsi 1987, 1990, Tellier 1988). I propose that word order differences between French and English follow from an already existing difference between the two languages with respect to head-movement to inflectional morphology, i.e. there is movement in French but not in English. As a result, there will be no need for Giorgi & Longobardi's (1991) Head-Subject Parameter, which stipulates that the external argument is generated on opposite sides of the head in Romance and Germanic languages. I illustrate mostly with underived nominals, and return to a more detailed analysis of the different types of nouns in chapter 3.

The chapter is organized as follows: in section 1, I introduce the layered structure of DP which I am adopting. In section 2, I present Giorgi & Longobardi's (1991) arguments for the hierarchical organization of DP-internal complements, and

* Throughout, English glosses are a compromise between translations and word-to-word transliterations.

show how their account follows from the structure. In sections 3 and 4, I support the structure with extraction facts and quantifier scope data respectively. In section 5, I present arguments for the existence of a COMP-like A'-position in DP. In section 6, we will see that LF-movement out of DP obeys the same local constraints as syntactic movement. In section 7, I present arguments for a functional category between D and N in DP (Szabolcsi 1983; Ritter 1988, 1990; Carstens 1991), and conclude that this category contains the number features of the DP. Finally in section 8, I return to the data presented in section 1, and show how we can dispense with Giorgi & Longobardi's Head-Subject Parameter.

1. The projection of arguments in DP

In their study of Noun Phrase structure, Giorgi & Longobardi (1991) note the following contrast between Germanic and Romance languages (here represented by English and French):

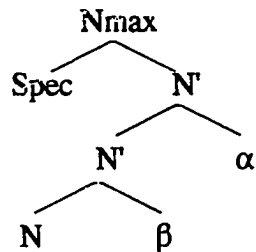
French: N O S
(1) Le portrait d'Aristote de Rembrandt.

English: S N O
(2) Rembrandt's portrait of Aristotle.
(3) *The portrait of Aristotle of Rembrandt.

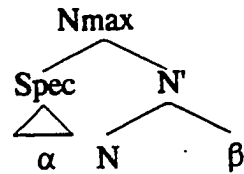
They propose that (1)-(3) are accounted for if one assumes (i) the existence of the parameter setting principle in (4), and (ii) that DP-internal arguments are organized as in (5), where α is the external argument:

(4) The Head Subject Parameter

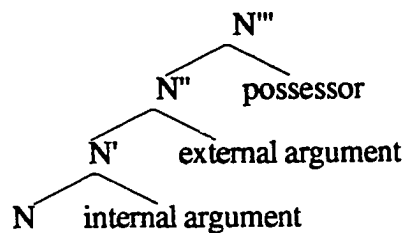
Romance



Germanic



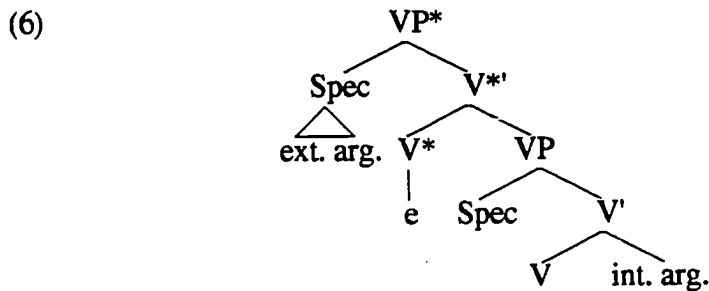
(5) Thematic Hierarchy



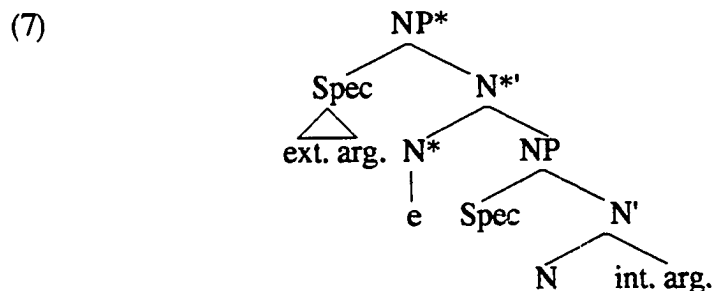
It is easy to see how these two principles account for (1)-(3): While the external argument Rembrandt is projected in the specifier position to the left of the head noun in English, it is generated to the right of it in French. This creates the contrast in (1) and (2) and appropriately rules out (3). Also, given (5), the agent must follow the theme in (2).

I would like to propose that there is no such asymmetry in the projection of arguments in DP, and that the data in (1)-(3) follows from a difference which has already been documented between the two languages at the clausal level: the presence versus absence of head-movement to inflectional morphology (Emonds 1978, Pollock 1989, Chomsky 1990).

But first, we must establish the structure of Noun Phrases. Modifying Larson's (1988) proposal, Sportiche (1990) proposes that the structure of VP is as in (6), where the external argument is projected in a VP shell independent of the internal argument (see chapter 1):

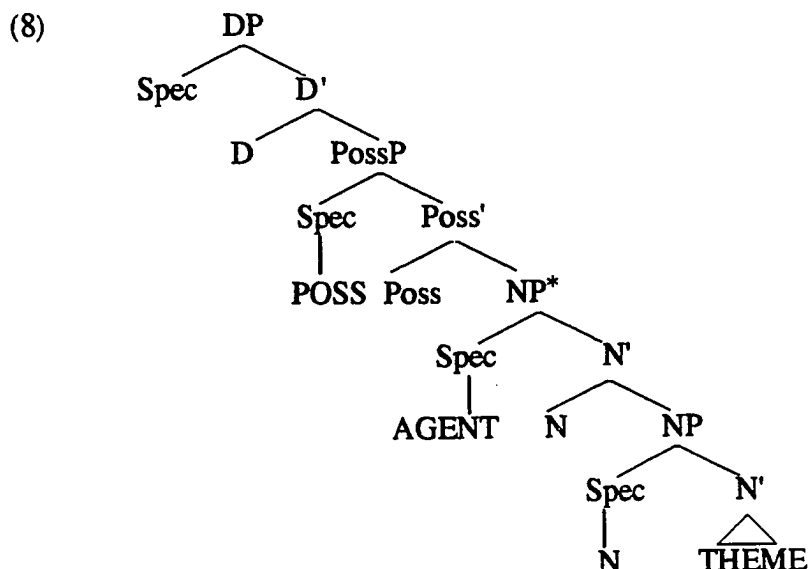


Following Sportiche, I will argue that DP-internal arguments are also projected in a structure similar to (6). The structure of a Noun Phrase containing both an internal and an external argument is then as in (7):



In addition to the internal and external arguments, French allows a possessor to be projected. I propose that the possessor is projected outside of the argument structure of the noun, and that the complete structure of a noun such as picture in both French and English is then as in (8):¹

¹ It is possible that the specifier of PossP is on the right, which goes with Milner's (1982) observation that the possessor DP usually appears on the right periphery of the noun phrase.



As we will see in chapter 3, the fact that (8) is not a possible structure in English (i.e. co-occurrence of a possessor and an agent is not allowed) follows from case-theoretic reasons.

Now, returning to (1)-(3), more must be said if we are to account for both the fact that the agent precedes the head noun in English but follows it in French, and the fact that the agent follows the theme argument in French. The first problem will be discussed in section 8, and the second one in chapter 3. Let us just say for now that the answer to the first question is that the head noun moves past the agent to a functional category between D and N in French, while it stays in its base position in English. As for the second issue, it should be noted that the order theme-agent is not always possible (unless the agent is "heavy"; see chapter 7), suggesting that the basic order is that depicted in (9), where agent comes first (see also footnote 2):

- (9) a *Le débarquement des troupes en Irak.*
 the landing of the troops in Iraq
- b **Le débarquement en Irak des troupes.*

We will see in chapter 3 that only underived nominals which denote the result of an event allow the order theme-agent. It will be proposed that this is related to the fact that in these nominals there are two Noun Phrases in need of case. As a result, in order to receive case the external argument must move up to a specifier position which is bi-directional. No such movement is necessary in (9) since the only Noun Phrase in need of case gets it from the noun.

It is easy to see how the structure in (8) is compatible both with Giorgi & Longobardi's observation that there is asymmetric c-command between arguments in DP, and the well-known fact that only the thematically "highest" argument in DP can be extracted (Cinque 1980, Milner 1982, Aoun 1985, Torrego 1986, Zubizarreta 1987, Stowell 1989, etc.). Concerning the second point, since the movement theory I have adopted in chapter 1 forces movement through the various specifiers (adjunction within DP being prohibited), the presence of a higher argument will inevitably block extraction of a lower one. I will discuss these two points in detail in the next two sections.

2. Asymmetric c-command: Bound pronouns

As Giorgi & Longobardi show, there is asymmetric c-command between the three types of arguments in DP. This claim is motivated, among other things, by the fact that binding relations in Noun Phrases strictly obey the Thematic Hierarchy in (5), i.e. higher arguments may bind lower ones but not vice-versa. As it is easy to see, the structure in (8) already reflects the Thematic Hierarchy, and consequently accounts

straightforwardly for Giorgi & Longobardi's binding facts. I illustrate with French data below.

The logic of the demonstration is straightforward: a bound pronoun reading obtains between two noun complements only if the DP containing the pronoun is c-commanded (or m-commanded) by the DP containing the quantifier phrase. This is shown in (10)-(12) where the proper c-command relation obtains in the (a) examples, but not in the (b) examples; the (c) examples show that the surface order of the complements is irrelevant, as long as the QP is contained within the (thematically) higher DP:²

(i) Possessor is higher than agent³

- (10) a Le portrait de chaque_i collectionneur de son_j artiste favori.
POSSessor AGENT
each collector's portrait of his favorite artist
- b *Le portrait de son_j mécène de chaque_i artiste favori.
POSSessor AGENT
his benefactor's picture of each favorite artist
- c Le portrait de son_j artiste favori de chaque_i collectionneur.
AGENT POSSessor

(ii) Possessor is higher than theme

- (11) a La photo de chaque partisan des Canadiens de son joueur favori.
POSSessor THEME
each Canadiens fan's picture of his favorite player

2 It should be pointed out that the preferred linear order in (10)–(12) is that with the higher argument first, which supports once again the claim that the basic order is agent-theme.

3 See footnote 1 on the position of the possessor.

- b *La photo de son; instructeur de chaque; joueur favori.
POSSESSOR **THEME**
his coach's picture of each favorite player
- c La photo de son; joueur favori de chaque; partisan des Canadiens.
THEME **POSSESSOR**

(iii) Agent is higher than theme

- (12) a La maquette de chaque_i architecte de son_j édifice préféré.
 AGENT THEME
each architect's scale model of his favorite building
- b *La maquette de son_j concepteur de chaque_i édifice.
 AGENT THEME
its creator's scale model of each building
- c La maquette de son_j édifice préféré de chaque_i architecte.
 THEME AGENT

3. Extraction

As has also been noted by a number of other authors (Cinque 1980, Milner 1982, Aoun 1985, Torrego 1985, Zubizarreta 1987, Stowell 1989, etc.), Giorgi & Longobardi observed that the hierarchical organization of DP-internal arguments is further supported by extraction facts. The reason is that extraction out of Noun Phrases depends on the hierarchical position of the extracted argument with respect to other DP-internal arguments. More precisely, an agent is not extractable in the presence of a possessor, and a theme is not extractable in the presence of either a possessor or an agent. I will illustrate with French below, where the (a) examples represent the structure before extraction, with the higher complement underlined. The contrast between the (b) and (c) examples shows that only extraction of the higher complement yields grammatical results.

Possessor higher than agent

- (13) a La photo de ce photographe de ce collectionneur.
AGENT POSSESSOR
this photographer's picture of this collector
- b *Le photographe dont je connais la photo de ce collectionneur.
the photographer of-whom I know this collector's picture
- c Le collectionneur dont je connais la photo de ce photographe.
the collector of whom I know this photographer's picture

Agent higher than theme

- (14) a La photo de ce photographe du Louvre.
AGENT THEME
this photographer's picture of the Louvre
- b *Le musée dont je connais la photo de ce photographe.
the museum of-which I know this photographer's picture
- c Le photographe dont je connais la photo du Louvre.
the photographer of-whom I know the picture of the Louvre

Possessor higher than theme

- (15) a La photo du Louvre de ce collectionneur.
THEME POSSESSOR
this collector's picture of the Louvre
- b *Le musée dont je connais la photo de ce collectionneur.
the museum of-which I know this collector's picture
- c Le collectionneur dont je connais la photo du Louvre.
the collector of-whom I know the picture of the Louvre

Cinque (1980) had already observed that there is a correlation between extraction and possessivization (an observation which Giorgi & Longobardi label 'Cinque's Generalization'), as illustrated below:

- (16) a Son (agent) *portrait d'Aristote* (theme).
 his portrait of Aristotle
- b *Son (theme) *portrait de Rembrandt* (agent)
 his portrait of Rembrandt
- (17) a Son (poss) *portrait de Rembrandt* (agent or theme).
 his portrait of Rembrandt
- b *Son (agent or theme) *portrait de ce collectionneur* (poss).
 his portrait of this collector

In (16a), only the agent can appear as a possessive pronoun, while in (17a) only the possessor can. In both cases, the possessivized argument is the higher one on the thematic hierarchy, which correlates with the examples in (13)-(15) which showed that only the higher argument can be extracted. According to Cinque, the reason for this is that the specifier of NP is both the landing site for the possessive pronoun and an escape hatch for WH-movement, and that the most prominent argument on the thematic hierarchy acts as the subject of the Noun Phrase. Consequently, movement or possessivization over a higher argument causes a Specified Subject Condition (SSC) violation.

Noting that an SSC account is not totally satisfactory (see below), Giorgi & Longobardi propose to derive Cinque's Generalization with the following principle:

(18) Possessivization Principle

The unique phrase allowed to appear as a possessive is the hierarchically highest genitive argument of an NP.

According to (18), it follows that only the highest argument in DP will be extractable since only that argument may appear as a pre-nominal possessive pronoun.

Giorgi & Longobardi argue that their account presents a slight advantage over Cinque's on both conceptual and empirical grounds. First, as observed by Cinque himself, the SSC is usually not sensitive to WH-movement, while it must be under his analysis. Second, Giorgi & Longobardi present two sets of data which they claim favor their account over one which involves the SSC. The first set of data is given in (19), and the second set in (20):

- (19) a Una guerra, [di cui]_i non so valutare la probabilità t_i, sarebbe catastrofica.
a war, of which I cannot evaluate the probability, would be catastrophic
- b *Una guerra, [che si sia la quale]_i non so valutare la probabilità t_i ...
a war, that there will be which I cannot evaluate the probability ...
- (20) a *La sua_i descrizione t_i di Maria.
 theme agent
the her description of Maria
- b La_i sua distruzione t_i [NP e] per PRO riscuotere l'assicurazione.
 theme understood agent
the its destruction to collect the insurance

(19) shows that there is an asymmetry between extraction of clauses and Noun Phrases which Giorgi & Longobardi claim cannot be accounted for under an SSC account. In both cases, the extracted element (DP in (19a), CP in (19b)) is the only, hence the most prominent, argument in the Noun Phrase. Consequently, both should be allowed to move out of DP. But this contrast is predicted by the Possessivization Principle: since clauses may not be possessivized, they will not, by the same token, be able to escape DP.

According to Giorgi & Longobardi, the second set of data illustrates an asymmetry between overt and empty subjects with respect to their ability to induce opacity effects. Arguing that there is evidence that there is a syntactically active subject

controlling PRO in the purpose clause in (20b) (see chapter 3 for a discussion), they claim that an SSC account cannot explain the grammaticality of the sentence. On the other hand, they claim that the reference to the highest genitive phrase in (18) predicts the contrast in (20): in (20a), the theme argument is not possessivizable since it is not the highest genitive argument in the Noun Phrase, while in (20b) the theme is the highest genitive, since the implicit external argument is non-overt. I will return to examples such as (20b) in chapter 3, and argue that the implicit argument is in fact not in argument position.

I would like to point out an additional case which disfavors the SSC account, i.e. the impossibility of extracting out of embedded DPs:

- (21) *La personne dont_i il a rencontré [DP t_i l'ami [DP t_i de la soeur t_i]]
the person of-whom he met the friend of the sister

Here, there is no intervening subject between the WH-phrase and its trace in any of the DPs, and yet the sentence is ungrammatical. I return to such examples below.

Nevertheless, for all its advantages over an SSC account, the problem with the Possessivization Principle is that remains a descriptive account of the facts. Moreover, examples can be found which the Possessivization Principle does not cover (example (21) above is possibly one of them). Consider (22):

- (22) a J'ai vu la photo de ce photographe de Paris.
I saw this photographer's picture of Paris
- b En parlant de photos, j'ai vu celle de ce photographe de Paris.
speaking of pictures, I saw this this photographer's of Paris
- c En parlant de photos, voici le photographe dont j'ai vu celle de Paris.
speaking of pictures, here's the photographer of-whom I saw that of Paris

(22b) shows that the noun picture can be replaced with the pronominal element celle (see chapter 5 for a discussion of such constructions). In (22c), the external argument has been extracted out of the DP headed by celle. However, there exists no construction where the external argument can be possessivized:

(23) *En parlant de photos, j'ai vu sa_i celle t_i de Paris.

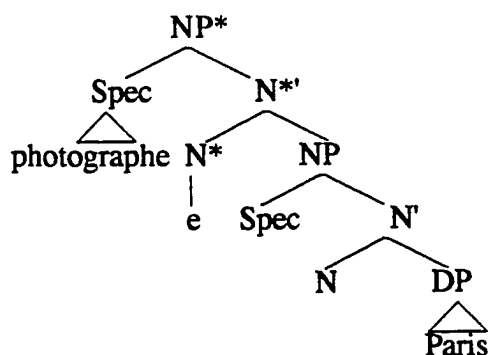
As we will see immediately, the structure proposed above, coupled with the movement theory described in chapter 1, accounts straightforwardly for all the extraction facts discussed so far. Recall that, according to Sportiche's (1990) theory of movement, extraction must proceed from specifier to specifier (unless adjunction is allowed). As a result, the presence of an argument in a higher specifier prevents a lower one from escaping DP.⁴ To illustrate, take (24a,b), with the corresponding structure in (24c):

(24) a J'ai vu la photo de ce photographe de Paris.
I saw this photographer's picture of Paris

b *La ville dont j'ai vu la photo de ce photographe t_i.

⁴ See Stowell (1989) for an alternative.

c



The relevant definitions concerning are given below for convenience:

Condition on Chain Links

Traces must be antecedent-governed at S-structure.

Government

A governs B if A i-commands B and no barrier intervenes between A and B;

i-command

A i(mmediately)-commands B if the first constituent containing A contains B.

Barrierhood

Given B some constituent, and Y some category (with B not a projection of Y), if for some n , Y^n is not L-marked and includes B, then YP is a barrier for B.

L-marking

X^0 L-marks YP if X^0 governs YP.

In (24c), movement of the direct object Paris to SpecNP is fine, since only N' is crossed. But now the direct object cannot move directly out of NP*. If it did, it would be crossing both N*' and NP*. According to the above definition of barrierhood, since

N*' is not L-marked, NP* is a barrier for government of the WH-trace by its antecedent. There are only two ways for the direct object to escape NP*: either it adjoins to NP*, in which case it is not included in it, or it could first move to SpecNP*. Neither option is possible: in the first case, adjunction to NP is disallowed (chapter 1), and in the second case, SpecNP* is already filled. As for (19), the contrast follows from the general prohibition against movement of clauses through A-specifier positions (i.e. the first step to SpecNP; see chapter 3. I return to (21) in section 5.4.).

4. Quantifier scope and negative XPs

Milner (1982) observes that there are other relations which can be seen as a consequence of the Thematic Hierarchy. The examples involve quantifier scope and negative polarity items:

- (25) a Je n'ai pas vu les photos de tous ces photographes.
I didn't see all those photographers's pictures
- b Je n'ai pas vu tes (POSS) photos de tous ces photographes (AGENT).
I didn't see your pictures of all those photographers
- c Je n'ai vu les photos d'aucun enfant.
I didn't see the pictures of any child
- d *Je n'ai vu tes (AGENT) photos d'aucun enfant (THEME).
I didn't see your pictures of any child

In (25a), the QP has either wide or narrow scope over the negation, in (25b) however, only the narrow scope reading is allowed. In (25d), the relation between the negative particle ne and the negative polarity item aucun inside the theme argument is blocked by the presence of the agent. In both (25b) and (25d), the QP or the negative polarity item is not contained in the highest argument in the thematic hierarchy.

Further evidence of the blocking effect of a higher argument is shown in (26)-

(27):

- (26) a Jules a vu la photo de tous les enfants.
I Jules saw the picture of every child
- b Jules a vu ta (possessor or agent) photo de tous les enfants (theme).
I Jules saw your picture of every child
- (27) a Je n'ai vendu les photos de personne.
I didn't sell the pictures of anybody
- b *Je n'ai vendu tes (possessor or agent) photos de personne (theme).
I didn't sell your pictures of anybody

The sentence in (26a) is ambiguous: either Jules saw one picture involving all children, or for each child there is a picture such that Jules saw it. However, the presence of the possessive pronoun makes the second reading impossible in (26b). Similarly, the possessive pronoun blocks the relation between ne and personne in (27b) (details in section 6).

Completing the paradigm, the examples in (28)-(30) below show that the blocking effect is not restricted to the possessive pronoun, but that it occurs whenever a higher NP argument is projected. The (a-c-e) examples show that, if the second (underlined) term of the QP/negation or negation particle/negative polarity item relation is the highest argument, the expected relation obtains. In (28), the quantified NP has scope over the negation only if it is in the highest DP-internal argument; similarly, in (29) and (30) the polarity items can only "connect" with the negation if it is the highest argument; finally, in (31) the wide scope reading of the QP over the definite article is only possible if the QP is the highest argument:

- (28) a Je n'ai pas vu les photos du Louvre de tous ces collectionneurs.
 THEME POSSESSOR
I did not see all those collectors' pictures of the Louvre
- b Je n'ai pas vu les photos de tous ces musées de ce collectionneur.
 THEME POSSESSOR
I did not see this collector's pictures of all those museums
- c Je n'ai pas vu les photos de ces photographes de tous ces collectionneurs.
 AGENT POSSESSOR
I did not see all those collectors' pictures of these photographers
- d Je n'ai pas vu les photos de tous ces photographes de ce collectionneur.
 AGENT POSSESSOR
I did not see this collector's pictures of all those photographers
- e Je n'ai pas vu les photos de tous ces photographes du Louvre.
 AGENT THEME
I did not see all those photographers's pictures of the Louvre
- f Je n'ai pas vu les photos de ce photographe de tous ces musées.
 AGENT THEME
I did not see this photographer's pictures of all those museums
- (29) a Je n'ai vu les photos du Louvre d'aucun collectionneur.
 THEME POSSESSOR
I did not see any collector's pictures of the Louvre
- b *Je n'ai vu les photos d'aucun musée de ce collectionneur.
 THEME POSSESSOR
I did not see this collector's pictures of any museum
- c Je n'ai vu les photos d'aucun photographe du Louvre.
 AGENT THEME
I did not see any photographer's pictures of the Louvre
- d *Je n'ai vu les photos de ce photographe d'aucun musée.
 AGENT THEME
I did not see this photographer's pictures of any museum

- e Je n'ai vu les photos de ce photographe d'aucun collectionneur.
AGENT POSSESSOR
I did not see any collector's pictures of this photographer
- f *Je n'ai vu les photos d'aucun photographe de ce collectionneur.
AGENT POSSESSOR
I did not see this collector's pictures of any photographer
- (30) a Je n'ai vendu les photos du Louvre de personne.
THEME POSSESSOR
I did not sell anybody's pictures of the Louvre
- b *Je n'ai vendu les photos de personne de ce collectionneur.
THEME POSSESSOR
I did not sell this collector's pictures of anybody
- c Je n'ai vendu les photos de personne du Louvre.
AGENT THEME
I did not sell anybody's pictures of the Louvre
- d *Je n'ai vendu les photos de ce photographe de personne.
AGENT THEME
I did not sell this photographer's pictures of anybody
- e Je n'ai vendu les photos de ce photographe de personne.
AGENT POSSESSOR
I did not sell anybody's pictures of this photographer
- f *Je n'ai vendu les photos de personne de ce collectionneur.
AGENT POSSESSOR
I did not sell this collector's pictures of anybody
- (31) a J'ai vu la photo de Paris de tous les collectionneurs.
THEME POSSESSOR
I saw all the collectors' picture of Paris
- b J'ai vu la photo de tous les enfants de ce collectionneur.
THEME POSSESSOR
I saw this collector's picture of all the children

- c J'ai vu la photo de tous les photographes de Paris.
AGENT THEME
I saw all the photographers' picture of Paris
- d J'ai vu la photo de ce photographe de tous les enfants.
AGENT THEME
I saw this photographer's picture of all the children
- e J'ai vu la photo de ce photographe de tous les collectionneurs.
AGENT POSSESSOR
I saw all the collectors' picture of this photographer
- f J'ai vu la photo de tous les photographes de ce collectionneurs.
AGENT POSSESSOR
I saw this collector's picture of all the photographer

The data presented above can all be explained if the XP containing the QP in (28) and (31), the negative polarity item in (29), and the negative quantifier in (30) must undergo LF-movement in order to be interpreted. I will return to this in section 6, where it is argued that these examples constitute good evidence that the constraints on syntactic movement also operate on LF-movement.

5. DP as CP

That arguments are projected similarly in both clauses and Noun Phrases is one of the two aspects of the parallel between Noun Phrases and clauses mentioned at the beginning of this chapter. I will now turn to the second aspect, i.e. that Noun Phrases contain an A'-position similar to COMP in clauses. We will see that the hypothesis that the specifier of DP is an A'-position has desirable consequences with respect to some unexplained facts concerning extraction out of PPs and embedded DPs (cf. (21)). I begin with a discussion a number of previous proposals concerning A'-positions in Noun Phrases.

5.1. Szabolcsi (1987, 1990)

The central point of Abney's thesis was to argue that Noun Phrases have a clausal structure. Among other things, he argued that Noun Phrases are headed by the functional category D(eterminer), and that D is some sort of agreement node similar to INFL. For instance, in John's book, John gets case in SpecDP from the 's morpheme in D, just like clausal subjects get case from INFL by specifier-head agreement.

That Noun Phrases contain an INFL head had already been argued by Szabolcsi (1983) in her study of Hungarian possessor constructions. In Szabolcsi (1987) she claims that in sentences such as (32) the possessor receives its θ -role in the SpecNP position, and gets case from an NP-internal INFL:

- (32) [DP a [NP Mari- \emptyset INFL vendég-e- \emptyset]]
the Mary-nom guest-poss-3sg

Szabolcsi argues that the parallel between Noun Phrases and clauses is direct since the head noun in (32) agrees in person and number with its subject, just as a subject agrees in person and number with a verb in clauses. Moreover, the person and number morphemes are the same in both NP and IP:

- (33) Mari- \emptyset alud-t- \emptyset
Mary-nom sleep-past-3sg

Szabolcsi (1987, 1990) also argues that, in addition, Noun Phrases contain a pre-determiner, COMP-like, A'-position. In support of this, she first observes that in (34), the possessor appears before the head noun, and that it is marked for dative case:

- (34) Mari-nak a vendég-e- \emptyset
Mary the guest-poss-3sg

She proposes that the NP in (34) has moved to SpecDP (KOMP in the 1983 paper), where it gets dative case.⁵ She then observes that, since movement to that position is from a thematic case position, it must be an instance of movement to an A'-position.

In support of the A'-status of SpecDP, Szabolcsi observes that SpecDP must be the landing site of DP-internal WH-operators. This can be seen when the whole Noun Phrase undergoes WH-movement: only WH-phrases containing dative possessors can be moved to SpecCP. This is shown in (35):

- (35) a * (a) ki- \emptyset vendég-e- \emptyset
 the who-nom guest-poss-3sg
 '*Whose guest*'
 b ki-nek a vendég-e- \emptyset
 who-dat the guest-poss-3sg
 '*Whose guest*'

According to Szabolcsi, the contrast in (35b) follows from the fact that, after the possessor has moved to SpecDP, it turns the DP into a WH-operator, enabling it to move to SpecCP. Since the possessor has not moved to SpecDP in (35a), WH-movement is not allowed.

⁵ There is a problem with saying that the possessor gets case in SpecDP if ones wants to maintain that it is an A'-position. Usually, case positions are A-positions (cf. Mahajan 1990; also Webelhuth 1990). Szabolcsi (p.c.) observes that it is possible that *nak* in (34) is not really a *case* marker, but some kind of topic marker similar to *wa* in Japanese. She alternatively suggested that this type of "case-assignment" could parallel Spec-head agreement between C and SpecCP. Here spec-head agreement takes the form of the morpheme *nak*.

5.2. Tellier (1988)

Tellier (1988) also offers evidence in favor of the presence of an A' specifier position in Noun Phrases. Her argument is based on "double-dont constructions" in French, where two gaps seem to be bound by the same WH-word. The double-dont construction is illustrated in (36) below, where both italicized Noun Phrases are interpreted as containing a possessor.

- (36) a Un homme dont_i [NP les fredaines t_i] nuisent les à [NP la réputation t_i].
 a man of whom the pranks harm the reputation
- b Un auteur dont [NP les romans t_i] se vendent mieux que [NP les recueils de
 poésie t_i]
 an author of whom the novels sell better than the poetry

Showing that in double-dont constructions, gaps may appear in positions which are not accessible for extraction (cf. (37)), Tellier rejects the possibility of deriving such constructions with a two-step WH-movement (as in Steriade 1981):

- (37) a *Un homme dont vous avez nui [à la réputation t_i]
 a man of whom you have harmed the reputation
- b ?*Un auteur dont le Larousse illustré se vend [mieux que les romans t_i]
 an author of whom the illustrated Larousse sells better than the novels

Based on these observations, Tellier proposes that the traces in the italicized NPs in (36) are bound by an empty operator which occupies the SpecDP position:

- (38) Un auteur dont les romans t_i se vendent mieux que [DP OP_i [NP les recueils de poésie t_i]]

Incidentally, the same analysis can be given for English sentences such as (39), where two gaps are apparently bound by a single WH-word:

(39) Who_i did [pictures of e] annoy t_i ?

Since the gap represented by [e] in (39) cannot WH-move out of the subject position (cf. (40)), it must be parasitic on the WH-trace:

(40) *Who_i were [pictures of t_i] on sale?

5.3. Pre-determiner APs

Finally, there is direct evidence that SpecDP is a landing site for WH-phrases. For instance, in English, it can host DP internal WH-APs (cf. Stowell 1981):

- (41) a Fred bought a very big car.
b [How big]_i a t_i car did Fred buy?⁶

To summarize, I presented various pieces of evidence that SpecDP is an A'-position. This is completely expected given the working hypothesis I am developing here, i.e. that the internal syntax of DP is similar to that of CP. In a nutshell, the symmetries between the two structures can be summarized as follows: NP is the nominal counterpart of VP, and DP is the nominal counterpart of CP.

6 Note that this is not possible with the definite determiner, just as extraction out of definite NPs is impossible (cf. Fiengo & Higginbotham 1981):

- (i) *How big the car did Fred buy?
(ii) *Who did you see the picture of?
(iii) I saw the picture of every movie star in Hollywood.
(only narrow scope of QP)

This seems to suggest that the definite determiner occupies the position which the WH-phrase in (i)-(ii), and the QP in (iii), moves through, i.e. SpecDP.

5.4. Consequences

5.4.1. Extraction out of embedded DP

I will now show that the presence of an A'-position has desirable consequences with respect to a number of cases involving WH-movement. First, consider again (21), with the derivation in (42):

(21) *La personne dont_i il a rencontré [DP t_i l'ami [DP t_i de la soeur t_i]]

(42) [La personne]_i dont_i il a rencontré [DP t_i l' [NP t_i ami de [DP t_i la [NP t_i soeur t_i]]]]

Adjunction to NP being prohibited (cf. chapter 1), the derivation is (42), where the WH-word moves from specifier-to-specifier, is the only possible one. Steps 1 and 2 are fine, since movement is first from an A-position to an A-position (step 1), then on to an A'-position (step 2). However, since SpecDP is an A'-position, step 3 is not allowed since it constitutes an instance of case of improper movement: the WH-word moves from an A'-position (SpecDP) to an A-position (SpecNP). Consequently, (21) is appropriately ruled out.

5.4.2. Extraction out of PP

It is well-known that extraction out of PPs is not possible in French (Kayne 1975). Take (43b), with the derivation in (44):

- (43) a J'ai parlé avec la soeur de Marc.
I spoke to Marc's sister
- b *La personne dont j'ai parlé avec la soeur.
the person of whom I spoke to the sister

(44) La personne dont j'ai parlé [pp t_i [P' avec [DP t_i la soeur t_i]]]

Under our assumption that specifiers of lexical items are A-positions (cf. chapter 1), movement from SpecDP to SpecPP is disallowed in (44) since it would be another instance of A'- to A-movement (based on different facts, Koopman 1990 also argues that SpecPP is an A-position).

6. LF-movement

I will now argue that the constraints on syntactic movement also apply to LF-movement; more precisely, I argue that LF-movement out of DP must also proceed from specifier to specifier. I will focus on French sentential negation, and present Moritz and Valois' (1991) analysis in which it was proposed that sentential negation involves movement of the negative quantifier personne to the specifier of a Neg(ation) Phrase. XP-movement to SpecNegP is subject to an LF condition under which only XPs which are marked with a [+negation] feature can move. The [+neg] feature is transmitted to an XP by specifier-head agreement after personne has moved to the specifier of that XP. One consequence of this proposal is that no sentential negation reading obtains if a specifier intervenes between personne and SpecNegP. Finally, we will see that Moritz and Valois' analysis provides a solution for certain asymmetries between WH-movement and sentential negation (i.e. personne-movement) by proposing that, by moving to the specifier of an XP, personne can trigger pied-piping of that XP to SpecNegP.

Consider examples (29)-(31) from section 4:

- (29) c Je n'ai vu les photos de aucun photographe du Louvre.
AGENT THEME
I did not see any photographer's pictures of the Louvre
- d *Je n'ai vu les photos de ce photographe d'aucun musée.
AGENT THEME
I did not see this photographer's pictures of any museum
- (30) c Je n'ai vendu les photos de personne du Louvre.
AGENT THEME
I did not sell anybody's pictures of the Louvre
- d *Je n'ai vendu les photos de ce photographe de personne.
AGENT THEME
I did not sell this photographer's pictures of anybody
- (31) c J'ai vu la photo de tous les photographes de Paris.
AGENT THEME
I saw all the photographers' picture of Paris
- d J'ai vu la photo de ce photographe de tous les enfants.
AGENT THEME
I saw this photographer's picture of all the children

I suggested that both the fact that the relation between ne and the negative XP is blocked in (29d) and (30d), and that the QP may not have wide scope over the definite article in (31d) can be accounted for if restrictions on LF-movement are the same as those operating on syntactic WH-movement. This intuition stems from the fact that, as is the case for syntactic movement, it is clear that it is the presence of a higher argument which is responsible for the contrast between the (c) and the (d) examples in (29)-(31).

I will begin with (31). It is a standard assumption that quantifiers undergo Quantifier Raising at LF in order to express scope relations (May 1977, 1984); in order

for the QP in (31c) to have scope over the definite article, it must undergo Quantifier Raising past the article at LF. Then, if LF-movement is subject to the strict locality requirement imposed by our movement theory, the narrow scope reading of the QP tous les enfants in (31d) is accounted for since the external argument ce photographe intervenes between the QP and the definite article in D.

Turning now to (29)-(30), I will illustrate with a discussion of sentences involving the negative quantifier personne (although a similar analysis applies to the negative polarity item cases).

Moritz (1989) proposes an account of sentential negation which involves movement of a negative quantifier to the specifier of a Neg(ative) Phrase. For instance, in a sentence such as (45), personne moves to SpecNegP at LF:⁷

(45) Je n'ai vu personne.

Assuming, following Pollock (1989), that the negative adverb pas is base-generated in SpecNegP, Moritz claims that the fact that co-occurrence of pas and personne is not allowed in standard French is evidence that personne must occupy the SpecNegP position at LF:⁸

7 As for subjects, this requirement is satisfied at S-structure by the trace of personne (which has further moved to SpecIP):

- (i) Personne_i [NegP t_i [Neg' ne]] regardera [VP t_i Michel].
no one NEG will look at Michel

8 This is not true in my dialect (Québec French), where sentential negation is often expressed with both pas and personne:

- (i) J'ai pas vu personne.

One possibility is that in Québec French, pas is a VP-adjoined adverb.

- (46) *Je n'ai pas vu personne.
I NEG saw nobody

Since pas is already in SpecNegP at S-structure, LF-movement of personne is blocked.

Moritz & Valois (1991) present another piece of evidence in favor of LF-movement of personne.

To begin with, we argue against an analysis under which sentential negation is done through binding of personne by the negative particle ne (Kayne 1984, Aoun 1985). Consider (47):

- (47) a Je n'ai vu Pierre parler à personne.
I NEG saw Pierre talk to nobody
- b *Je n'ai vu la photo de ce photographe de personne.
I NEG saw the picture of this photographer of nobody

In both (47a) and (47b), a subject (the underlined DP) intervenes between ne and personne. Under an A-binding approach, both sentences should be excluded, while under an A'-binding approach, both should be grammatical.

Our argument in favor of a movement approach to sentential negation is based on sentences involving an empty category in post-verbal Quantifier Phrases; this empty category can be licensed either by a pre-verbal adverbial quantifier (cf. Obenauer 1984, Kayne 1984) or a negative adverb (e.g. pas):

- (48) a J'ai beaucoup mangé [e] de pommes.
I ate a lot of apples
- b Je n'ai pas mangé [e] de pommes.
I didn't eat apples

Crucially, (49) shows that if the licenser does not c-command the empty category, the sentence is ruled out:

- (49) *Jules a vu [e] d'enfants beaucoup mangé.
Jules saw kids eat a lot

Now consider (50):

- (50) a *Je n'ai acheté [e] de cadeaux.
I NEG have bought gifts
- b Je n'ai acheté [e] de cadeaux pour personne.
I NEG have bought gifts for nobody

(50a) shows that the empty category cannot be licensed by the negative particle ne alone. (50b) is the crucial example. Here, we see that the presence of personne licenses the post-verbal empty category. However, personne does not c-command the empty category at S-structure, since it is embedded in a PP. But if personne undergoes LF-movement to SpecNegP, the c-command relation between personne and the empty category is established.

Returning to (30), since movement of personne to SpecNegP is obligatory, the ungrammaticality of (30d) now follows automatically: the presence of a higher argument (underlined) in the Noun Phrase blocks movement of the negative quantifier to SpecNegP, out of the DP:

- (51) *Je [NegP [Neg' n'ai vendu les photos de ce photographe de personne]]
 ↑ _____ X _____ |

Clearly, this analysis makes the prediction that negative quantifiers (or polarity items) should occur in the same context in which WH-traces are possible. Put differently, sentential negation should not be allowed in contexts in which extraction is impossible. The following sentences show that this prediction is borne out::

- (52) a *Le photographe dont_i j'ai vu cette photo t_i.
 the photographer of-whom I saw this picture
- b *Je n'ai vu cette photo de personne.
 I NEG saw this picture of nobody
- LF: je [NegP personne_i ne] ai vu cette photo t_i.

In chapter 3 (see Appendix), I propose that demonstratives occupy the SpecDP position. Since SpecDP is an obligatory landing site for movement out of DP, demonstratives will block both WH-movement and LF-movement of personne from inside DP.

However, there are a number of environments in which personne can occur but in which WH-traces are excluded. Compare, for instance, the ungrammatical (53b) with the perfectly grammatical (54):

- (53) a Le portrait de la soeur de Jeanne.
 the picture of Jeanne's sister
- b *La personne dont_i tu as vu le portrait de la soeur t_i
 the person of-whom you saw the portrait of the sister
- (54) Tu n'as vu le portrait de la soeur de personne.
 you NEG saw the picture of the sister of the sister of nobody

We just argued that examples such as (30d) and (52) support the claim that LF-movement of the negative quantifier personne out of DP must proceed step-by-step in the manner illustrated in previous sections. But this predicts that (54) should be ungrammatical for the same reason (53) is: movement from the SpecDP of soeur to the SpecNP of portrait is movement from an A'- to an A-position. The (partial) derivation for (53b) is shown in (55):

(55) $\text{dont}_i \dots [\text{DP le } [\text{NP } t_i [\text{N}' \text{ portrait } [\text{DP } t_i \text{ la soeur } t_i]]]]$
 $\uparrow \text{X}$

In Moritz & Valois (1991) we proposed that, in order to be allowed to move to SpecNegP, a DP must be marked with the feature [+neg(ation)] at LF. This is straightforward when the DP is the negative quantifier itself. However, when personne is embedded inside a DP, as in (54), we argued that it does not move directly to SpecNegP; rather, personne first moves to the first available SpecDP, causing the DP to be marked with the [+neg] feature through specifier-head agreement. Then, this DP, now being marked with the proper feature, pied-pipes to the next available specifier, and so on until a [+neg] XP reaches SpecNegP without violating any movement constraint. The immediate result of this proposal is that there is now a licit LF-derivation for (54). This is shown in (56):

(56) Le portrait de [DP [D' la soeur [DP de personne]]]

personne moves to SpecDP¹; DP¹ is marked [+neg]

le portrait de [DP¹[DP de personne]_i [D' la soeur t_i]]

DP¹ moves to SpecNP of portrait

le [NP [DP¹[DP de personne]_i [D' la soeur t_i]]_k [N' portrait t_k]]

DP¹ moves to SpecDP²; DP² is marked [+neg]

[DP² [[DP¹[DP de personne]_i [D' la soeur t_i]]_k]]_x le [D' [NP t_x [N' portrait t_k]]

DP² moves to SpecNegP

... [NegP [[DP² [[DP¹[DP de personne]_i [D' la soeur t_i]]_k]]_x le [D' [NP t_x [N' portrait t_k]]]_z [Neg' ... t_z]]

That pied-piping of an XP containing personne is sometimes necessary can be shown with more basic examples. Take (57), where personne appears as a complement to a preposition (57a), or inside an adjunct phrase (57b):

(57) a Je n'ai parlé à personne.
I talked to nobody

b Je ne partirai avant personne.
I will leave before nobody

Without pied-piping of the XP containing personne, (57a) would constitute an illicit case of preposition stranding in French (Hornstein & Weinberg 1981, Kayne 1984), and (57b) a CED violation.

To summarize, we saw in this section that our analysis of French sentential negation provides good support both for the structure and the theory of movement I have adopted here. In addition, it strongly suggests that LF-movement out of DP is subject to the same constraints as syntactic movement.

7. A functional category between D and N

Pursuing the parallelism between Noun Phrases and clauses, it is only natural to expect to find nominal reflexes to clausal functional categories. One obvious candidate is inflectional morphology. For instance, since person and number are represented syntactically in clauses, and since Noun Phrases are marked for number, we expect the number features of Noun Phrases to also be projected syntactically. Furthermore, we expect head-movement to inflectional morphology to proceed similarly in both clauses and Noun Phrases. I will argue that, just like verb-movement, the parameter regulating noun-movement is set differently in French and English; this will account for the word order asymmetries mentioned in (1)-(3). But first, I will discuss a number of proposals concerning the presence of a functional category between D and N in various languages.

7.1. Szabolcsi (1983)

To the best of my knowledge, Szabolcsi (1983) (see also her 1987, 1990 papers) was the first to formulate the idea of a functional category between D and N. She observed that, in Hungarian possessive constructions, the possessor agrees with the head noun in person and number. Moreover, the agreement markers are the same as those found on the subject of a verb:

(58) a az én titkom
the my secret
'My secret'

b én write
I write
'I write'

Szabolcsi observes that the parallelism is not accidental since the nominal agreement in (58a) performs the same function than verbal agreement: (i) it triggers nominative case on the possessor (59), and (ii) it licences pro-drop (60):

(59)	a	te- \emptyset	titk-od		te- \emptyset	ír-od
		the you-NOM	secret-POSS.2sg		you-NOM	write-PRES.2sg
		'Your secret'			'You write'	

(60)	a	titk-od		ír-od
------	---	---------	--	-------

In (59), both the possessor and the subject bear the \emptyset -nominative morpheme, and both the head noun and the verb bear the 2sg. marker. (60) shows that the second person marker can be dropped in both the Noun Phrase and the clause. Based on this, Szabolcsi concludes that Noun Phrases contain an INFL node following the determiner.

7.2. Ritter (1988, 1990)

Additional evidence for the existence of a functional category between D and N is provided by Ritter (1990) in her discussion of Construct State and Free State Noun Phrases in Hebrew (CSNP and FSNP respectively). She argues that the assumption that the head noun undergoes raising to this functional category accounts for the distribution of arguments in both CSNP and FSNP.

CSNPs in Hebrew exhibit the following properties: (i) they contain a genitive phrase immediately after the head noun; (ii) they do not co-occur with determiners; (iii) they take on special morpho-phonology; and (iv) the complement of the head noun is not preceded by a preposition. Compare (61) and (62):

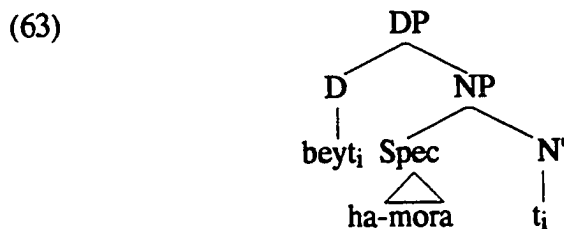
Construct State

- (61) a ha-bayit
the-house
'The house'
- b beyt ha-mora
house the-teacher
'The teacher's house'
- c *ha-beyt ha-mora
the-house the-teacher

Free State

- (62) ha-bayit šel ha-mora
the-house of the-teacher
'The teacher's house'

In Ritter (1988) she proposed that CSNP are derived by movement of the head noun to D, thus accounting for the absence of a determiner in those constructions (see also Fassi Fehri 1987). The structure of (61b) is then as in (63):



The obligatoriness of noun-raising was attributed to the requirement that the D⁰ head be identified (or reinforced) in order for it to be able to assign case to the subject.

When a direct object is present in CSNP, the word order is NSO, which is once again achieved by noun-movement over the subject; that the subject asymmetrically c-commands the direct object, is shown by the binding facts in (65):

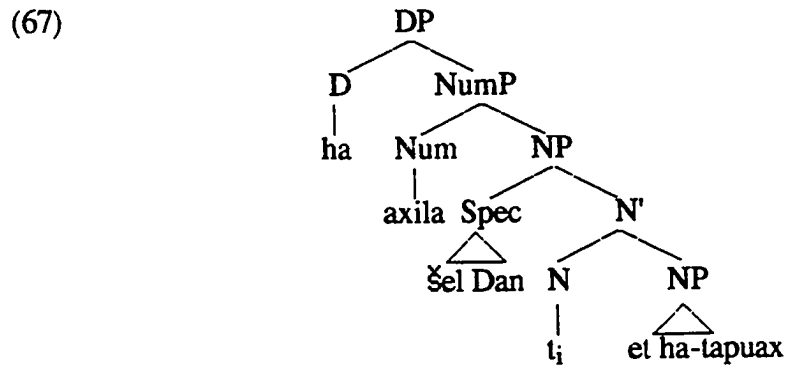
- (64) ahavat dan et išt-o
 love Dan ACC wife-his
'Dan's love of his wife'
- (65) a ahavat dan et acmo
 love Dan ACC himself
'Dan's love of himself'
- b *ahavat acmo et dan
 love himself ACC Dan

However, in Ritter (1990) she observes that the existence of Free State Noun Phrases such as the one in (66) poses a problem for this analysis:

- (66) ha-axila šel dan et ha-tapuaḥ
 the-eating of Dan ACC the-apple
'Dan's eating of the apple'

That (66) is not a CSNP is indicated both by the presence of a pre-nominal determiner and by the morphology of the head noun. The problem is the co-occurrence of NSO word order and the determiner, which should be in complementary distribution: in (66) the definite determiner ha already occupies the head position of DP, which should block N-to-D movement. In order to solve this apparent paradox, Ritter argued for the existence of an additional functional category between D and N, which she claims

contains the number features of the Noun Phrase, and to which the noun moves.⁹ The structure of (66) is then as in (67):



Ritter argues that the distribution of adjectives in (68)-(69) provides evidence for the existence of the NumP node in both CSNP and FSNP:

CSNP

- (68) a ??axilat dan ha-menumese^t et ha-uga
 eating Dan the-polite ACC the-cake
 'Dan's polite eating of the cake'
- b *axilat dan et ha-uga ha-menumese^t
 eating Dan ACC the-cake the-polite

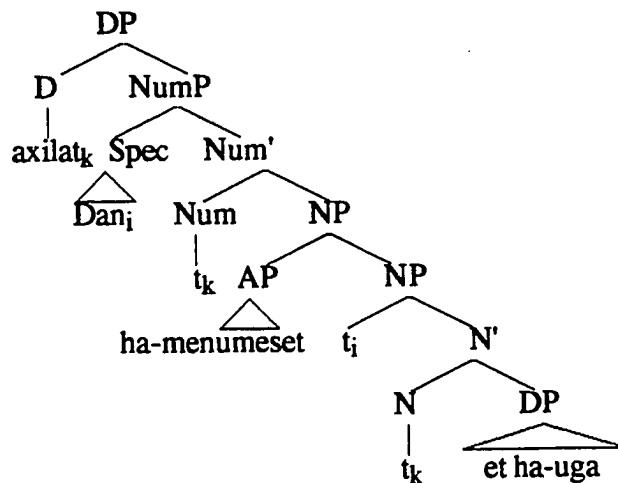
FSNP

- (69) a ha-axilat ha-menumese^t Šel dan et ha-uga
 the-eating the-polite of Dan ACC the-cake
 'Dan's polite eating of the cake'
- b *ha-axilat Šel dan ha-menumese^t et ha-uga
 the-eating of Dan the-polite ACC the-cake

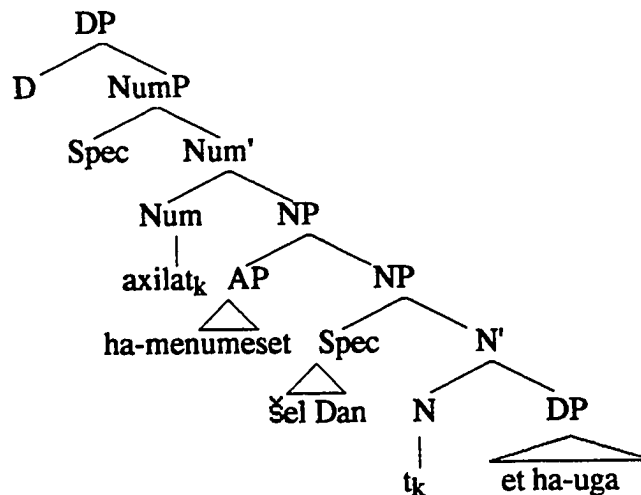
⁹ That the category between D and N is a projection of the number features, as opposed to the gender features, is based on a proposal by Bat-El (1986) who claims that number is inflectional while gender is derivational in Hebrew (I refer to Ritter's and Bat-El's paper for a discussion).

(68) shows that in CSNP the adjective ha-menumeset must follow the subject, while (69) shows that it must precede it in FSNP. Ritter claims that this is accounted for if we assume (as in Valois 1991a) that the adjective is adjoined to NP, and that in both cases the head noun moves to Num⁰. (70a) illustrates the derivation for the CSNP, and (70b) for the FSNP:

(70) a Construct State Noun Phrase



b Free State Noun Phrase



In both (70a) and (70b), the noun moves to Num⁰ past the NP-adjoined adjective. According to Ritter, the difference in word order is due to the different genitive case-assignment strategies employed in CSNP and FSNP: in CSNP, the subject is forced to move up to SpecNumP in order to be string adjacent to the genitive case assigner D, while in FSNP case is assigned by the noun in Num⁰. According to Ritter, the latter strategy is not possible in CSNP since the head noun must move up to D in order to "identify" the CSNP.¹⁰

7.3. Carstens (1991)

Based on an observation of Dryer (1989), who reports the existence of singular, plural, dual, and trial number words in Yapese (an Austronesian language), Carstens (1991) provides good evidence that the functional head between D and N carries the number features of DP.

¹⁰ Since Ritter posits two different genitive case assignment strategies in Hebrew DPs, she notes that her analysis opens up the possibility that some construction employs both strategies simultaneously. This is reflected in what she calls Clitic-Doubled Construct Noun Phrases:

- (i) axilat-o ha-menumset Šel dan et ha-uga
 eating-his the-polite of Dan ACC the-cake
 'Dan's polite eating of the cake'

Here, the head-noun bears a clitic-like element corresponding to the subject of the noun phrase. That the construction in (i) is a "hybrid" can be seen by the fact that, while the head noun is in the Construct State (beyt versus bayit), and, while, just like CSNP, the Noun Phrase is not headed by a determiner, the construction also shares properties typical of FSNP: the object is case-marked by Šel, and the adjective precedes rather than follows the subject (see Ritter 1990 for details).

Dryer's data is given in (71) (from Jensen 1977):

- (71) a. ea reā kaaroo neey
 sing. car this
 'This car'
- b. ea gal kaaroo neey
 dual car this
 'These two cars'
- c. l'agruw ea kaaroo
 two car
 'Two cars'
- d. ea pi kaaroo neey
 plur. car this
 'These cars'

Dryer notes that the relative word order of the number word and the head noun parallels the order of a verb and its complement; in other words, the order is Number-N in VO languages, and N-Number in OV languages. From this, Carstens concludes that this parallelism can be accounted by assuming that the number word is the head of a Number Phrase, and takes an NP complement, as illustrated in (72):

- (72) VO languages OV languages
- NumP NumP
- Num NP NP Num

Carstens also notes that the number word must occur between the determiner and the head noun, which confirms its position between D and N (data from Tongan, cf. Dryer op. cit.):

- (73) ha ongo puha'e ua
 art. dual box two
 'Two boxes'

Carstens' conclusion is then that the locus of pluralization, whether expressed by a full word as above, or by morphological features as in French or English, must be the functional category Number.

In the next section, I return to the word order asymmetries between French and English illustrated in section 1, and argue that these differences follow from the fact that noun-movement to Num⁰ is subject to the same parameter as verb-movement to INFL is in the two languages.

8. Head-movement to inflectional morphology in French and English

It has been argued extensively that the difference in the positioning of adverbs in English and French can be accounted for if one assumes that inflectional morphology attaches to the verb via verb-movement to an inflectional node located higher than the adverb in French, but through a process of Affix-Hopping in English (Emonds 1978, Pollock 1989, Chomsky 1990, etc). Familiar examples are shown below:

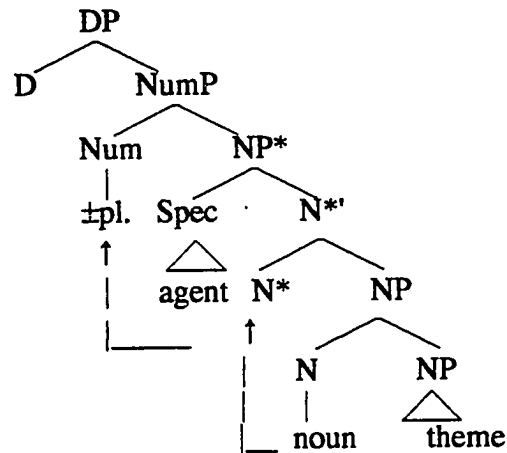
- (74) a Marc often eats apples.
b Marc mange_i souvent des pommes t_i.

Given our leading assumption about rules of grammar applying similarly in both clauses and Noun Phrases, we expect noun-movement to exhibit the same asymmetry in the two languages as well. Consider (75) from section 1:

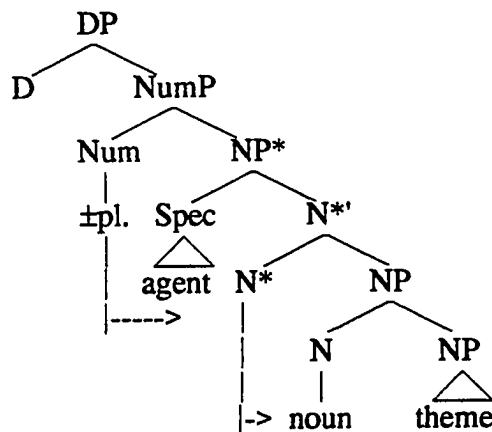
- (75) a Le portrait de Rembrandt (agent) d'Aristote (theme).
b Rembrandt's (agent) portrait of Aristotle (theme).

In the French examples the noun precedes the external argument, while it follows it in the English examples. I propose that this is accounted if affixation of the number features of the noun proceeds in a way similar to morphological affixation in clauses, i.e. by head-movement in French, and by Affix-hopping in English:¹¹

(76) a French



b English



¹¹ We might want to assume LF-movement of the noun to Number in English (in a manner such as that proposed by Chomsky 1990 for LF verb-movement to INFL).

An important consequence of this proposal is that there is no need to appeal to Giorgi & Longobardi's Head-Subject Parameter to account for the word order asymmetry between French and English. Rather, Noun Phrases are just like clauses in allowing head-movement to inflectional morphology in French but not in English. We will see additional evidence for the parameterization of noun-movement when we look at the distribution of adjectives in French and English in chapter 4. I will argue that the noun-movement parameter is responsible for the fact that French allows post-nominal adjectives, but English does not.

9. Conclusion

In this chapter, I proposed that arguments are projected similarly in both clauses and Noun Phrases, and adopted Sportiche's idea that every argument is contained in a maximal projection of the θ -marking head. We saw that this structure provided a straightforward account of binding, extraction, and LF-movement facts. Finally, I proposed that noun-movement is subject to the same parameter which governs verb-movement in French in English. The fact that the noun moves up to its number features in French, but not in English, accounted for the fact that the noun precedes the external argument in French, but follows it in English.

Chapter 3

Nominal affixes, case, and the typology of nominals

0. Introduction

In this chapter, I will address a number of issues concerning the various types of nominals and their interaction with the process of case assignment in DP. I will propose an analysis in which case and external θ -role assignment are not always a property of lexical items per se, but sometimes a combined property of the lexical item and the affix onto which it attaches. My proposal will boil down to the idea that case assignment in nominals functions exactly as in clauses, rather than by mere "insertion" of case assigning heads, as is standardly assumed (but see Chomsky 1986b). This crucially implies that noun complements are DPs (cf. Chomsky 1986b), and that they receive structural case (Sportiche 1990), as opposed to the standard assumption that they are inherently case-marked (Kayne 1984, Chomsky 1986b).

The point of departure of the analysis will be that all DPs, including underived nominals, contain an affix projection (see chapter 7, section 6.2 for support for the zero-affix in underived and result nominals; see also Pesetsky 1987b on null affixes). Affixes are divided into two categories, according to their case and thematic properties: while some affixes assign case to their specifier, others do not, and while some can discharge an external θ -role, others cannot. In developing my analysis, I will adopt an idea of Picallo (1990) that derived nominals may undergo either syntactic or lexical affixation. Depending on whether one or the other process is chosen, a number of properties will follow given the assumptions I make about affixes. For instance, it will

account for the non-occurrence of pre-nominal objects with event nominals in English, and for the fact that a DP subject is not possible in argument position in French, while a referential adjective or possessive pronoun is.

1. Word order and types of nominals

Consider the contrast in (1)-(3) from chapter 2:

- French:** N O S
(1) Le portrait d'Aristote de Rembrandt.
 the portrait of Aristotle by Rembrandt
- English:** S N O
(2) Rembrandt's portrait of Aristotle.
- (3) *The portrait of Aristotle of Rembrandt.

Giorgi & Longobardi analyze the contrast in (1)-(3) as a consequence of their Head Subject Parameter, which states that subjects are generated to the left of the head noun in Germanic, but to the right of it in Romance. In chapter 2, I proposed that the effects of the Head-Subject Parameter are rather the result of a difference already existing between French and English at the clausal level: presence versus absence of head-movement. In French, the noun moves past the agent to the head of NumP in order to receive its number features, while in English the number features in Num⁰ affix-hop onto the head noun.

However, a survey of a wider range of nominals suggests that the situation is much more complex.

To begin with, there is an asymmetry in the ordering of arguments in French nominals. While some allow "free ordering" (cf. (4) and (8)) of the agent and the theme, others do not (cf. (5)-(7))¹

- (4) a Le portrait de Rembrandt d'Aristote.
 the portrait of Rembrandt of Aristotle
 b Le portrait d'Aristote de Rembrandt.
- (5) a La lutte des syndicats contre le chômage.
 the struggle of the unions against unemployment
 b ??La lutte contre le chômage des syndicats.
- (6) a Le déferlement des troupes sur leur territoire.
 the advancing tide of the troops on their territory
 b ??Le déferlement sur leur territoire des troupes.
- (7) a Les dons de Pierre à la communauté.
 the donations of Pierre to the community
 b ??Les dons à la communauté de Pierre.
- (8) a La description de Paul des événements.
 the description of Paul of the events
 b La description des événements de Paul.

Comparing (4)/(8) and (5)-(7), the differences seem to lie in the fact that in (4)/(8) both arguments are DPs.

In addition to these differences, there are other reasons to believe that the analysis presented so far must be refined. This is because the analysis does not distinguish between the three types of nominals discussed by Grimshaw (1990) (see also Milner 1982, Lebeaux 1984, Anderson 1983, Randall 1984, Grimshaw 1986;

¹ Cf. Lobato (1987) who observed similar facts, and who proposes a case-driven account of the various word orders. See also Valois (1991b).

Roeper 1987, Zubizarreta 1987, Safir 1987, Levin & Rappaport 1987, Rappaport & Levin 1989; see below for a discussion): underived, event, and result nominals. As Grimshaw showed, there are differences between the three types with respect to the projection of their arguments, with result nominals patterning more like underived nominals. I turn to a brief illustration of these differences immediately.

It is well known that certain derived nominals such as examination may have either a result or an event reading (see references above). Taking the occurrence of the aspectual modifier frequent as forcing the event reading (cf. Grimshaw 1990), in (9a) the noun denotes the process of the examination, while in (9b) it may either denote the result or the process. In (9c), we see that the aspectual modifier is not compatible with a predicate which forces the result reading:

- (9) a The frequent examination __ of the patient.
- b The examination __ of the patient.
- c *The frequent examination of the patient is now complete.

As Grimshaw (1990) demonstrates, both types of nouns display a number of complementary properties. I will illustrate with those concerning us here. First, the direct object of event nominals must be projected (10a-b), while it does not have to be projected with result nominals (10c-d):

- (10) a *The frequent examination got on the patient's nerves.
- b *The frequent examination by the doctor got on the patient's nerves.
- c The examination is now complete.
- d The examination by the doctor is now complete.

Second, a pre-nominal genitive corresponding to the theme argument is only compatible with the result reading of a noun:

- (11) a *The patient's frequent examination got on his nerves.
 b The patient's examination is now complete.

Turning to French, a third difference was pointed out by Milner (1982) (see also Zubizarreta 1987; also Picallo 1990, who reports similar facts in Catalan), who observed that only the result reading is compatible with genitive agents, while with event nominals the agent, when present, must appear in a by-phrase. In other words, the agent cannot be projected in argument position in event nominals:

- (12) a La description de Lise (agent) de l'événement est apparue dans le journal.
the description of Lise of the event appeared in the newspaper
 b *La fréquente description de Lise (agent) de l'événement ennuyait Marie.
the frequent description of Lise of the event annoyed Marie
 c La fréquente description de l'événement par Lise ennuyait Marie.
the frequent description by Lise of the event annoyed Marie

Finally, as far as the external argument is concerned, English differs from French in that the agent can be projected in argument position in event nominals (in addition to be optionally projected in an adjunct by-phrase- cf. (13b)):

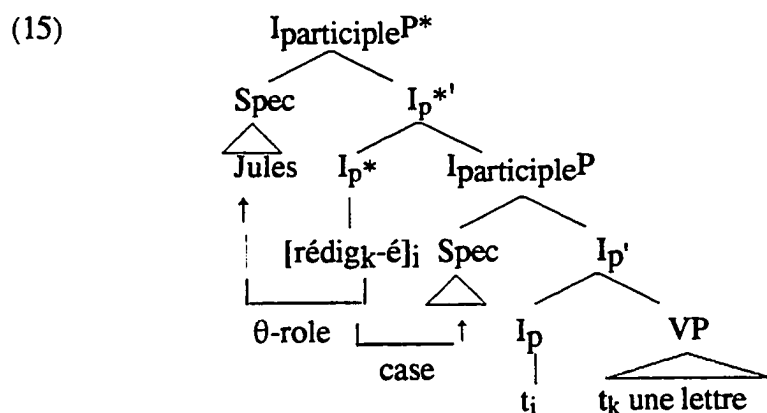
- (13) a John's frequent description of the event.
 b The frequent description of the event (by John).

I will propose that these facts are all correlated. The theory which I will develop relies on the fact that case and external θ -role assignment are properties of affixes. That, coupled with the parameterization of head-movement, and the fact that English exhibits overt realization of a pre-nominal genitive case marker, will account for the data.

2. Case and thematic properties of affixes

That nominal affixes have thematic and case properties is exemplified at the clausal level by standard analyses of passive constructions in English. Generally, it is assumed that the passive morpheme *-en* is responsible both for the absorption of the external θ -role of a predicate and for blocking case assignment to the direct object, forcing movement of the latter to subject position.² In the same vein, Sportiche (1990) proposes that, in active periphrastic tense clauses, accusative case and external θ -role assignment is a combined property of the verb and its participial morphology (see chapter 1). The structure of (14) is then as in (15):

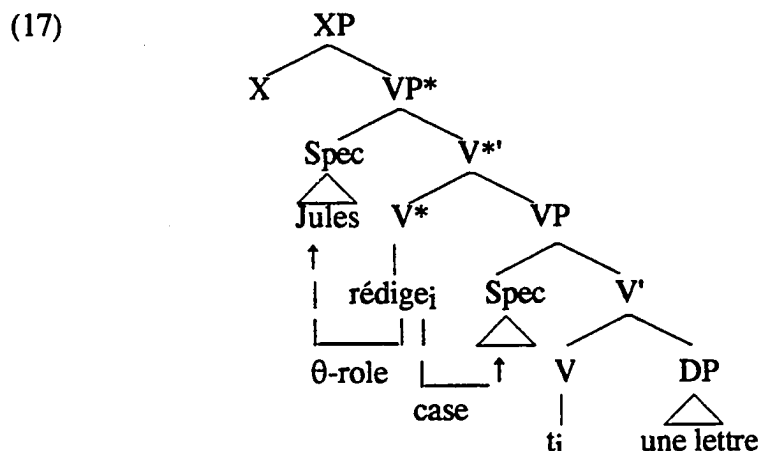
- (14) Jules a écrit une lettre.
Jules wrote a letter



In (15), the participial morphology takes a VP complement, licences the external θ -role, and, combined with the raised verb, assigns accusative case to the direct object in Spec I_pP . In simple tense constructions, the verb alone accomplishes both tasks. The structure of the simple tense sentence in (16) is shown in (17):

² But see Baker, Johnson & Roberts (1988).

- (16) Jules rédige une lettre.
Jules writes a letter



Along the same lines, I will argue that case and θ -role assignment in nominals are a combined property of the lexical head and the affix onto which it attaches. I will propose that all nominals contain an affix projection (which I label No(un) P(hrase)), more precisely a nominalizing affix in event nominals, and a zero-affix in underived and result nominals. Each type of affix has different properties. The nominalizing affix takes a VP complement, forces the verb to assign case to the direct object, and helps discharge the external θ -role of the verb, while the null affix takes an NP complement, does not force case assignment to the object, and does not discharge an external θ -role. Moreover the specifier of the nominalizing affix is not a case position, while the specifier of the null affix can be, provided it is supported by a noun. Interestingly, the case properties of affixes are reminiscent of Burzio's Generalization, in the sense that, if an affix assigns case to a direct object, it (may) assign(s) an external θ -role. (This has consequences for a sub-class of nouns for which the external argument may be post-nominal in English; see Appendix). Finally, head-movement to a nominalizing

(i.e. non-null) affix is obligatory in both French and English, while head-movement to a null affix is only allowed in French.

Tables 1 and 2 summarize the assumptions I will make, some of which have already been discussed above:

TABLE 1: List of assumptions

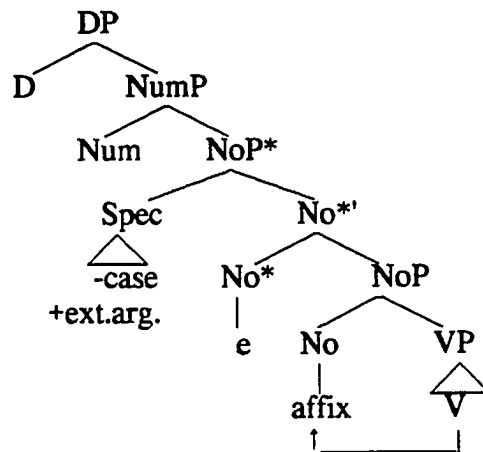
1. derived nominals may undergo either syntactic or lexical affixation (Picallo 1990);
2. case and external θ -role assignment in nominals is a combined property of the affix and the lexical item onto which it attaches; affixes are divided into two classes:
 - (A) nominalizing affixes, which have the following properties: (i) they take a VP complement (see also Murasugi 1989, Hazout 1990); (ii) they may assign an external θ -role; (iii) their specifier is not a case position;
 - (B) non-nominalizing affixes, which have the following properties: (i) they take an NP complement; (ii) they make rightward case assignment only optional; (iii) their specifier is a case position if the affix is supported by a noun;
3. unlike N-movement to Num⁰ (cf. Chapter 2), head-movement to a nominalizing affix is obligatory in both French and English;
4. In English case assigning head ('s) may be projected, but there is no such head in French;

TABLE 2: Affix classification

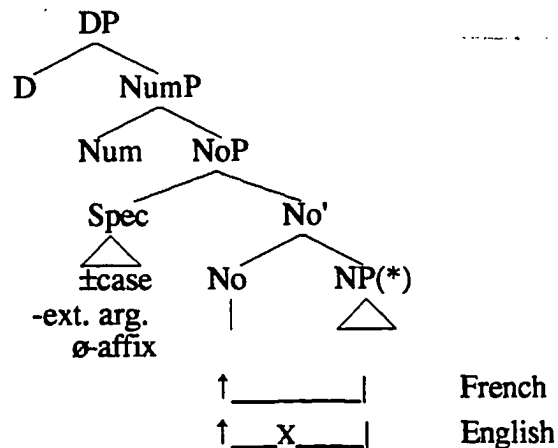
<u>Affixes</u>	<u>example</u>	<u>type of compl.</u>	<u>rightward case</u>	<u>spec-head case</u>	<u>ext. arg.</u>
nomin.	-tion	VP	obligatory	no	yes
non-nom- inalizing	- \emptyset	NP	no	yes if supported by a noun	no

Each type of nominal is illustrated below (where XP* is the projection containing the external argument). As we can see, the structure of event nominals is parallel to that of periphrastic tense sentences, while the structure of result and underived nominals is parallel to that of simple tense sentences:

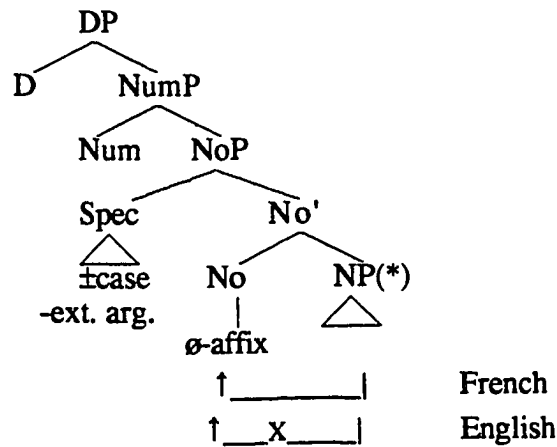
(18) Event nominal



Result nominal



Undersived nominal



I will now turn to a discussion of the case assignment process.

2.1. Case in undersived nominals

2.1.1. Case to the object

I will begin by discussing case assignment to the direct object in undersived nominals. We will look at French first.³ Following Sportiche (1990), I will argue (i)

³ For ease of exposition, I will limit the discussion to cases of DPs containing two arguments: an agent and a theme. As is well-known, French allows a possessor to be projected in addition to the agent and the theme. It is reasonable to assume that the possessor (generated higher in the tree, cf. chapter 2) receives inherent case.

In English, co-occurrence of a possessor and an agent is impossible. Giorgi & Longobardi attribute this to the fact that, according to their Head-Subject Parameter, all external "arguments" in Germanic are projected to the left. Since there is only one specifier in Noun Phrases in their system, only one external argument can be projected. In our system, the presence of the possessor will block movement of the agent to the pre-nominal case position. As a result, the agent will be caseless, in violation of the Case Filter.

In French, co-occurrence of a possessor and an agent is possible if we assume that the possessor is projected outside of the argument structure of the noun, including the affix projection. Consequently, the agent can move to SpecNoP, and get case. In English, the agent must move past the possessor to SpecCaP, which is not allowed. In other words, the presence of a possessor will prevent the agent from getting case in English, but not in French. (i)-(ii) illustrates:

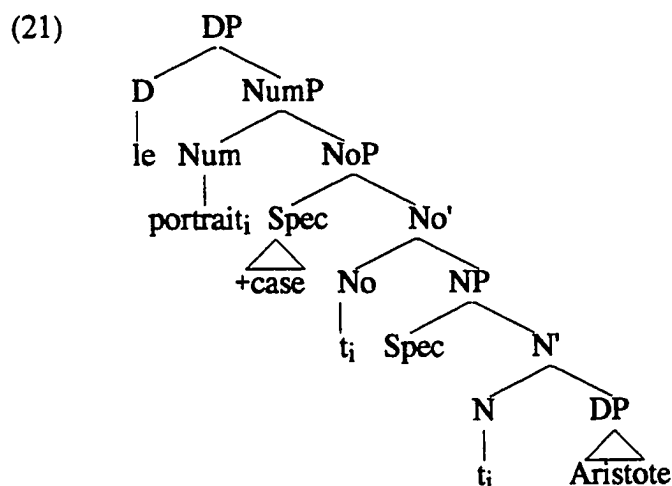
English: *This collector's Paul's picture.

- (i) [CaP [+case] [PossP possessor (inherent case) [NoP - case [NP* agent]]]]
- ↑ _____ X _____

- (19) a Le livre de Jean. (possessor, agent, or theme)
 the book of John
- b Le ressentiment de Pierre. (experiencer)
 the resentment of John
- c La porte de la maison. (inalienable possessor)
 the door of the house

Having said this, after head movement, the structure of (20) will be as in (21), with Aristote interpreted as the theme:

- (20) Le portrait d'Aristote.

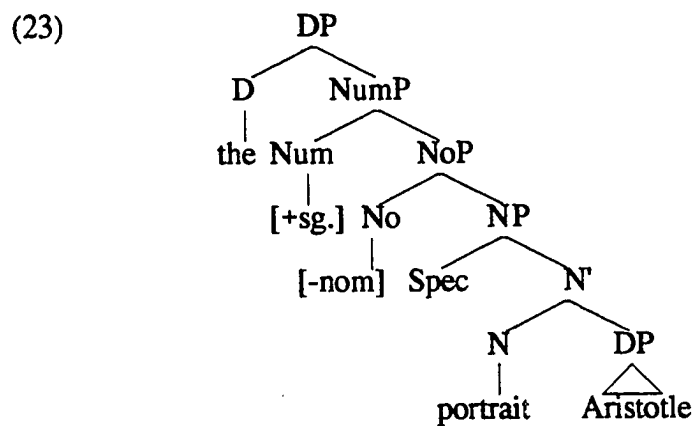


There are a number of options with respect to case assignment to the direct object, depending of whether we assume the noun or one of the functional categories to be responsible for it. If it is the noun, case could be assigned under N', in SpecNP from the noun in No, or in SpecNoP from the noun in Num⁰; if a functional category is responsible for case assignment, case could either be assigned by No in SpecNP, or by Num in SpecNoP. Alternatively, case could be assigned in any of the specifiers by specifier-head agreement. I will hold the position that the direct object gets case in

SpecNP from the noun in No^0 , which in fact constitutes the null hypothesis given that, in clauses, case is assigned to SpecVP under government by the verb (see chapter 1). Evidence for this will be provided in chapter 7 in our discussion of PP-extraposition and HNPS.

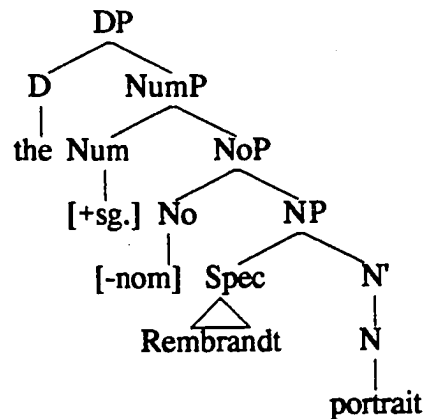
The situation is a little different in English, due to the fact that noun-movement does not take place (cf. chapter 2). First, take (22) with the corresponding structure in (23):

(22) The portrait of Aristotle.



Assume for the sake of argument that, even though the noun does not move to Num^0 in English, it nonetheless moves to No^0 in (23). Then, as was the case in French, it is not obvious what the case position is. However, there is some evidence that there is no movement NoP in English. Take (24) where Rembrandt is the agent:

(24)



If the noun moved to No^0 in order to assign case to Rembrandt in SpecNP, we would expect (25) to be good, with Rembrandt as the agent:

(25) The portrait of Rembrandt.⁵ (\neq agent)

5 There are cases of post-nominal agents as shown in (i):

(i) A portrait of Rembrandt's.

However, (i) involves a totally different construction, possibly involving N-movement from post-nominal to pre-nominal position, as in Martin (1986):

(ii) [NP picture_i of [NP Rembrandt's t_i]]

The fact that only the possessor or agent interpretation of Rembrandt's is available in (i) supports this claim.

Giorgi & Longobardi (1991) also note cases such as (iii), where the external argument appears after the head noun in English:

- (iii) a Jim's decision.
b The decision of all the members who were on the committee.

They claim that (iii-b) is a case of Heavy-NP Shift of the agent, as can be seen by the fact that the agent may not appear in pre-nominal position if it is "heavy":

(iv) *All the members who were on the committee's decision.

If they are right that the agent in (iii-b) has undergone Heavy-NP Shift, we would still have to explain how the agent appears in an of-phrase. I have no answer for that.

But if no movement takes place at all, and since N* does not assign case to the right, the agent must move up to receive case (see below for details), yielding (26):

(26) Rembrandt's portrait.

I will then assume that direct objects in English underived nominals receive case under N' (see chapter 5 for evidence that the noun does not move at all in English).^{6,7}

There are still a couple of facts that must be accounted for with respect to case assignment in English nominals: (i) pre-nominal objects are allowed (cf. (27a)); and (ii) a possessor cannot co-occur with an agent (cf. (27b)):⁸

- (27) a Aristotle_i's portrait t_j.
b *Mary's portrait of Rembrandt.

Both properties follow from the assumptions made so far about the structure and case assignment. The explanation for (27a) is obvious: underived nouns assign case only optionally. If the noun does not assign case to the direct object, it can move up to the pre-nominal position to get case.

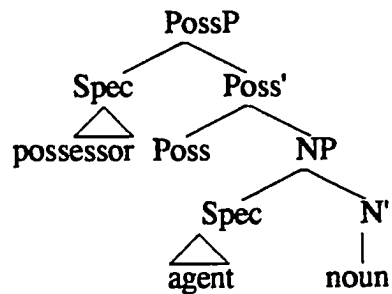
As for (27b), the structure of a Noun Phrase containing both a possessor and an agent would be as in (28) (cf. chapter 2):

6 However, we will argue below that case assignment in event nominals does take place in specifier (of VP) as a result of head-movement of the verb to the nominalizing affix.

7 If, as in Sportiche (1990), external θ -role assignment is contingent on head-movement to X*, we must assume, as proposed in chapter 2, footnote 11, that movement takes place at LF in English.

8 Unless the agent is in a by-phrase.

(28)



The problem here is that there are two pre-nominal DPs in need of case, but only one pre-nominal case position.

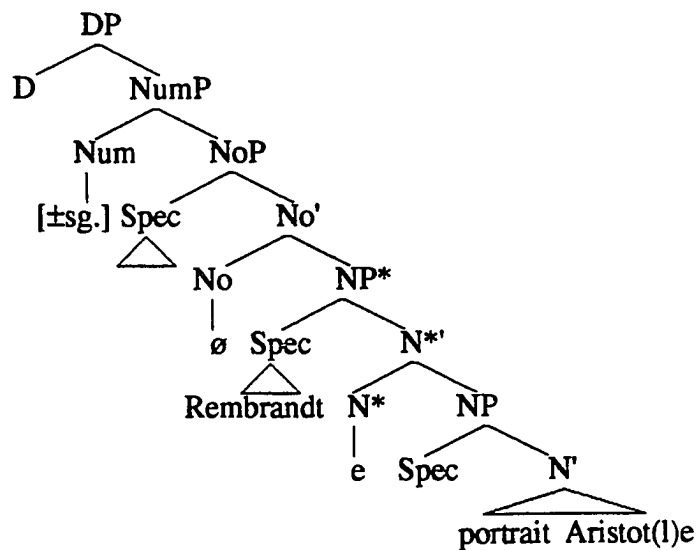
2.1.2. Case to the subject

The situation is more complex when the external θ -role of the noun is projected. Given our assumption that θ -roles are uniformly projected in French and English (cf. Chapter 1), the D-structure for both (29) and (30) will be as in (31):

(29) Le portrait de Rembrandt d'Aristote.

(30) Rembrandt's portrait of Aristotle.

(31)



Case assignment to the direct object proceeds as above: under N' in English, in SpecNP in French. The subject Rembrandt also needs case. It cannot get case from the noun since the noun has already discharged its case onto the direct object. But we also proposed that case by spec-head agreement is available in SpecNoP if the null affix is supported by a noun. Since, in French, the head noun moves all the way up to Num⁰, it must move through No⁰ as a consequence of the Head Movement Constraint (Travis 1984). This means that the subject Rembrandt can (and in fact must) receive case in the SpecNoP position.

In English, on the other hand, no head-movement takes place. However, there is an affix associated with pre-nominal genitive case in English, i.e. 's. Let us assume that this affix projects its own maximal projection (as in Abney 1987), which I will label Ca(se) Phrase:

[illegible]

Note that under this analysis, we assimilate the impossibility of "double-genitive complements" in English to the lack of head-raising:

Since the head noun does not move up in English, (33) is not derivable.

(4) a Le portrait de Rembrandt d'Aristote.
the portrait of Rembrandt of Aristotle

b Le portrait d'Aristote de Rembrandt.

(5) a La lutte des syndicats contre le chômage.
the struggle of the unions against unemployment

b ??La lutte contre le chômage des syndicats.

- (6) a Le déferlement des troupes sur leur territoire.
the advancing tide of the troops on their territory
- b ??Le déferlement sur leur territoire des troupes.
- (7) a Les dons de Pierre à la communauté.
the donations of Pierre to the community
- b ??Les dons à la communauté de Pierre.
- (8) a La description de Paul des événements.
the description of Paul of the events
- b La description des événements de Paul.

It is noticeable that all the cases in which ordering is "free" involve Noun Phrases with two genitive arguments. We just saw that in French the external argument moves to SpecNoP to receive case. No such movement is necessary in all other examples, since they only contain one Noun Phrase in need of case, the other arguments being PPs (see Appendix for a discussion). As a result, this Noun Phrase gets case directly from the noun after N-raising, and nothing else need be said.⁹ The "free" ordering in (4)-(8) can be accounted for if we assume that specifiers of affix projections in French are projected on either side of the head noun. Since only in "double-genitives" does the external argument move to SpecNoP, the contrast in (4)-(8) follows (see chapter 7 for support for this analysis).

2.2. Case in derived nominals

In this section, I will discuss the mechanisms of case assignment in event nominals. Although my analysis will differ significantly from hers, I will argue, following Picallo (1990), that derived nominals undergo either lexical or syntactic affixation. This will account for a number of asymmetries between event and result

⁹ A similar approach was proposed by Lobato (1987).

nominals with respect to the projection and relative word order of DP-internal arguments.

2.2.1. Syntactic derivation

In Remarks on Nominalization, Chomsky (1970) argues against a syntactic derivation of derived nominal. Instead, he proposes that both verbs and their nominalizations are represented in the lexicon without a categorial label, and that they may be inserted either under a V or an N node at D-structure. His arguments were based on some basic differences between derived and gerundive nominals, under the assumption that the latter are derived transformationally. Among those differences, let us mention the following: (i) gerundive nominals are formed more freely than derived nominals (John's being easy to please versus *John's easiness to please); (ii) the relation between the noun and the corresponding sentence is more direct with gerundive nominals than with derived nominals; and (iii) gerundive nominals have the internal structure of a sentence, while derived nominals do not (i.e. only the former allow adverbs to occur: John's having recently proven the theorem versus John's recently proof of the theorem). The essence of Chomsky's proposal was to keep lexical idiosyncrasies in the lexicon: since the relation between verbs and their corresponding derived nominals is not predictable, Chomsky argued that nominalization takes place in the lexicon.

However, subsequent research has attributed the asymmetries between derived nominals and clauses to various other factors independent of the issue of syntactic versus lexical derivation (see Kayne 1984, Pesetsky 1989 among others). To illustrate

with but one example, Kayne (1984) proposes that the inability of a noun to govern across small clause boundaries accounts for the contrast in (34):

- (34) a They considered John crazy.
 b *The consideration of John crazy.

Moreover, given the recent developments concerning the projection of morphological items in the syntax (Baker 1988, Pollock 1989, Chomsky 1990), it is reasonable to assume, or at least worth pursuing the idea, that nominalization can take place in the syntax (Murasugi 1989, Hazout 1990). Following Picallo, I will argue that both processes, i.e. lexical and syntactic derivation, are possible, although my proposal will differ significantly from hers.

2.2.2. Double derivation

Picallo (1990) argues that the asymmetry concerning the projection of the external argument in event and result nominals in Catalan (similar facts are found in French) can be explained if event nominals are derived syntactically while result nominals are derived in the lexicon. As we saw earlier, the external argument in event nominals is always expressed in a *by*-phrase, while it can be expressed as a genitive DP in result nominals. The relevant examples are repeated below:

- (12) a *La fréquente démonstration du théorème de Jules.
 the frequent demonstration of the theorem of Jules
 b La fréquente démonstration du théorème par Jules.
 the frequent demonstration of the theorem of Jules

According to Picallo, the nominalization affix in event nominals is projected in the syntax, taking a category-neutral XP complement. The head noun moves to the

affix, deriving the NSO word order. She also proposes that the nominalizing morpheme plays the same role as the passive morpheme in clauses: it both "demotes" the external θ -role and absorbs structural case assignment by the noun. As a result, the agent in a syntactically derived nominal can only appear in an adjunct *by*-phrase, and the internal argument must move up to get case, paralleling the process of clausal passives. Picallo also proposes that a DP contains functional categories corresponding to the number and gender features of the Noun Phrase; the derivation of an event nominal is as in (23) (simplified structure): the noun moves up to Ge(nder), then up to Nu(mber); since the object DP cannot receive case in object position, it raises to SpecGe to get case by specifier-head agreement:

- (35) [NuP démonstration_k [GeP [du théorème]_i [XP t_k t_i]]] par Jules.

However, there are problems with Picallo's account. First of all, if the external θ -role was absorbed by the nominalizing affix in event nominals, it would be difficult to explain why it can appear either as a possessive pronoun or a referential adjective in French:¹⁰

10 Picallo (p.c.) notes that referential adjectives in Catalan appear not to be compatible with the event interpretation of a derived nominal since they exclude the presence of temporal or purposive adjuncts (which are only compatible with the event reading):

- (i) a L'invasio americana de Panama (*en tre dies).
 the American invasion of Panama (in three days)
 b L'invasio americana de Panama (*per desfer-se de Noriega).
 the American invasion of Panama (to get rid of Noriega)

In contrast, the French counterparts to (i) are fine:

- (ii) a L'invasion américaine de Panama en trois jours.
 b L'invasion américaine de Panama pour se débarrasser de Noriega.

I have no explanation for this contrast between French and Catalan.

- (36) a Leur fréquente invasion de l'Autriche.
their frequent invasion of Austria
- b La fréquente invasion allemande de l'Autriche.
the frequent German invasion of Austria

Second, it is not clear, under Picallo's analysis, why co-occurrence of a subject and of an object should be allowed in English:

- (37) **Jim's demonstration of the theorem.**

In (37), either the subject does not receive a θ -role, or the object is not case-marked.

Third, examples from Hebrew show that there is case assignment to the direct object of an event nominal (the presence of an adjective in (38b) ensures that we are dealing with a noun and not a gerund):

- (38) a Raři-t tmuna řel Aristo
saw-you picture of Aristotle
'*You saw a picture of Aristotle*'
(from Shlonsky) 1988)
- b Harisate-nu ha-axzarit et ha-ir
destruction-our the-cruel ACC the-city
'*Our cruel destruction of the city*'
(from Hazout 1990)

In (38a), the direct object is marked for genitive, while in (38b), it is marked for accusative. This suggests that, not only does the nominalizing affix not block case assignment, but it makes accusative case available for the object.

Finally, there is a contrast between "passivization" in English DP and clausal passives with respect to control of the subject of a purpose clause (cf. Roeper 1983,

Williams 1985, Grimshaw 1990). As the contrast below shows, control is possible in passives sentences, but not in "passive" nominals:

- (39) a The ship was destroyed to collect the insurance.
b *The ship's destruction to collect the insurance.

This suggests either that the two processes have very different properties, or that they do not represent the same process at all (see section 3 for a discussion).

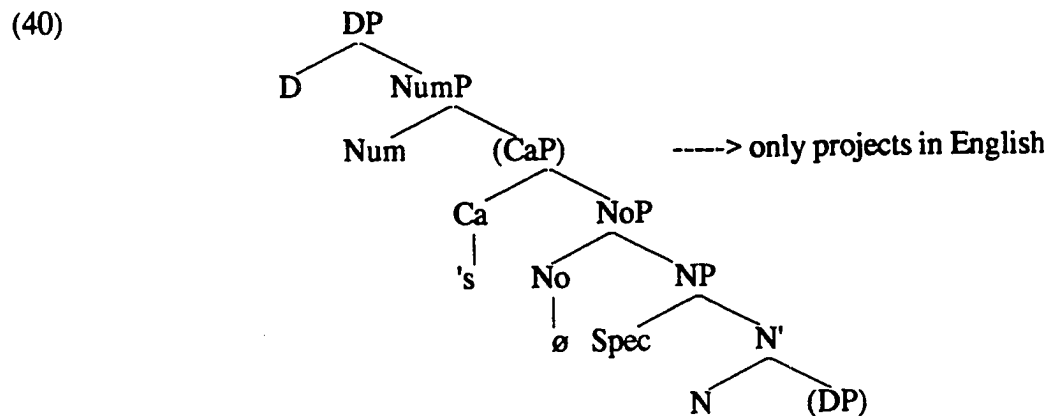
Although it seems that a cross-linguistic comparison shows that there is more to Picallo's analysis, I will nonetheless retain her idea that some nominals can be derived either in the lexicon or in the syntax. In the first case, a result reading obtains, while in the second case, we get the event reading. However, as illustrated in Tables 1 and 2, the nominalization affix will be attributed different properties than those assumed by Picallo.

2.3. Result nominals

Since affixation of a derived nominal may be done in the lexicon, a result nominal, at the point of lexical insertion, looks just like an underived nominal, i.e. the nominalizing affix is not syntactically present. Consequently the No^0 head takes an NP complement and case assignment operates the same way as in underived nominals (see section 2.1).

Take the case where both an agent and a theme are projected: In French, since the head noun moves all the way up to Num^0 , the No head will be supported by the (trace of the) noun, which makes case assignment in its specifier available for the subject. In English, the noun does not move up, but the 's affix projects, and the

subject moves to SpecCaP to get case. The structure of result nominals is shown in (40):



As with underived nominals, case assignment to the direct object is optional. In English, this means that, if case assignment does not take place, the object moves to SpecCaP.¹¹ The various possibilities are illustrated in (41) (as it is the case in derived nominals in general, the external argument may appear in an adjunct by-phrase; cf. footnote 15):

¹¹ Pre-nominal objects seem at first glance to be limited to those DPs which may enter into a possession relation with the head noun, at least of the inalienable type:

- (i) a John_i's picture t_i.
- b The table_i's legs t_i.
- c ?Amsterdam_i's picture t_i.

However, (ii) shows that possession might not exactly be the right notion:

- (ii) Yesterday's lecture.

I will not discuss this here (see Anderson 1984).

- | | | |
|--------|--|--|
| (41) a | The description of the event. | (object gets case from the noun) |
| b | The event's description. | (object gets case in SpecCaP) |
| c | John's description of the event. ¹² | (subject gets case in SpecCa, object gets case from noun) |
| d | The description of the event by John. | (subject in <u>by</u> -phrase, object gets case from noun) |
| e | The event's description by John. | (object gets case in SpecCaP; agent in <u>by</u> -phrase) |
| f | The description by John. | (theme not projected; agent in <u>by</u> -phrase) |

Note also that, unlike event nominals, there is no restriction with respect to the projection of arguments, i.e. projection of the agent does not force the projection of the theme:

- | | |
|--------|--|
| (42) a | La description de Paul (agent).
<i>Paul's description</i> |
| b | La description de Paul (agent) de l'événement (theme).
<i>Paul's description of the event</i> |
| c | La description de l'événement (theme).
<i>the description of the event</i> |

¹² A word must be said about (41c). Grimshaw (1990:51) claims that the occurrence of a subject in derived nominals "serves to disambiguate the nominal in the direction of the event reading". If this were the case, we would have to explain why pre-nominal subjects are not possible with result nominals. However, it is unclear that only the event reading is possible in those cases. (i) shows that the presence of a pre-nominal subject does not prohibit the entire DP from being subject of a predicate which forces the result reading:

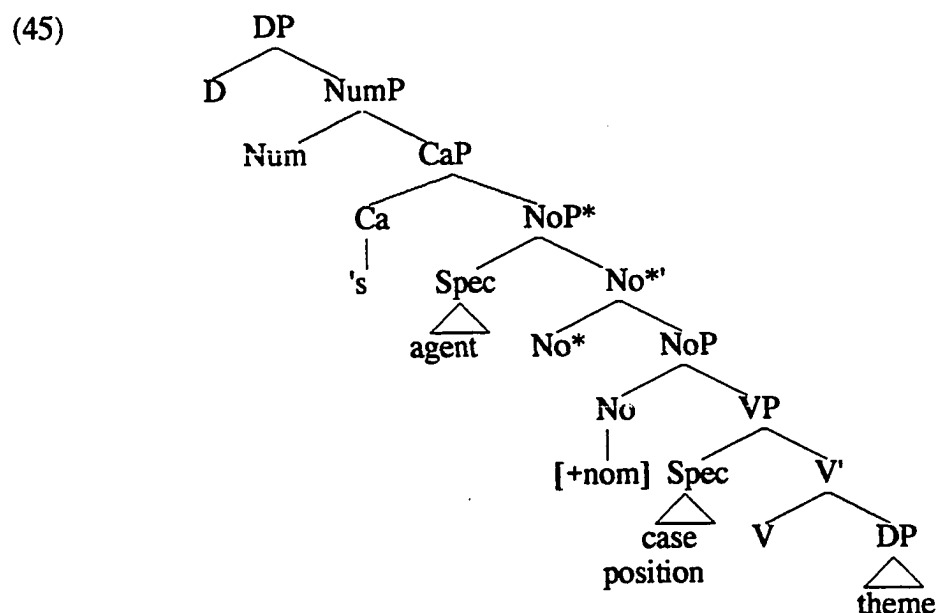
- | | | |
|-----|---|---|
| (i) | a | John's clever demonstration of the theorem has been published in the school paper. |
| | b | The clever demonstration of the theorem by John has been published in the school paper. |

Finally, since, just as in underived nominals (cf. (44)), the SpecNoP in French is bi-directional (cf. end of section 2.1.2.), either of the agent-theme or theme-agent word order is possible with result nominals:

- (43) a La description de l'événement de Paul.
Paul's description of the event
 b La description de Paul de l'événement.
- (44) a Le portrait d'Aristote de Rembrandt.
Rembrandt's portrait of Aristotle
 b Le portrait de Rembrandt d'Aristote.

2.4. English event nominals

The structure of an English event nominal is as in (45):



The various possibilities in English event nominals are shown in (46a-c), along with the ungrammatical (46d-f):

- (46) a The doctor's frequent examination of the patient.
 b The frequent examination of the patient by the doctor.
 c The frequent examination of the patient.
 d *The patient's frequent examination.
 e *The doctor's frequent examination ____.
 f *The frequent examination ____ by the doctor.

In all these cases, the verb moves up to the nominalizing affix in No⁰.¹³ Take (46a) first: after V-movement to the affix, the verb+affix assigns case to the right to the direct object in SpecVP,¹⁴ just as verbs do in clauses (cf. chapter 1), and the external θ -role is discharged in SpecNoP* after the complex has moved to No*, in the manner illustrated in chapter 1. Since the 's morpheme projects (to CaP) in English, the subject moves to SpecCaP and gets case from 's.

Note that discharging the external θ -role in SpecNoP* makes the right prediction with respect to the position of referential adjectives in English (see below and chapter 4):

- (47) a The Japanese invasion of China.
 b L'invasion japonaise de la Chine.

If the external argument were projected inside VP, i.e. lower than the noun, (47a) would not be derivable without some other stipulation. Furthermore, generating the

¹³ In fact, it is hard to see how it could be otherwise, since it is the nominal affix which changes the category of the verb into a noun. If Affix-hopping were responsible for attaching the affix onto the verb, the newly formed complex would still be headed by V.

¹⁴ Recall that I have argued that case to the direct object is assigned under N' in English underived and result nominals. In sections 3.2 and 5, I will support the claim that the direct object of an event nominal receives case in SpecVP.

subject of both nouns and verbs inside VP could not explain why only nouns may take AP external arguments.

Turning to (46b-c), we see that the agent can either be absent or projected in a by-phrase, which is of course reminiscent of passivization in clauses. But recall that we showed that a passive account of event nominals runs into several problems (cf. section 2.2.2). On the other hand, (46b-c) are consistent with the role we are attributing to affixes, if we assume that it is a property of the affix that they discharge their external argument only optionally (see also footnote 15).

Now for (46d-f). Let us look at (46e-f) first. These examples show that the direct object cannot be omitted when the noun denotes an event. But this is predicted if the nominalizing affix takes a VP complement: since the object is obligatory in the corresponding verb (cf. (48)), it will be with the nominalization as well:

(48) *The doctor examined ____.

(I also claimed that the verb+affix complex must assign case to its object. In (48), there is no object for the verb to assign case to.)

Now let us turn to (46d). This example shows that a pre-nominal object is not compatible with the event reading of the noun. This is straightforward under the system presented here: since the verb+affix complex assigns case obligatorily, the direct object may not further move to SpecCaP, since if it did, it would be receiving case twice, in violation of the conditions on chains formation (Chomsky 1981, Sportiche 1983, Chomsky 1986b).

2.5. French event nominals, and the position of determiners

French event nominals differ from English event nominals in a number of ways. First, as we saw earlier, a DP agent is not allowed in argument position in French; rather, it must be projected in an adjunct by-phrase (if at all):

- (49) a La fréquente description de la ville.
 the frequent description of the city
- b *La fréquente description de la ville de Pierre.
 Pierre's frequent description of the city
- c La fréquente description de la ville par Pierre.
 the frequent description of the city by Pierre

However, the external argument is allowed to appear in argument position if it is expressed as either a referential or a possessive adjective:

- (50) a La fréquente invasion japonaise de la Chine.
 the frequent Japanese invasion of China
- b Leur fréquente invasion de la Chine.
 their frequent invasion of China

That both agents in (50) are in the SpecNoP* argument position can be shown by the impossibility of extracting out of either DP; as we saw in chapter 2, the presence of a higher argument always blocks extraction of a lower one:

- (51) a *Le pays dont j'ai étudié la fréquente invasion japonaise.
 the country of-which I studied the frequent Japanese invasion
- b *Le pays dont j'ai étudié leur fréquente invasion.
 the country of-which I studied their frequent invasion

This contrasts with (52), where extraction is possible when the agent is in an adjunct by-phrase (i.e. not in argument position):

- (52) Le pays dont j'ai étudié la fréquente invasion par les Japonais.
the country of-which I studied the frequent invasion by the Japanese

As the contrast between (49b) and (50) shows, the problem is that the external argument in (49b) is projected as a DP. But our system predicts this: since the specifier of the nominalizing affix is not a case position, and French does not project a CaP, no case is available for the subject (we will see below that the absence of an overt subject does not (necessarily) mean that a PRO subject is present). Hence, DP cannot be an external argument.¹⁵

What about (50a-b), where the external argument is not a DP? If the absence of a DP subject is tied to the absence of case, it seems that the only plausible explanation for the presence of subjects in argument position in (50a-b) is that these subjects do not need to be case-marked. This is not too difficult to admit in the case of the referential adjective, and can in fact be shown quite easily. Take (53):

- (53) a The probable German invasion of Austria.
 b *The German probable invasion of Austria.
 c *The probable Germans' invasion of Austria.
 d The Germans' probable invasion of Austria.

The contrasts between (a)-(c) and between (b)-(d) suggest that the DP external argument, but not the AP external argument, has moved further up, past the adjective probable. We will see in chapter 4 that this can be explained if referential adjectives, given that they do not require case, do not move up to a higher (case) position.

15 The optionality of the external θ -role might be attributed to the non-applicability of the Extended Projection Principle in Noun Phrases; cf. Giorgi & Longobardi 1990).

The problem is the possessive "adjective" (the traditional term). In chapter 2, I referred to the French possessive as a pronoun, since it exhibits "pronoun-like" properties. For instance, it can be bound by a c-commanding QP:

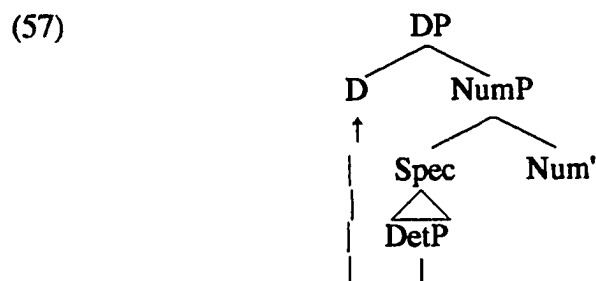
- (54) La photo de chaque_i photographe de sa_i ville préférée.
the picture of each photographer of his_i favorite town

Second, possessives, but not referential adjectives, can bind a reflexive (cf. Kayne 1984) :

- (55) a *The German_i invasion of themselves_i.
 b Son_i portrait de lui-même_i.
his picture of himself
- (56) a Their_i invasion of themselves_i.
 b *L'invasion allemande_i d'eux-mêmes_i.
the German invasion of themselves
 c *L'invasion allemande_i de leur propre_i territoire
the German invasion of their own territory

Moreover, the possessive is marked for genitive, a property not shared by adjectives. Given these observations, the conclusion should be that the possessive pronoun needs to be in a case position, just like any other pronoun. However, I argued specifically that it is the lack of such a case position in French which explains the non-occurrence of genitive agents in event nominals.

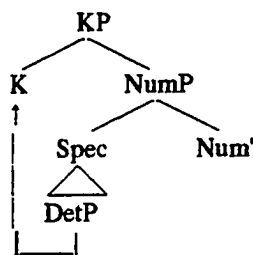
But there is a position which I have not discussed so far: the specifier of NumP. I want to argue that SpecNumP is the position in which the determiner (which projects to DetP) originates, before cliticizing onto D, as illustrated in (57):¹⁶



This is reminiscent of Sportiche's (1990) analysis of clitic pronouns in French, in which he argues that clitics are XPs which first undergo XP-movement, followed by cliticization of their head X (cf. chapter 1).

Among other things, the structure in (57) accounts for the agreement between a determiner and the head noun in French (I discuss the consequences of this proposal in more details below). I argue in section 4 that possessive pronouns also start out as XPs and, since they are also determiners (Tremblay 1989, Authier 1990) they must go

16 This could mean that the projection containing the A'-specifier is not DP, but rather KP as in Lamontagne & Travis (1986). In this case, obligatory movement of the determiner would be related to its being a clitic.



I will nonetheless keep referring to noun phrases as DPs.

through SpecNumP before they cliticize onto D.¹⁷ I propose that SpecNumP is the position in which possessives receive case. We will see in section 3.1. that the fact that SpecNumP is a case position accounts for the fact that Italian, but not French or English, allows the co-occurrence of a determiner and a possessive pronoun.

Crucially, SpecNumP must not be available for full DPs.¹⁸ Consider (58):

(58) La destruction de la Chine du Tibet. (* if event nominal)

Here, movement to SpecNumP of the DP la Chine is blocked by the presence of the determiner la in SpecNumP:

(59) [DP [NumP la [Num' [NP* [DP la Chine]]]]]
 ↑ _____x_____ |

However, we still need to block a derivation in which the head noun would be without a determiner, therefore allowing movement of the external argument to SpecNumP to get case, as (60) illustrates:

(60) [DP [NumP \emptyset [Num' [NP* [DP la Chine]]]]]
 ↑ _____ |

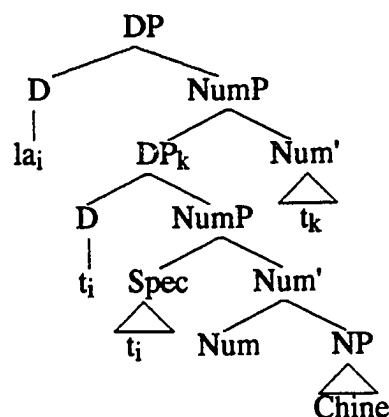
We could say that the problem here is that all DPs need a determiner, and that there is none for the main DP in (60). However, we could well imagine the external argument moving to SpecNumP, followed by cliticization to D of the determiner la of la Chine;

¹⁷ As is well known, this not true of Italian. I return to this below.

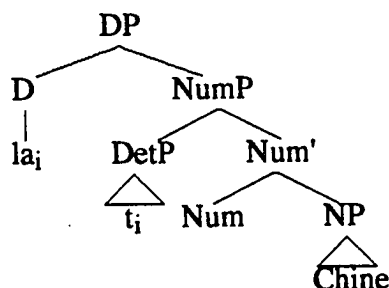
¹⁸ Here, I depart from Carstens (1991).

providing a determiner for the DP. This operation would be parallel to the cliticization of a determiner to D from SpecNumP in (62):

(61)



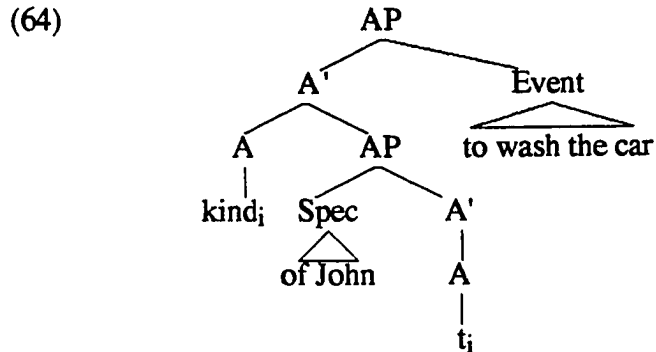
(62)



But then, there would still not be a one-to-one correspondance between nouns and determiners: there are two DPs, but only one determiner. Besides, there is evidence that the derivation in (61) should not be allowed. To begin with, there is a crucial difference between (61) and (62), i.e. the trace has a complement in (61) but not in (62). Stowell (1991) and Pesetsky (1990) note other cases for which the presence or absence of a complement of a head which has been moved affects the grammaticality of a sentence. First, consider (63):

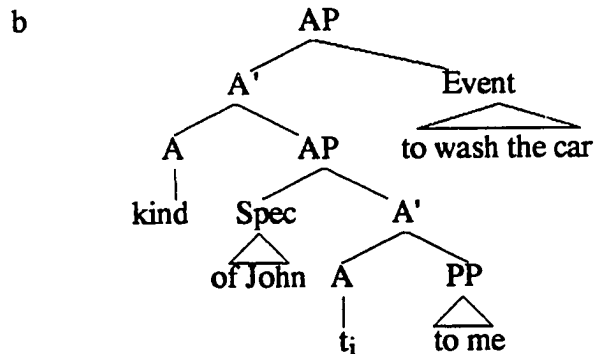
(63) It was kind of John to wash the car.

Stowell (1991) presents a number of arguments that the S-structure of sentences such as (63) is as in (64), where the A^0 head has undergone movement to an A^0 position heading a higher AP shell:



Stowell then shows that, if a PP complement to the adjective is projected, the sentence becomes ungrammatical:

(65) a *It was kind of John to me to wash the car.



Similarly, Pesetsky shows that a complement cannot be a sister of an X^0 trace that has undergone movement to a higher position:

- (66) a John's manner was proud (*of his son).
 b John's manner was [AP [e] [A' proud_i [AP [e] [A' t_i of his son]]]]

Pesetsky's conclusion (which Stowell also comes to) is that a moved head cannot assign an unaffected θ -role, which is the θ -role it assigns in (65a) and (66). Since it is quite plausible to assume that the NumP complement in (61) is not affected, the same reasoning can be used to block movement of the lower determiner to the higher D head.

2.6. Attachment of the by-phrase

In chapter 2, I showed how both binding and extraction facts are accounted for given the DP structure I argued for. The relevant cases are represented in (67)-(69):

- (67) a Le portrait de chaque_i photographe (agent) de sa_i propre fille (theme).
every photographer's picture of his own daughter
 b *Le portrait de son_i propre photographe (agent) de sa chaque_i artiste célèbre (theme).
his own photographer's picture of every famous artist
- (68) a Le portrait de Rembrandt_i (agent) de lui-même_i (theme).
Rembrandt's portrait of himself
 b *Le portrait de lui-même_i (agent) d'Aristote_i (theme).
himself's portrait of Aristotle
- (69) a Le photographe dont j'ai vu la photo de Paris.
the photographer of whom I saw the picture of Paris
 b *La ville dont j'ai vu la photo de ce photographe.
the city of which I saw the picture of this photographer

Interestingly, the results are different when the agent appears in a by-phrase, even though, by the Thematic Hierarchy, the agent is higher than the theme.¹⁹ More precisely, a theme may bind the external argument, and extraction of the theme is possible in spite of the presence of the by-phrase external argument:

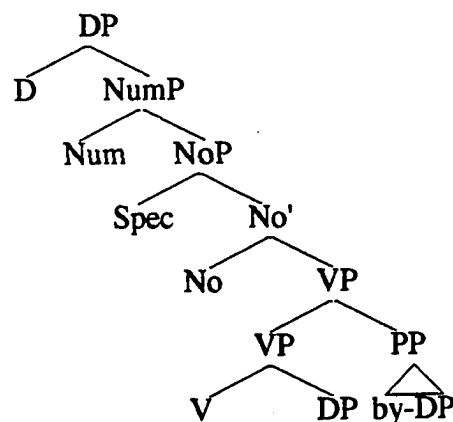
(70) La conception de chaque_i édifice par son_i architecte.
the design of each building by its architect

(71) Le portrait de Rembrandt_i par lui-même_i. (Milner 1982)
the portrait of Rembrandt by himself

(72) La ville dont_i j'ai vu la photo t_i par ce photographe.
the city of which I saw the picture by this photographer

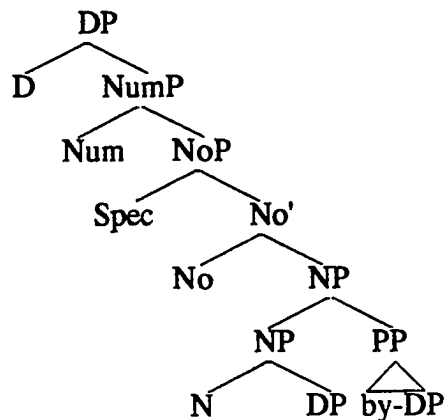
Both of these facts can be explained if, as in clauses, the by-phrase in nominals is attached to the projection containing the head noun and the theme argument, i.e. VP in event nominals, NP in underived and result nominals:

(73) Event nominals



19 Cinque (1980), Zubizarreta (1987), Giorgi & Longobardi (1991), etc. claim that adjunct agents do not count in the computation of the hierarchy.

Result and underived nominals



This accomplishes two things: (i) there is no filled specifier above the direct object, and, as a result, the direct object can undergo movement from specifier-to-specifier and out of DP; and (ii) if we take the higher NP of VP segment as the relevant one, the direct object m-commands the agent, allowing binding.

3. PRO subjects

I will now discuss the presence of PRO subjects in DP.

At first glance, it seems that a PRO subject is at least not always present in subject position of DP: if it were, we would expect extraction of a direct object never to be possible, since, as we just saw, the possibility of extraction of a direct object is tied to the absence of a subject in argument position:

- (74) a Who_i did you see a picture of t_i?
 b *Who_i did you see John's picture of t_i?
 c Le pays dont j'ai étudié l'invasion t_i par les Allemands.
the country of-which I studied the invasion by the Germans
 d *Le pays dont j'ai étudié l'invasion Allemande t_i.
the country of-which I studied the German invasion
 e *Le pays dont j'ai étudié leur invasion t_i.
the country of-which I studied their invasion

But this does not mean that a DP-internal PRO subject is never projected. In fact, Giorgi & Longobardi (1990) provide four different arguments in favor of the presence of a PRO subject in DP.

The first piece of evidence takes as point of departure Giorgi's (1984) observation that long-distance anaphors are subject-oriented, as (75) shows:

- (75) Gianni_i ha informato Maria_i che il proprio*_{i/j} avvocato avrebbe seguito il processo.
'Gianni informed Maria that self's lawyer would follow the trial'

Now, in (76) the reflexive inside the Noun Phrase headed by indagine seems to be bound by the object Maria, an unusual behavior for long-distance anaphors:

- (76) Ho consigliato a Maria_i un'attenta indagine sui fatti che avevano portato all'arresto dei propri_i genitori (da parte della polizia).
'I recommended to M. a careful investigation about the facts which led to the arrest of self's parents (by the police)'

Giorgi & Longobardi claim that this unusual behavior is accounted for if binding is done not by the object Maria in (76), but by the PRO subject of indagine. They argue

that this is supported by the fact that, if a DP-internal overt subject which is different from the object intervenes, binding becomes impossible:

- (77) *Ho consigliato a Maria_i un'attenta indagine da parte del suo avvocato_j sui fatti che avevano portato all'arresto dei propri*_i genitori.
I recommended to Maria a careful investigation by her lawyer about the facts which led to the arrest of self's parents

The second argument concerns split antecedents. In Italian, split antecedents are possible in contexts of obligatory control if both antecedents c-command PRO:

- (78) Gianni_i voleva che Maria_k si convicesse che era ora di PRO_{i+k} liberare se stessi da quell'imbarazzante situazione.
Gianni wanted Maria to be convinced that it was time to free themselves from that embarrassing situation

(79) shows that the reflexive inside the Noun Phrase headed by liberazione can also have a split antecedent:

- (79) Gianni_i voleva che Maria_k sapesse che era arrivata finalmente l'ora della PRO liberazione di se stessi dalla schiavitù_{i+k}.
Gianni wanted Maria to know that the time of the liberation of themselves from slavery had finally arrived

Giorgi & Longobardi's claim is that, since split antecedents are usually forbidden for lexical anaphors, the split reading in both the sentence in (78) and the Noun Phrase in (79) obtains through PRO.

Third, Giorgi & Longobardi argue that in both infinitivals and DPs, a PRO must be present in order to bridge an otherwise illicit antecedent-anaphor relation in cases of backward control:

- (80) PRO conoscere se stesso_i è stato molto utile a Mario_i.
to know himself has been very useful to Mario
- (81) La PRO conoscenza di se stesso è stata molto utile a Mario.
the knowledge of himself has been very useful to Mario

In (80) and (81), the overt controller Mario does not c-command the reflexive.

Finally, they argue that a PRO must also be present in order to bind an arbitrary anaphor in the following examples:

- (82) a PRO_{arb} conoscere se stessi_{arb} è importante.
to know oneself is important
- b Gianni ritiene che la PRO_{arb} conoscenza di se stessi_{arb} sia importante
Gianni believes that the knowledge of oneself is important

There is another set of examples which has been argued by Roeper (1983) to be evidence for the presence of a PRO subject in Noun Phrases.²⁰ These involve the familiar cases of subject control of a purpose clause:

- (83) a They destroyed the ship PRO to collect the insurance.
b The destruction of the ship PRO to collect the insurance.

Both (83a) and (83b) have been argued to involve subject control of PRO in the purpose clause. Since there is no overt subject in (83b), Roeper argued that PRO in the subject position of destruction which acts as controller. Roeper further argues that the ungrammaticality of (84a), is due to the fact that the object has moved to the position usually occupied by the subject, "obliterating" the subject.²¹

20 But see Williams (1985) and Lasnik (1988) who claim that (83b) involves event control rather than argument control.

21 In the clausal counterpart of (84), Roeper claims that the passive morpheme -en is able to act as controller of the PRO subject of collect:

- (i) The ship was destroyed to collect the insurance.

(84) *The ship's destruction to collect the insurance.

The conclusion is then that PRO may (at least sometimes) be projected in the syntax. But given the discussion in chapter 2, the obvious question now is, Is extraction of the object blocked if the presence of the subject is forced? Surprisingly, testing with the last two sets of Italian examples, it seems that it is not:²²

- (85) a Ho consigliato a Mario_i la PRO_i conoscenza di se stesso_i.
I recommended to Mario the knowledge of himself
- b (?)E di se stesso_i che ho consigliato a Mario_i la PRO_i conoscenza t_i.
it is of himself that I recommended to Mario the knowledge
- (86) E di se stessi_i che Gianni ritiene che sia importante la PRO_i conoscenza t_i.
it is of oneself that Gianni believes that is important the knowledge

Extraction of the direct object is also possible with the purpose clause constructions in (83). (Since English does not allow extraction out of definite DPs, and given that event nominals must be definite, I will illustrate this with French):

- (87) Le bateau dont_i nous n'approuvons pas la PRO destruction t_i dans le but de PRO
toucher l'assurance.
the boat of-which we do not approve the destruction in order to collect the insurance

(87) is perfectly grammatical.

No morpheme equivalent to *-en* being available in (84), the sentence is still ruled out.

²² Thanks to Filippo Beghelli for the data.

One more observation before we move on to the analysis. As Giorgi & Longobardi point out, there is a difference between Romance and Germanic with respect to the possibility of control in the presence of a pre-nominal genitive object. We saw in (84) that control is blocked when the object is in pre-nominal position in English. However, equivalent sentences are fine in French:

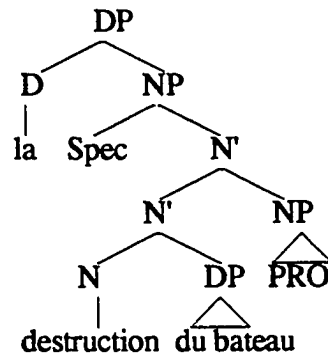
- (88) Sa destruction dans le but de toucher l'assurance.
its destruction in order to collect the insurance

Related to this, we can see in (89), that event nominals with genitive pronouns corresponding to the theme argument are compatible with aspectual modifiers which force the event reading:

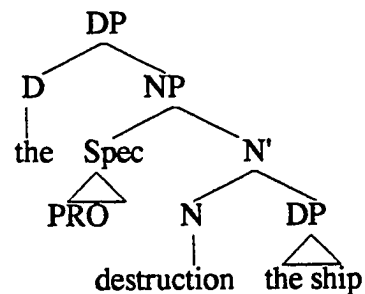
- (89) ?Quant à ce bateau, sa fréquente destruction nous ennuie beaucoup.
as for this boat, its frequent destruction annoys us considerably

Giorgi & Longobardi argue that examples such as (88) and (89) support their claim that Germanic and Romance languages have different basic structures. Recall that, for them, the external argument is projected in a pre-nominal specifier position in Germanic, while it is generated to the right in Romance. As a result, the specifier position is still free for movement of the object in Romance, while it is not in Germanic. In other words, a pre-nominal genitive is compatible with the presence of an external argument in Romance, but not in Germanic. The structures they propose are shown in (90) (omitting irrelevant details, and adapting the structure to DP):

(90) Romance



(91) Germanic



In (90), the direct object may still move to specifier, while it cannot do so in (91).²³

A similar explanation is provided for the following examples, where the availability of an additional specifier position in Romance seems to be the relevant factor:

²³ It should be pointed out that the presence of a PRO subject does not constitute a problem for Giorgi & Longobardi with respect to extraction of a direct object out of the noun phrase. For them, extraction is related to passivization, i.e. only passivizable arguments are extractable. Since their Passivization Principle is formulated in terms of the highest genitive phrase, only this Noun Phrase may passivize (hence, be extracted). For instance, in (88), and (89), the highest genitive is the object, not PRO (cf. chapter 2).

- (92) a La PRO_i sperimentazione di tali farmaci sulla propria_i fece di Mario_i un complice di piano criminale.
the testing of these drugs on self's family turned Mario into an accomplice of the criminal plan
- b *La mia (1st person) sperimentazione di tali farmaci sulla propria_i (3rd person) fece di Mario_i un complice di piano criminale.
my testing of these drugs on self's family turned Mario into an accomplice of the criminal plan
- c A proposito di tali farmaci, la loro_k PRO_i sperimentazione t_k sulla propria_i fece di Mario_i un complice di piano criminale.
concerning such drugs, their testing on self's family turned Mario into an accomplice of the criminal plan

The contrast between (92a) and (92b) is straightforward: the PRO subject binds the anaphor in (92a), while in (92b) the subject, which does not agree in features with the anaphor (1st versus 3rd person), cannot do so. In (92c), the direct object has been moved to the pre-nominal position, and binding by the subject is still possible. According to Giorgi & Longobardi, this is accounted for if a PRO subject is present in (92c), in spite of the pre-nominal pronoun. These examples again contrast with English, where movement of the direct object to the pre-nominal position necessarily prevents the presence of a subject, and consequently, binding of the anaphor:

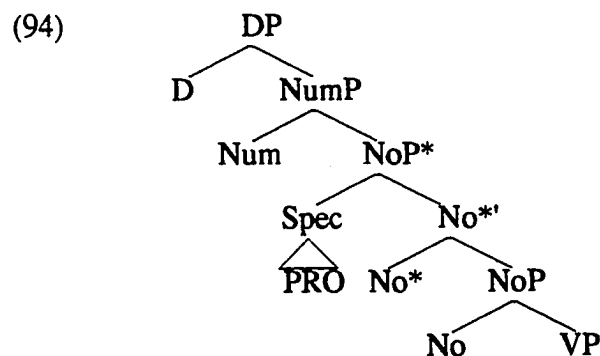
- (93) a The PRO_i delivery of this package to each other_i took [John and Mary]_i five hours.
- b ?*Its_k delivery t_k to each other_i took [John and Mary]_i five hours.

Now, Giorgi & Longobardi's account, which relies crucially on a parametric differences regarding the projection of arguments in Romance and Germanic languages is incompatible with the system presented here, since this system does not postulate different basic structures for French and English. To summarize, we are faced with the following two problems: (i) there is evidence that PRO can be an argument in event

nominals; at the same time, extraction or possessivization is not blocked in cases where PRO is projected as the external argument; (ii) control is compatible with pre-nominal possessives in French but not in English.

A plausible solution to the first problem seems to be that PRO is in fact not in argument position, since as we saw earlier, agents in non-argument position do not block extraction.

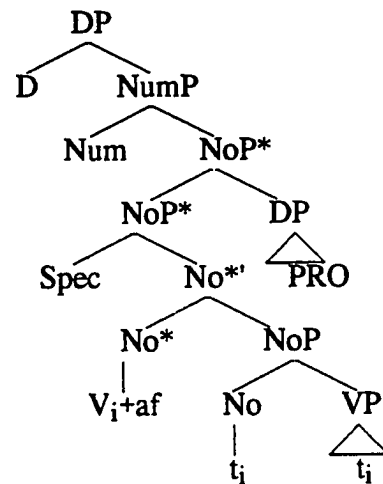
I will propose that PRO is in adjunct position (details below). However, this creates a problem with respect to French: I argued earlier that the reason why French does not allow agents in argument position of event nominals is due to the fact that the agent could not get case, forcing it to appear in an adjunct by-phrase. The question is, why is it that PRO cannot be in argument position, since PRO is generally assumed not to need case? In other words, how do we force PRO to appear in adjunct position? Consider the structure where PRO is in subject position:



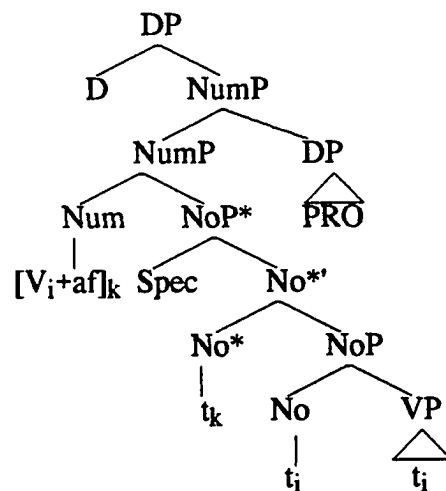
Basically, we need to exclude (94). Suppose that, just like tensed INFL, the head of NoP* counts as governor for PRO. Suppose further that government of PRO is defined in terms of strict m-command, and that PRO may be generated anywhere

inside DP as long as it is not governed by No* or the head noun. Then, I propose the following: in English PRO is adjoined to NoP*, while it is adjoined to NumP in French. The structures are shown in (95) and (96):

(95) English



(96) French



Since the noun does not move to Num⁰ in English, adjunction to NoP* shelters PRO from both No*⁰ and the noun in (95), while adjunction to NumP in French shelters PRO from government by the noun in Num⁰ in (96).

This solves the first problem mentioned above: since PRO can now be projected in adjunct position in event nominals, control is possible, and since PRO is not in argument position extraction of the direct object is allowed, just as it is when the agent is in a by-phrase (cf. above).

Turning now to the second problem, i.e. Why is it that a pre-nominal genitive pronoun is compatible with control in French but not in English? In other words, why can't the direct object in English move to the pre-nominal position when the PRO agent is adjoined to NoP*, just as it does in French? Under our assumption that possessive pronouns obligatory move to SpecNuP (see also section 4), the answer is the same as that provided earlier to account for the absence of pre-nominal genitives with English event nominals: moving the object to the pre-nominal position implies that it would be case-marked twice, once by the V+affix complex, and once by the genitive 's morpheme. Under our earlier assumption that SpecCaP, but not SpecNumP (the case position for the possessive pronoun), is an obligatory case position, the difference between French and English is straightforward: a pre-nominal possessive pronoun in French is case-marked once (by the noun), while it is case-marked twice in English (by both the noun and SpecNumP).²⁴

²⁴ This might imply that the SpecCaP position is always projected in English.

3.1. Italian

As illustrated in (97), determiners may co-occur with possessive pronouns in Italian:

- (97) *La sua (agent) costruzione*
the his construction

Given the discussion in the previous section, the question is, How does the pre-nominal possessive get case in (97)? The problem is that the possessive external argument cannot get case in SpecNumP since the determiner occupies that position; it cannot get case in the specifier of the nominalizing affix either, since I have argued that SpecNoP* is not a case position.

As a first element of the answer, it should be noted that, even though it is not in a specifier-head relation with the noun, the possessive pronoun still agrees with it in number and gender, just as does the article. I would like to propose that the answer to our problem is related to the fact that agreement with a post-verbal object is possible in Italian impersonal passives, but not in French:

- (98) a *Il a été lu(*s) quelques articles.*
it was read a few articles
b *Si leggerano (plur.) alcuni articoli (plur.).*

Assume that the contrast in (98) is a result of the fact that in Italian, but not in French, the expletive pronoun can transmit its features, including case, to the post-verbal subject. I propose that the same mechanism applies between a determiner and the possessive. In that sense, the determiner plays the same role as the expletive pronoun in clauses, i.e. it transmits case to the possessive pronoun:

As Stowell (1981) pointed out, the event reading of a derived nominal is not available when the complement is a tensed clause:²⁵

- (100) The announcement that the position had been filled was a surprise.

He argues that the non-availability of the event reading in (100) is a consequence of the interaction of two factors: first, in order to receive a θ -role, arguments must be case-marked; but, then, following Vergnaud (1977), he argues that, for independent reasons, nouns are not case assigners. As a result, the CP in (100) cannot be an argument.

Grimshaw also observes that sentential complements to nouns are always optional, while it is not true of the corresponding verbs:

- (101) a The announcement was a surprise.
b *They announced.

She claims that the reason why the event reading is not possible in (100) is that nouns are "defective" θ -markers (see also Emonds 1985), and that, as a result, they need a preposition to transmit their θ -role. Since DPs, but not CPs, may be preceded by a preposition, the CP in (100) cannot receive a θ -role, and a θ -Criterion violation

²⁵ Infinitival complements appear to be counter-examples to this claim (cf. Stowell 1981):

- (i) Their attempt to climb the mountain.

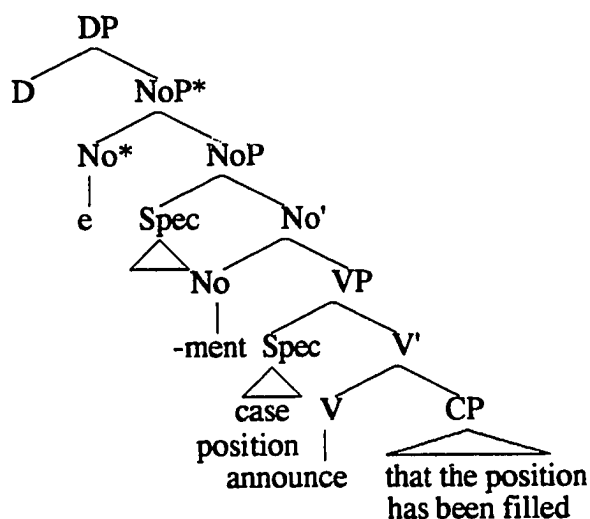
However, Grimshaw argues that nouns such as attempt which take infinitival complements, behave more like result nominals (in her terms, "simple event nominals") than event (or "complex event") nominals in many respects (cf. also Zucchi 1988). To illustrate with but one example, attempt cannot be modified by the aspectual adjectives frequent or constant, which are only compatible with event readings:

- (ii) *Their frequent/constant attempt to climb Mount Everest.

ensues. Consequently, she analyzes the CP in (100) as an adjunct modifier, hence its optionality.

However, neither account is tenable under the analysis presented so far. First, I have argued (contra Stowell), that nouns are case-assigners, and second, unlike Grimshaw (and others), I have analyzed of/de-NPs as DPs, not PPs. But there is an explanation which is perfectly compatible with my analysis presented so far. Let us look at the structure of the DP in (101) if CP were in complement position:

(102)



After the verb raises to the affix, the CP must get case from the newly formed noun. But if SpecVP is the case position (see discussion following example (104) below), the CP cannot move to it to get case since tensed clauses are not allowed in A-specifier positions (Stowell 1981).²⁶ As a result of this, and given the Visibility Condition, CP cannot be interpreted as a complement.

²⁶ In fact, Giorgi & Longobardi (1991) show that clauses cannot even transit through specifiers. If they could, step-by-step extraction through specifier should be possible on a par with DP extraction. The contrast in (i) shows that it is not:

Under this approach, we must now explain why the clausal counterpart to (100) is grammatical, with the CP interpreted as a complement of the verb:

(103) They announced that the position had been filled.

To explain this asymmetry between nouns and verbs, I will capitalize on a crucial difference between Noun Phrases and clauses: the possibility of containing expletive pronouns. Clauses but not Noun Phrases can contain expletive pronouns. We also know that these expletives can, under certain analyses, transmit nominative case to a clausal complement of a non-case assigning verb:

(104) It seems that Nick will go back to Scotland.

Sportiche (1990) proposes that accusative case in French is assigned through transmission from an expletive in the specifier corresponding to the case position to the complement of transitive verbs (see chapter 1 and section 4.3.):

(105) Jeanne a donné ses livres.

(106) $[_{IP} \text{ ext. } \theta\text{-role } [_{IP'} [\text{donn}_i\text{-}\acute{e}]_k [_{IP} \text{ pro } t_k [_{VP} \text{ DP } t_i]]]]$
└──────────┘ ↑
case

Similarly, the CP complement in (103) receives case from pro in SpecVP.²⁷

(iii) a Una guerra, [di cui]i non so valutare la probabilità ti, sarebbe catastrofica.
a war, of which I cannot evaluate the probability, would be catastrophic

b *Una guerra, [che si sia la quale]i non so valutare la probabilità ti ...
a war, that there will be which I cannot evaluate the probability ...

²⁷ This means that another explanation must be provided for the fact that clauses always appear on the right periphery of VP in English:

It is well known that Noun Phrases do not allow expletive pronouns to occur (cf. Clark 1989 for an account; also Giorgi & Longobardi 1990):

- (107) a There were discussed many problems.
 b *There's discussion of many problems.
- (108) a I mentioned it that Nellie is in town.
 b *The mention of it that Nellie is in town.

As a result, the case transmission process is not available for the CP in (100). Since CP cannot move to the case position either, it cannot be a complement.

4. Possessive pronouns, agreement, and other problems

I will now discuss a few issues which I have left open so far:

- (i) the XP status of possessive pronouns;
- (ii) if pre-nominal genitives are generated lower than D, why is a determiner not compatible with pre-nominal genitives in English?
- (iii) why is there no agreement between an extracted DP and the head noun in French, just as there is past participle agreement with an extracted object in clauses (cf. chap. 1)?

-
- (i) I said to Murat that he had a good idea.

Stowell (1981) proposes that the relative order of the complements in sentences such as (i) is the result of his Case Resistance Principle which states that XPs containing case-assigning heads may not remain in a case position. This forces the CP complement to move to a peripheral position in VP. Since in our case the clause does not start out in a case position, we must say that (i) is the result of some other process.

Concerning the first issue, I will argue that possessive pronouns, like other pronouns, are XPs which further cliticize onto D (Sportiche 1990); as for (ii), I will argue that the possessive morpheme 's is a determiner (as in Abney 1987), and must undergo LF-movement to D. About the last point, I will argue that the lack of agreement between the noun and an extracted object in French follows from a principle (the Agreement Resistance Principle) which prohibits agreement between two elements which already bear the same features.

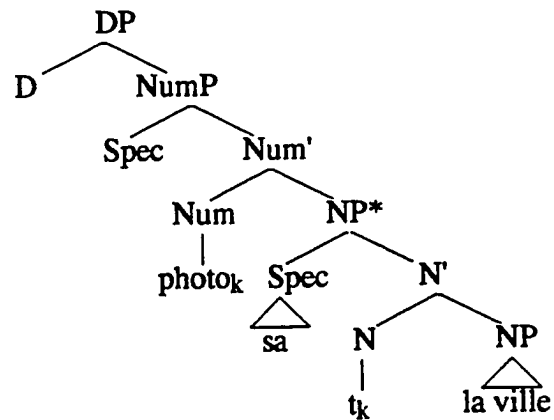
4.1. Possessive pronouns

As we have already seen, possessive pronouns block movement of a lower DP:

- (109)
- a La photo de Paris de Pierre.
the picture of Paris of Pierre
 - b La personne dont j'ai vu la photo de Paris.
the person of-whom I saw the picture of Paris
 - c *La ville dont_i j'ai vu sa photo t_i.
the city of-whom I saw his picture

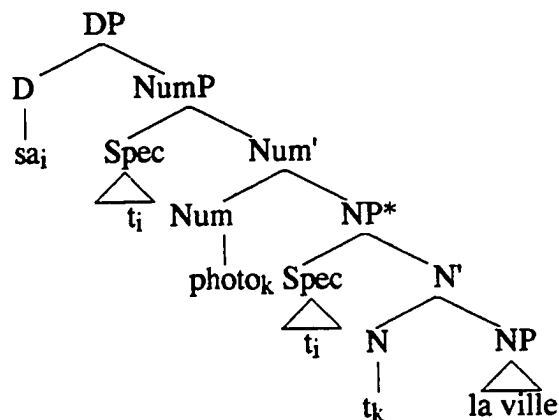
This is expected if, at some point, the possessive pronoun in (109c) occupies a specifier which is higher than the extracted object. For instance, since the pronoun corresponds to the external argument in (109), it is generated in SpecNP*, as in (110), and extraction of la ville is not possible:

(110)



I also argued that possessive pronouns move to SpecNumP to receive case. Moreover, since they are determiners (cf. Tremblay 1989, Authier 1990), I proposed that they further cliticize onto D. The derivation is shown in (111):

(111)



There is in fact evidence that, prior to cliticization, the possessive pronoun must undergo XP-movement. To illustrate, I will return to Tellier's (1988) analysis of DP-internal parasitic gaps (cf. chapter 2). Recall that her account involved movement of an empty operator to the specifier of the second DP:

(112) La personne dont_i le talent t_i dépasse [DP Op_i les ambitions t_i]

It is easy to see why an object parasitic gap is not possible in the presence of a possessive pronoun corresponding to the external argument, since the (underlined> possessive external argument blocks both WH-movement in the first DP, and movement of the silent operator in the second DP, as illustrated in (113b):

(113) a La ville dont sa (ext. arg.)photo est plus belle que son (ext. arg.)
portrait.
a city of-which his picture is nicer than his portrait

b La ville dont_i [DP sa [D' photo t_i]] est plus belle que

$$\begin{array}{c} \uparrow \text{X} \\ \text{[DP Op}_i \text{ [D' } \underline{\text{son}} \text{ portrait t}_i \text{]}] \\ \uparrow \text{X} \end{array}$$

Surprisingly sentences such as (114) below cannot be understood as one in which the second DP contains a parasitic external argument, and the possessive pronoun corresponds to the internal argument; this, in spite of the fact that nothing should prevent movement of the empty operator to SpecDP, since it is the highest argument:

(114) *Un artiste dont la photo de Marie est plus belle que Op (agent) son (theme)
portrait.
an artist of-whom the picture of Mary is nicer than her portrait

In contrast, no problem arises when the theme is a full DP, as in (115):

(115) Un artiste dont_i la photo t_i de Marie est plus belle que [OP_i le portrait [NP*t_i
[NP de Pierre]]]
an artist of-whom the pictures of Mary are nice than the portrait of Pierre

The contrast between (114) and (115) is accounted for if the possessive pronoun, before cliticizing onto D, must move up through the various specifiers to a position which is higher in the tree than the agent, i.e. to SpecNumP. As a consequence of this requirement, the presence of the (trace of the) operator corresponding to the external argument will block movement of the pronoun, as illustrated in (116):

- (116) *Un artiste dont la photo de Marie est plus belle que
 [DP OP_x [D' [NumP son_i [Num' portrait_k [NP* t_x [NP t_k t_i]]]]]
 ↑ _____|
 ↑ _____X_____|

As we can see in (117), the problem does not arise if the theme is a full DP, since no further movement is necessary:

- (117) Un artiste dont_i la photo t_i de Marie est plus belle que
 [DP OP_i le [D' portrait [NP*t_i [NP de Pierre]]]
 ↑ _____|

Here, nothing blocks movement of the empty operator to SpecDP.

4.2. Pre-nominal genitives, and determiners in English

If, as it has been argued all along, arguments are projected in a projection which is lower than D, it is not obvious why co-occurrence of a determiner and a pre-nominal genitive is not possible in English. Consider the ungrammatical (118):

- (118) [DP the_i [Num t_i [CaP John_i's [Ca' [NP picture t_i]]]]]

Abney (1987) accounts for the complementary distribution of determiners and pre-nominal genitives by positing that the 's morpheme is a determiner, and, that as such, it competes with determiners for the D⁰ slot. I will follow a similar, although

slightly different, idea. I agree with Abney that 's is a determiner. Suppose further that determiners must fill the D⁰ position, not only at S-structure, as is implicit in Abney's analysis, but also at LF. Then, in (118), there are two determiners competing for the D⁰ position at LF: 's and the.

4.3. Agreement

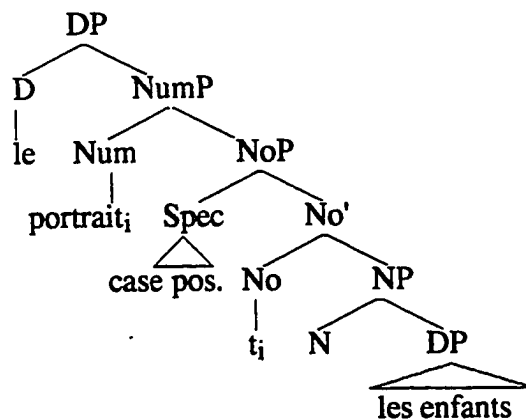
The central point of the framework I am adopting is to equate case positions with agreement positions (cf. chap. 1). In other words, if structural case is assigned, agreement should be triggered between the case assigner and the case assignee.

First, consider (119), where les enfants is the direct object:

- (119) Le portrait des enfants.
the picture of the children

I proposed in section 2 that in French the direct object receives case in SpecNP under government from the noun in Num⁰:

(120)



If the case position is also the agreement position, we must explain why there is no agreement between the (trace of the) head noun and the direct object in (119). But note that agreement is never triggered when the object follows the case-assigner. Consider (121):

- (121) Jules a mangé(*s) des pommes.
Jules has eaten-3pers.fem., plur. apples

To account for the lack of agreement in (121), while at the same time keeping the equation between case and agreement positions, Sportiche (1990) proposes that the direct object is actually not assigned case by moving to the case position, but rather that case is transmitted to the direct object by an expletive pronoun which is itself in the case position:

- (122) [AgrP Jean_x [I_P* t_x [I_P* [mangi-é]_k [I_P pro t_k [VP t_i [DP des pommes]]]]]]
- └──────────┘ ↑
└──────────┘ ↑
case
case transmission

But saw in section 3.2 that Noun Phrases do not allow expletives. This means that the object of a noun must move to the case position. We are now back to square one: Why isn't there agreement between the noun and the direct object, since they are in a specifier-head relation? A related question is, Why isn't there agreement between an extracted DP-object and the head noun, just as there is agreement with an extracted object and a past participle in clauses:

- (123) a Les personnes dont j'ai vu la photo(*s) ____.
 the people of-whom I saw the picture
- b Les personnes que j'ai vues ____.
 the people that I saw

In both (123a) and (123b) the noun (or its trace) is, at some point, in a specifier-head relation with the (trace) of the direct object, but only in (123b) is agreement triggered. To account for the contrast between (123a) and (123b), and for the lack of agreement in (119), I propose that specifier-head agreement does not take place between two elements which already bear the relevant features.²⁸ In both (119) and (123a) both the noun and the direct object already bear their own number and gender features: the noun acquires them by moving to Num⁰, and the direct object acquires them through its head. In contrast, the past participle morpheme in (123b) does not have intrinsic number or gender features; rather, it acquires them from the direct object when both are in the proper configuration. As a result, agreement in number and gender takes place in (123b), but not in (123a). I will formulate the conditions on agreement in the following way:

(124) Agreement Resistance Principle

No agreement in ϕ -features may take place between a head Y and an XP if both Y and XP already bear their own ϕ -features.

Informally, (124) conveys the idea that agreement is not a feature-changing process. In other words, since the noun is already singular in (123a) and (119), it cannot change to plural by agreeing with a plural object.²⁹

²⁸ See also Carstens (1991).

²⁹ Moreover, we know that the noun must agree with the determiner in SpecNumP. This means that if, in addition, it were to agree with the direct object, the noun (or its chain) would be entering into

Note, in passing, that the fact that agreement is not possible between the past participle and the extracted object in (123a) offers good evidence that the specifier of DP is an A'-position:

(125) Les personnes dont_i j'ai t_i vu(*es) les photos t_i.

Since, on its way out of DP, the extracted object in (125) must move through SpecDP, it cannot subsequently move through the agreement position, since that position is an A-position (Sportiche 1990):

(126) Les personnes dont_i j'ai [I_{NP} [I_P vu [D_P t_i [D' les photos t_i]]]

4.4. Revising movement: adjunction to NumP

The fact that the determiner occupies the specifier of NumP at D-structure calls for a minor alteration of the theory of extraction I have argued for in chapter 2. Recall that it was crucial that extraction should not proceed through adjunction to any of the DP-internal XPs. But since SpecNumP is now occupied by the determiner, this restriction must be relaxed. The obvious solution is to allow adjunction to NumP, which is the complement of the highest functional category in DP. In fact, this brings the parallel between Noun Phrases and clauses even closer, since in clauses adjunction to the complement of the highest functional head C^0 , i.e. IP, must also allow adjunction to it in order to allow a WH-phrase to be extracted over a subject (cf. chapter 1):

two specifier-head agreement processes. This could be excluded on a par with the fact that XP-chains must contain only one case position.

(127) [CP Who_i did [IP t_i [IP you see t_i]]]

5. -ing nominals

In his dissertation, Abney proposed an analysis of ing-nominals which is in many ways similar to some aspects of the analysis of event nominals presented in this chapter. For instance, Abney argues that ing-nominals are derived syntactically, and that the nominalizing morpheme ing takes different types of complements. I will argue that, in addition to unifying the various types of ing-nominals with derived nominals, a modification of Abney's analysis provides good support for the claim that case to the direct object in event nominals is assigned to the specifier governed by the case assigning head.

The section will be organized as follows: I begin by presenting the three types of ing-nominals identified by Abney, as well as his arguments for the claim that they all are a projection of D⁰. Then I present his proposal concerning the structure of each nominal, which I later modify in accordance to the system presented in this chapter. I then focus on two types of ing-nominals which exhibit relevant differences (Poss-ing and ing-of), and proceed to discuss how case assignment operates with each type. Finally, I propose an account of some asymmetries noted by Chomsky (1970) between ing-nominals and event nominals.

5.1. Types of -ing nominals

Abney (1987) distinguishes three types of ing-nominals, which he labels Acc-ing, Poss-ing, and ing-of. One interesting aspect of Abney's analysis is that it

reconciles two apparently contradictory characteristics of -ing nominals: while they have the distribution of Noun Phrases, ing-nominals also display certain verbal properties. This is achieved in Abney's system by the fact that, just like other Noun Phrases, all three types of constructions are ultimately headed by a D^0 head, while their internal structure contains a projection of V.³⁰ The three types of ing-nominals are illustrated in the next section.

5.1.1. Acc-ing

As we will discuss in more details momentarily, the acc-ing construction, which is illustrated in (128), is generally considered the most clause-like of ing-nominals (Reuland 1983):

(128) I saw [her walking down the street].

Among the properties of the acc-ing construction, let us mention the following:

(i) the subject is marked for accusative case (cf. (128));

(ii) a subject OP takes scope within the ing-clause:

(129) John disapproves of [everyone taking a day off]

(iii) no raising of an embedded subject is allowed:

(130) *John_i is believed [t_i having to leave so soon]

(iv) the subject may be WH-moved:

(131) Who_i did you approve of [t_i studying linguistics]?

(v) conjunction of two acc-ing DPs does not trigger plural agreement on the verb:

³⁰ Abney does not commit himself as to whether the construction he calls PRO-ing (e.g. I like singing in the shower is an instance of acc-ing of Poss-ing).

- (132) John coming and Mary leaving bother*(s) me.
- (vi) extraction of the object over the subject is possible:
- (133) The city which_i we remember him describing t_i.
- (vii) no pied-piping is allowed:
- (134) *The man [who flirting with your wife]_i you took such exception to t_i.
- (viii) sentential adverbials are allowed:
- (135) John probably being a spy, Bill thought it wise to avoid him.
- (ix) auxiliaries are allowed
- (136) John probably not having been a spy ...

Properties (i)-(iv) are among those which prompted Reuland to propose that the acc-ing construction is in fact a CP (with a \emptyset -complementizer selecting an -ing INFL), in which the -ing morpheme gets accusative from the verb, and transmits it to the subject.³¹ According to him, properties (ii) and (iii) follow from a prohibition against using the SpecCP for A-movement or QR, while this strategy is allowed for WH-movement in (iv). The data in (v)-(ix) is Abney's.

The similarities with clauses can be clearly seen below:

property (ii) (OP has scope within clause)

- (137) John disapproves that everyone took a day off.

property (iii) (raising of subject not possible)

³¹ Abney points out that this does not explain why the distribution of Acc-ing patterns like a noun phrase. Moreover, it does not explain how the subject gets accusative case when there is no accusative case around to be assigned:

- (i) Him getting elected is an outrage.

I will not discuss this problem here.

(138) *John is believed has to leave soon.

property (iv) (subject may WH-move)

(139) Who_i did you say t_i studied linguistics?

property (v) (conjunction does not trigger plural agreement)

(140) That John came and that Mary left bother*(s) me.

property (vi) (object can be extracted over subject)

(141) The city which we know John likes.

property (vii) (no pied-piping)

(142) *The man who knows the answer you met.

property (viii) (adverbs allowed)

(143) John probably will become a spy.

property (ix) (auxiliaries allowed)

(144) John has become a spy.

As we will see in the next section, these properties set acc-ing nominals apart from the other two types of ing-nominals.

5.1.2. Poss-ing

The Poss-ing construction is illustrated in (145):

(145) John's discovering a new book.

Poss-ing nominals exhibit properties which are both similar to, and different from, those of acc-ing nominals. Like acc-ing nominals, the object gets accusative case, and auxiliaries and adverbs (although not sentential ones) are allowed (cf. (151)-(152)). But unlike acc-ing, and more like "regular" Noun Phrases, a subject QP may take scope outside the nominal (cf. (146)), WH-movement of an embedded subject is

not possible (cf. (147)), plural agreement is obligatory when two Poss-ing nominals are conjoined (cf. (148)), extraction over a subject is not possible (cf. (149)), and pied-piping is allowed (cf. (150)):

- (146) John disapproves of [everyone's taking a day off]
- (147) *Whose_i did you approve of [t_i studying linguistics]
- (148) John's coming and Mary's leaving bother(*s) me.
- (149) *The city which_i we remember his describing (of) t_i.
- (150) The man [whose flirting with your wife]_i you took such exception to t_i.
- (151) a Horace's carefully describing the bank vault to Max.
b *John's probably being a spy, Bill thought it wise to avoid him.
- (152) Horace's having carefully described the bank vault to Max.

We now turn to the third type of ing-nominal.

5.1.3. ing-of

The last construction is the one Abney labels ing-of, and is illustrated in (153):

- (153) Rosanne Barr's singing of the national anthem was a disaster.

Although there is not much discussion of this construction in Abney's dissertation, it is implicit that its properties are those of Poss-ing except in two ways: (a) the object gets genitive case, and (b) both auxiliaries and adverbs are disallowed, as can be seen in (154):

- (154) a *Rosanne Barr's loudly singing of the national anthem was a disaster.
b *Rosanne Barr's having sung of the national anthem was a disaster.

Although the three types of ing-nominals have different internal syntactic properties, we saw that they all exhibit some kind of verbal properties. In spite of these verbal properties, Abney shows that ing-nominals still have the distribution of Noun Phrases. I illustrate in the next section.

5.2. The Noun Phrase distribution

In spite of the verbal flavor of -ing nominals, Abney shows that all three types are found in contexts in which Noun Phrases, but not clauses, are allowed. This can be seen in (152)-(157), where the (a), (b), and (c) examples involve Acc-ing, Poss-ing, and ing-of nominals respectively, while the (d) examples involve clauses (Abney's judgements; ing-of examples mine):

Object of preposition

- (155)
- a I learned about John smoking stogies.
 - b I learned about John's smoking stogies.
 - c I learned about John's smoking of stogies.
 - d *I learned about that John smokes stogies.

Subject-Aux Inversion

- (156)
- a Would John smoking stogies bother you?
 - b ?Would John's smoking stogies bother you?
 - c Would John's smoking of stogies bother you?
 - d *Would that John smokes stogies bother you?

Subject of embedded sentence

- (157)
- a ?I believe that John smoking stogies bothers you.
 - b I believe that John's smoking stogies bothers you.
 - c I believe that John's smoking of stogies bothers you.
 - d *I believe that that John smokes stogies bothers you.

In subject position following a sentence-initial adverb

- (158) a Perhaps John smoking stogies bothers you.
b Perhaps John's smoking stogies bothers you.
c Perhaps John's smoking of stogies bothers you.
d *Perhaps that John smokes stogies bothers you.

Topic position

- (159) a ?John smoking stogies I can't abide.
b John's smoking stogies I can't abide.
c John's smoking of stogies I can't abide.
d *That John smokes stogies I can't abide.

Cleft position

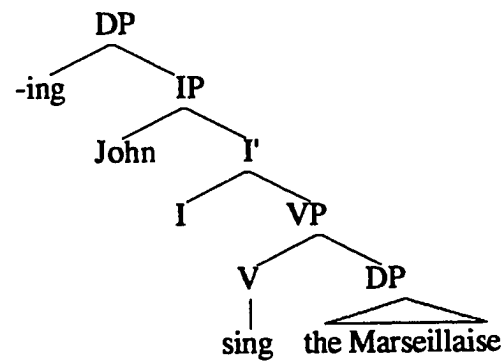
- (160) a It's John smoking stogies that I can't abide.
b It's John's smoking stogies that I can't abide.
c It's John's smoking of stogies that I can't abide.
d *It's that John smokes stogies that I can't abide.

5.3. Abney's proposal

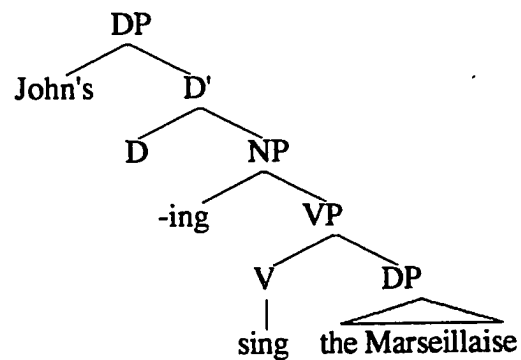
In order to reconcile both the nominal and verbal (or sentential) properties of ing-nominals, Abney suggests the following: like other Noun Phrases, all ing-nominals are ultimately dominated by DP; at the same time, they all contain some projection of V. The differences between the three types follow from the fact that the ing morpheme attaches at different levels inside DP. (161) illustrates:

(161)

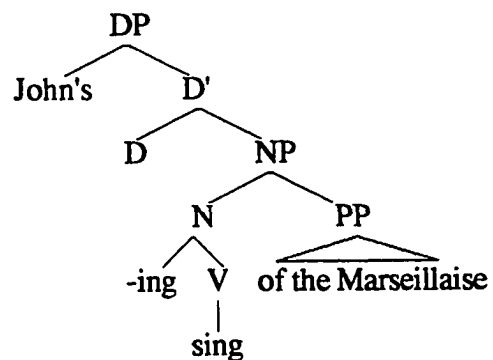
Acc-ing



Poss-ing



Ing-of



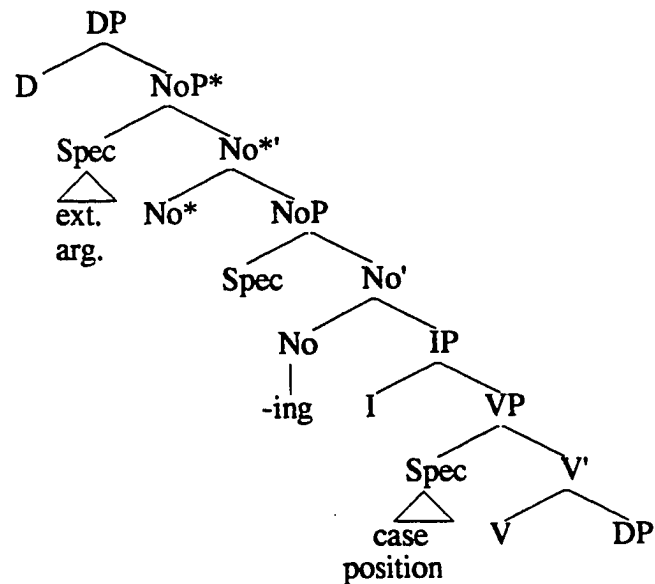
I will not discuss this in great details but it is easy to see how the properties discussed above can be accounted for with the structures in (161). For instance, that Acc-ing is the most clausal of all three ing-nominals (WH-movement of and over a

offer support for the claim that direct objects in event nominals receive case in the specifier governed by the case-assigning head.

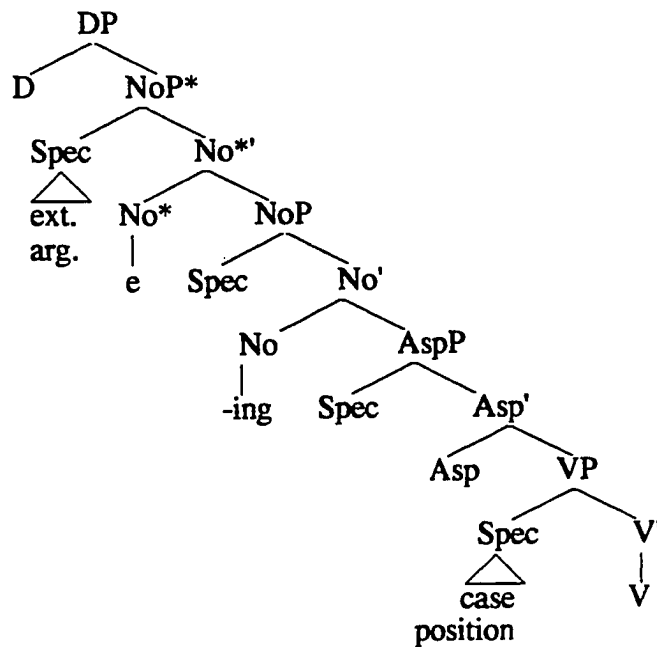
5.4. A different proposal; case assignment to specifier in -ing nominals

I propose that the facts discussed above suggest that the three types of complements selected by the -ing are the following: IP (Acc-ing), AspP (Poss-ing), or VP (ing-of), as illustrated in (162):

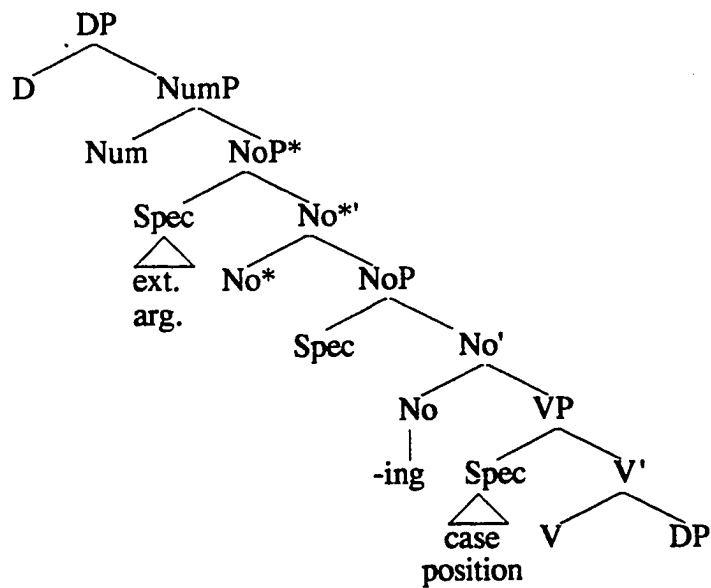
(162) Acc-ing



Poss-ing



-ing-of



I will now elaborate on the motivation behind this proposal by discussing case assignment in -ing nominals. I will focus on Poss-ing and ing-of nominals since, aside

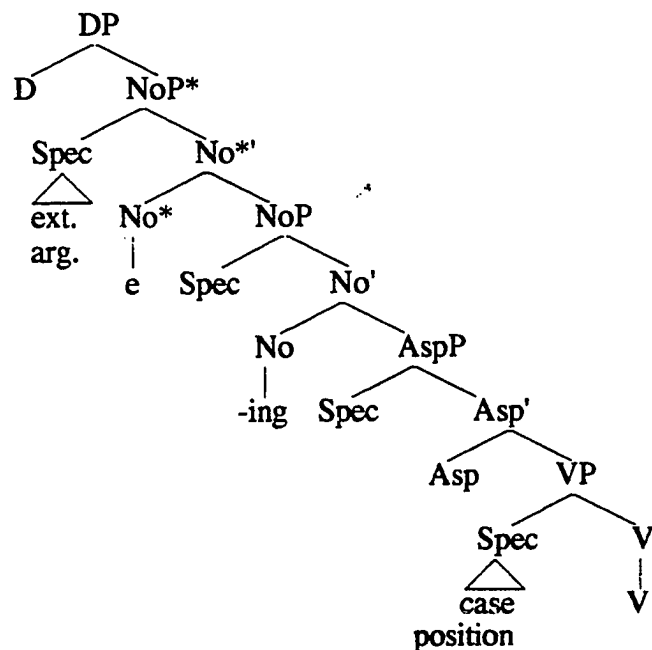
from the fact that the subject in Acc-ing nominals is marked for accusative case. Acc-ing is just like Poss-ing for our purposes (I refer to Reuland 1983 and Abney 1987 for a detailed analysis).

5.5. Case in Poss-ing

There are three fundamental properties of Poss-ing nominals which set them apart from ing-of nominals: (i) the object gets accusative case; (ii) "VP"- but not sentential, adverbs are allowed; and (iii) auxiliaries are allowed.

Let us look at the structure again:

(163)



That -ing morpheme in Poss-ing nominals takes an AspP complement is a result of the last two properties on the assumption that manner adverbs are adjoined to AspP (see (169) for support for this claim), and that auxiliaries are generated in Asp⁰.

But let us leave aside periphrastic tense constructions for now, and discuss simple tense constructions first. Consider (164):

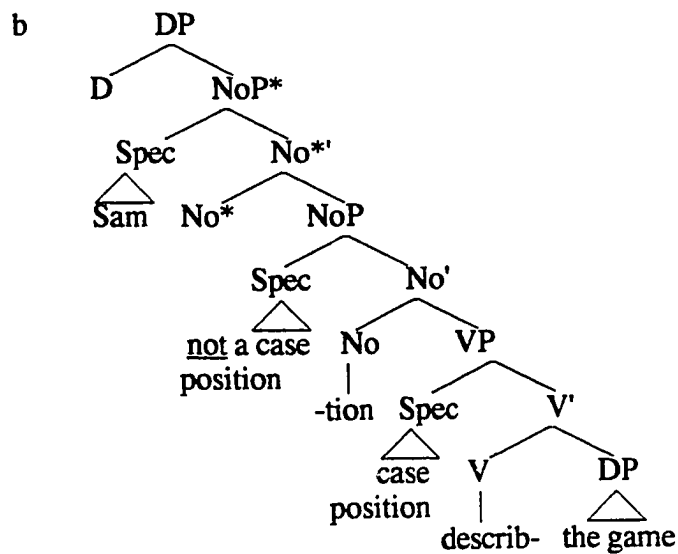
(164) John's reading the book.

As with other nominals, the CaP projection is projected and the subject gets case in SpecCaP. As for the direct object, the fact that it is marked for accusative case is now straightforward: since the verb must move to the nominalizing affix (cf. Table 1), it also moves through Asp⁰. There, it assigns case to the direct object in SpecVP.

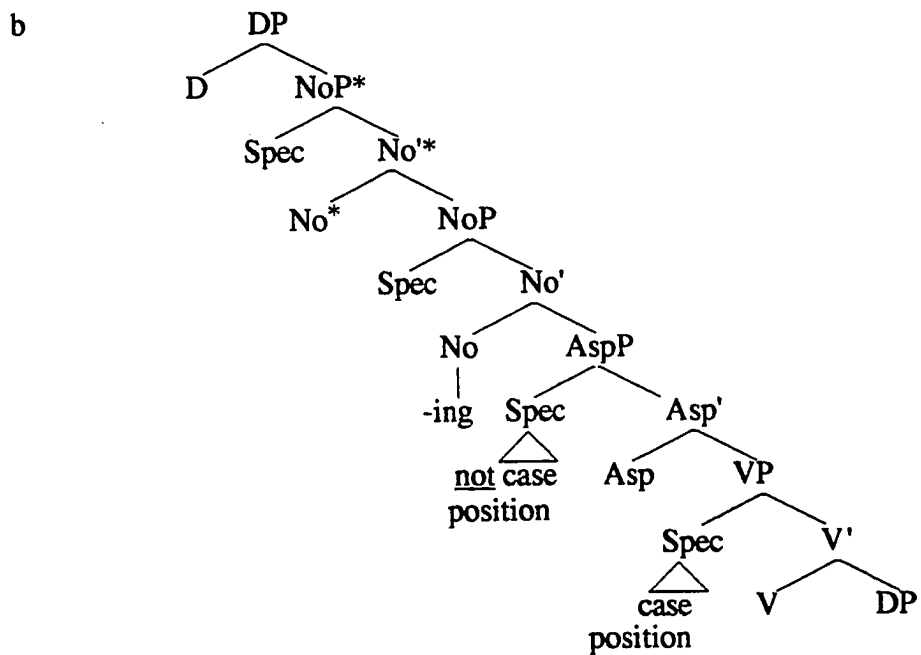
There is a crucial assumption which must be made here, which in fact clarifies the situation with respect to the location of the case position of the object in derived nominals. The point is, we must ensure that in (164) case is assigned as soon as possible, i.e. that case is assigned from the verb in Asp⁰, and not after the verb has raised to No⁰, and the verb+affix complex has raised to No*. Otherwise, the direct object in Poss-ing nominals should be marked for genitive case, since, as we saw in the discussion of event nominals, verbs assign genitive case when they combine with a nominalizing affix. The situation is schematized in (165) and (166):³³

³³ Note that, in order to be consistent with the current proposal, we want case assignment to take place before lowering of the -ing morpheme onto the verb (otherwise the direct object would get genitive case from V+No⁰). To accomplish this, we could either say that there is an ordering between case-assignment and lowering, or that lowering occurs at a stage which comes after case-assignment.

(165) a Sam's description of the game.

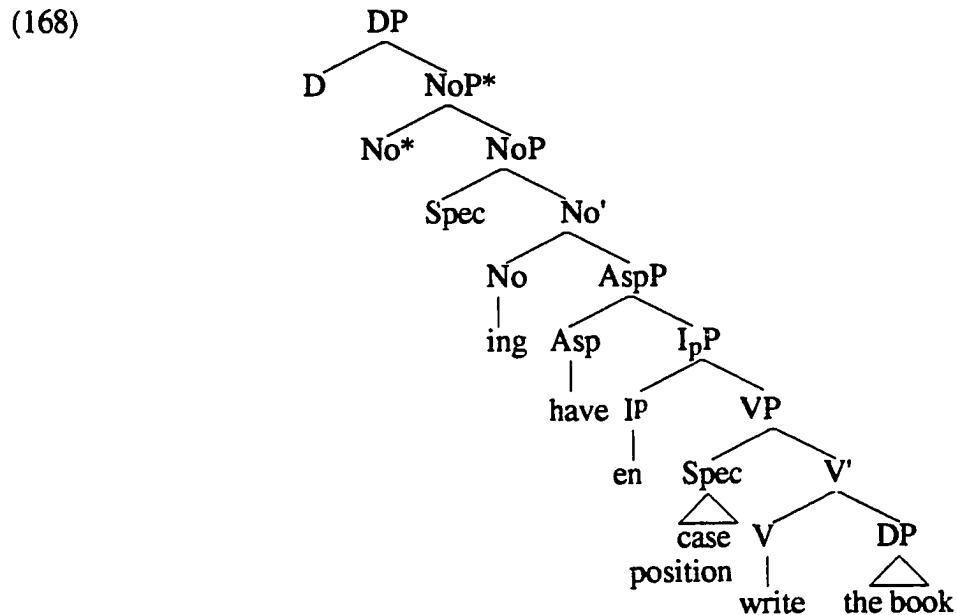


(166) a Sam's describing the game.



Returning to periphrastic tense constructions, the situation is essentially the same except for the presence of a past participle which takes a VP complement (Kinyalolo 1990). The structure of (167) is as in (168):

(167) John's having written the book.



As it is the case in clauses, the auxiliary obligatorily moves up (Emonds 1978, Pollock 1990), here to -ing. In turn, the verb moves up to the participial morphology and assigns accusative case to the direct object in SpecVP.

It should be noted that the above discussion supports the fact that, as suggested above, adverbs are adjoined to AspP and not to VP; otherwise (169b), where the verbal root has moved to the participial morphology, should be grammatical:

- (169)
- a John's having [_{AspP} completely [_{AsP} [_{IpP} writt_k -en [_{VP} t_k the book]]]
 - b *John's having writt_k en [_{VP} completely [_{VP} t_k the book]]

In the next section, I will turn to the ing-of construction, and show how the proposed structures of Poss-ing and ing-of constructions account both for differences and similarities between the two types of nominals.

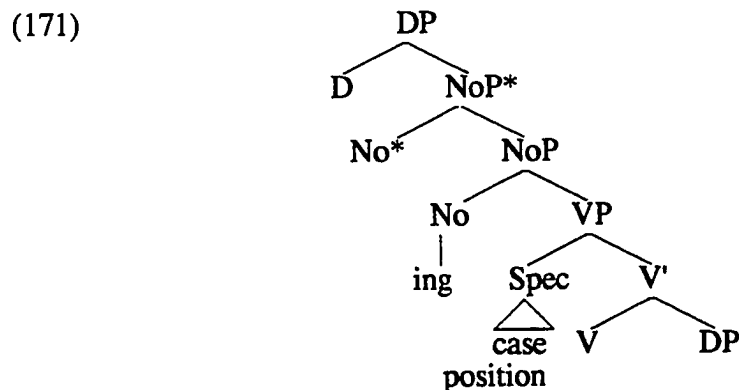
5.6. Case in ing-of

As we saw above, ing-of nominals differ from Poss-ing nominals in a number of ways. Here, I will discuss the following two differences: (i) the object receives genitive case in ing-of nominals, while it is accusative in Poss-ing nominals; and (ii) auxiliaries and adverbs are allowed in Poss-ing nominals, but not in ing-of nominals.

(170) illustrates with ing-of nominals:

- (170) a The writing of the term paper.
 b *The hurriedly writing of the term paper.
 c The hurried writing of the term paper.
 d *The having written of the term paper.

This cluster of properties makes the ing-of construction the most "nominal" one of the ing-nominals. In fact, the structure I have proposed for ing-of nominals is exactly the same as that of event nominals:



As mentioned earlier, the absence of an AspP projection with ing-of nominals is a reflection of the fact that these nouns do not allow adverbs or auxiliaries. But this

absence is also responsible for the fact that the direct object receives genitive case: the only place for the verb to move to is the head of NoP, and, as we saw earlier, verbs assign genitive case when they combine with a nominalizing affix.

One last note before closing. I just assumed that the verb moves up to the ing-morpheme, while I proposed earlier that the ing-morpheme lowers to V Poss-ing nominals. The obvious question then is, Why this difference? I will turn to this issue in section 6. But first, I would like to discuss one important difference between derived and ing-nominals. Interestingly, this difference provides further support for the "double-derivation" account of derived nominal adopted in this chapter.

5.7. On one difference between -ing-of and derived nominals

According to the analysis presented in the previous section, the structure of ing-nominals is exactly parallel to that of other derived nominals: both are derived syntactically by V-movement to an affix taking a XP complement. There is nonetheless one crucial difference between the two types of nouns: pre-nominal genitive objects are disallowed in ing-of nominals, while they are fine with derived nominals:

- (172) a The describing of the city.
 b *The city's describing.

- (173) a The description of the city.
 b The city's decription.

We saw previously that pre-nominal objects only occur with result nominals, i.e. with nouns that are derived lexically. This, I have argued, is because the nominalizing affix, when combined with a verb, must assign case to its direct object, preventing it from moving to the pre-nominal SpecCaP position. Result nominals, on

the other hand, only assign case optionally, just like underived nominals: if they do not, the object may move to the pre-nominal position and receive genitive case from 's. But -ing nominals do not allow the result reading (e.g. they cannot be pluralized, they cannot be headed by a demonstrative, etc.), which means that can only be derived syntactically. Consequently, just as with event nominals, case to the direct object is obligatory, and movement to the pre-nominal position is not allowed.

6. Affix features

Recall that I was forced in the previous section to say that the ing morpheme in Poss-ing constructions lowers to V (as affixes do in English clauses), while in ing-of nominals, the verb moves up to ing (as is the case in event nominals). Although this distinction is highly reminiscent of the distinction between clauses and Noun Phrases, and seems to be no coincidence in light of the more clausal internal structure of Poss-ing DPs (e.g. they allow adverbs and auxiliaries), the problem is still in need of an explanation. Suppose affixes are classified along the following two axes: all nominalizing affixes are marked [+N], while all others are marked [-N]. Moreover, suppose that affixes are marked with the feature [\pm V] depending on whether they select a "true" verbal projection or not, e.g. a verbal projection which may contain aspectual or adverbial elements, versus one which may not. The latter distinction is intended to capture the difference between the affix in ing-of nominals and the one in Poss-ing nominals: the first one is marked [-V], while the second one is marked [+V]. With these assumptions in mind, we can draw the feature matrix illustrated in Table 2:

TABLE 3	N	V
Poss- <u>ing</u>	+	+
<u>ing</u> -of	+	-
-tion	+	-
- \emptyset	-	-
INFL (T ^o and/or Agr)	-	+
Number	-	-

Let us now return to the question of which affixes lower, and which ones do not in English. Looking at Table 3, the answer is straightforward. First, recall that the adverb-N word order in Poss-ing constructions forced us to say that the -ing affix lowers in those cases. We also know that for similar word order reasons, it has been assumed that INFL lowers in English. According to Table 3, both affixes are the only ones marked [+V]. We can then state this principle:

(174) Affix Lowering: [+V] affixes lower in English.

We may now complete the feature matrix presented in section 2:

Affix	N	V	complement	rightward case	spec-head agreement	external arg.
-tion	+	-	VP	obligatory	no	yes
- <u>ing</u> -of	+	-	VP	obligatory	no	yes
- \emptyset	-	-	NP	optional	yes if supported by noun	no
Poss- <u>ing</u>	+	+	AspP	no	no	yes
INFL	-	+	AspP?	no	yes	no
Number	+	-	NoP	no	yes	no
-en (passive)	-	+	VP?	no	no	no

7. Conclusion

In this chapter, I discussed a number of issues concerning case assignment in French and English DPs. I proposed that case assignment in nominals functions essentially as in clauses, rather than by mere "insertion" of case assigning heads, as is standardly assumed. This crucially implied that noun complements are DPs (Chomsky 1986b), and that they receive structural case, as opposed to the standard assumption that they are inherently case-marked.

I proposed that case and external θ -role assignment are not always a property of lexical items per se, but sometimes a combined property of the lexical item and the affix onto which it attaches. I assumed that all DPs, including underived nominals, contain an affix projection. Affixes were divided into two categories, according to their case and thematic properties: while some affixes assign case to their specifier, others do not, and while some can discharge an external θ -role, others cannot. I also adopted Picallo's (1990) idea that derived nominals may undergo either syntactic or lexical affixation. Depending on whether one or the other process is chosen, a number of properties follow given the assumptions I made about affixes.

The analysis accounted for the non-occurrence of pre-nominal objects with event nominals in English, and for the fact that a DP subject is not possible in argument position in French. The latter was attributed to the fact that, contrary to English, there is no pre-nominal case position in French. However, since referential adjectives do not need case, they are allowed in argument position of event nominals. That possessive pronouns are also possible results from the fact that they can be case-

marked in SpecNumP. This option is not available to full DPs because of the presence of the determiner, which I have assumed to be projected in SpecNumP.

Differences between French and English with respect to the position of arguments were explained by appealing to an already existing difference between the two languages at the clausal level: the presence versus absence of head-movement to morphological affixes (Valois 1991a, 1991b).

Appendix

I. Demonstratives

I would like to argue that demonstratives, like determiners, originate in SpecNumP. However, given that they block extraction out of DP, I will propose that they move to SpecDP rather than cliticize onto D.

I.I Demonstratives and WH-movement

As we can see in below, the presence of a demonstrative blocks extraction out of DP (175b), prevents the occurrence of the negative quantifier personne, or of the negative polarity item aucun (175c-d), and precludes the licensing of a parasitic gap in double-dont constructions (175e):

- (175) a J'ai vu cette photo de ce photographe.
I saw this picture of this photographer
- b *Le photographe dont j'ai vu cette photo.
the photographer of-whom I saw this picture
- c *Je n'ai vu cette photo d'aucune ville européenne.
I NEG saw this picture of no European city
- d *Je n'ai vu cette photo de personne.
I NEG saw this picture of nobody
- e *L'homme dont le portrait est plus beau que cette photo.
the man of-whom the portrait is nicer than this picture

This strongly suggests that, contrary to determiners, demonstratives do not cliticize onto D, but rather move to SpecDP. As a result SpecDP is not unavailable for any kind of movement to or through it.

Carstens (1991) provides evidence that the demonstrative is generated lower than D (although she claims it is adjoined to NumP). In Kiswahili, demonstratives may either precede or follow the noun (cf. (176)), and must precede all arguments of the noun (cf. (177)- numbers indicate type of agreement):

- (176) a kitabu hiki
 7book 7this
 'This book'
- b hiki kitabu
 7this 7book
 'This book'
- (177) a wanafunzi hawa wa mario
 2student 2this 2of Mario
 'These students of Mario's'
- b *wanafunzi wa mario hawa
 2student 2of Mario 2this
 'These students of Mario's'

Since she also argues that the head noun moves to D when no determiner is present (see her work for details), Carstens claims that the facts in (176) and (177) are accounted for if the demonstrative is adjoined to NumP and optionally moves to SpecDP. If it does, (176a) is derived, if it does not (176b) is. I propose a different, although quite similar, solution. Since demonstratives, like determiners, agree in number and gender with the noun, they must be generated in SpecNumP. Then, they move to SpecDP at S-structure. Contrary to what Carstens assumes for Kiswahili, and given the data in (175), movement to SpecDP must be obligatory in French.

II. Post-nominal agents in English

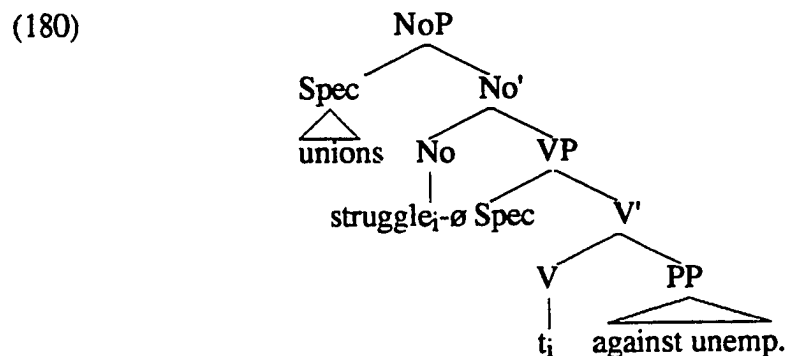
There is a small sub-class of nominals which behave differently than expected given what has been said so far. These are derived nominals which allow the external argument to appear post-nominally in English. Examples are given below:

- (178) a The struggle of the unions against unemployment.
 b The landing of the troops in Iraq.

The problem that examples such as (178) present is the following: since the nouns in (178) clearly are event nominals (as can be seen by the occurrence of the aspectual modifier frequent 'The frequent struggle of the unions against unemployment', 'The frequent landing of the troops in Iraq'), they should pattern like other event nominals and not allow post-nominal agents:

(179) *The distribution of the products of the admen.

In other words (illustrating with struggle), the structure of such nominals should be as in (180), with the nominalizing affix (null in the case of struggle) taking a VP complement, and the external argument generated in the specifier of the affix:



However, since there is no further movement in English, (178) cannot be derived from the structure in (180). But a closer look at the nouns belonging to the struggle-class might provide an answer to this problem.

Aside from the fact that they allow post-nominal agents, these nouns have three fundamental properties. First, pre-nominal agents are also possible, as can be seen in (181):

- (181) a The unions' struggle against unemployment.
b The troops' landing in Iraq.

Second, as we saw in section 1, as opposed to underived nominals, nominals of the struggle-class in French do not allow the order complement-subject, unless the subject is heavy. Compare (182) with (183):

- (182) a La photo de ce photographe de Paris.
this photographer's picture of Paris
- b La photo de Paris de ce photographe.
- (183) a La lutte des syndicats contre le chômage.
the struggle of the unions against unemployment
- b *La lutte contre le chômage des syndicats.
- c La lutte contre le chômage des syndicats de la construction.
the struggle against unemployment of the construction workers unions

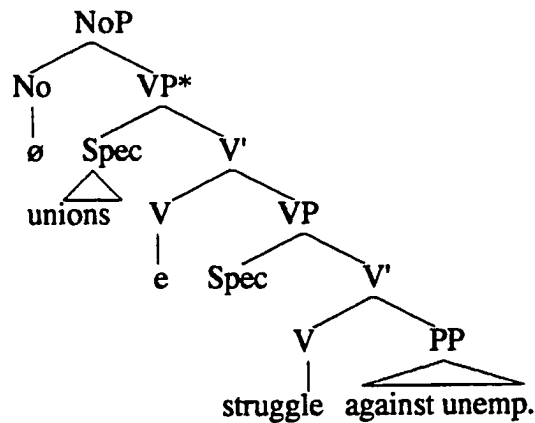
Finally, as opposed to underived nominals, rightward movement of both the subject and the object of struggle-class nominals is possible:

- (184) a *J'ai vu la photo cette semaine de ce photographe de Paris.
I saw the picture this week of this photographer of Paris
- b *J'ai vu la photo cette semaine de Paris de ce photographe.
- c Nous avons approuvé la lutte cette semaine des syndicats contre le chômage.
we approved the struggle this week of the unions against unemployment

The first set of examples suggests that, as with underived nominals, case assignment to a post-nominal DP is optional. If we follow the logic of our presentation, i.e. that only those affixes which force case assignment may also contribute to discharging an external argument in their specifier, the logical conclusion here is that the affix in nouns of the struggle-class does not discharge the external argument in its specifier. This is not a coincidence since it is reminiscent of the passive morpheme which, while blocking case to the object, absorbs the external θ -role of a verb.³⁴ Consequently, the external argument of the nouns of the struggle-class must be inside VP, as in (185):

34 But see Baker, Johnson, and Roberts (1988) who propose that the external argument in passives is not absorbed, but is assigned to the -en morpheme.

(185)

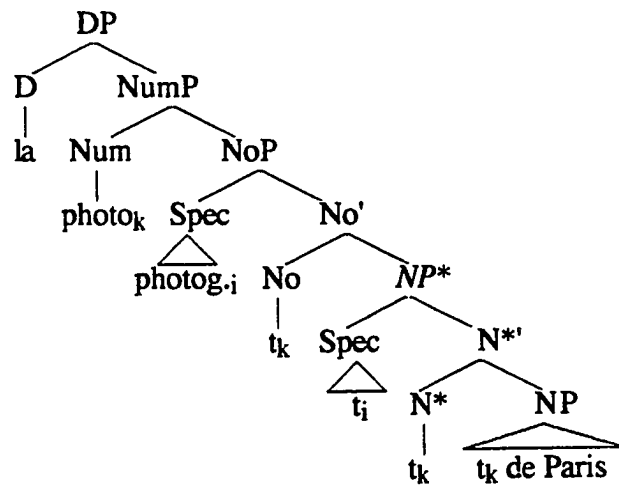


In (185), if the verb+affix complex assigns case to the subject the unions in SpecVP, we derive (178a). But since we saw that case assignment is optional for these nouns, the agent may also move to SpecCaP to receive case from 's, in which case (181a) is derived.

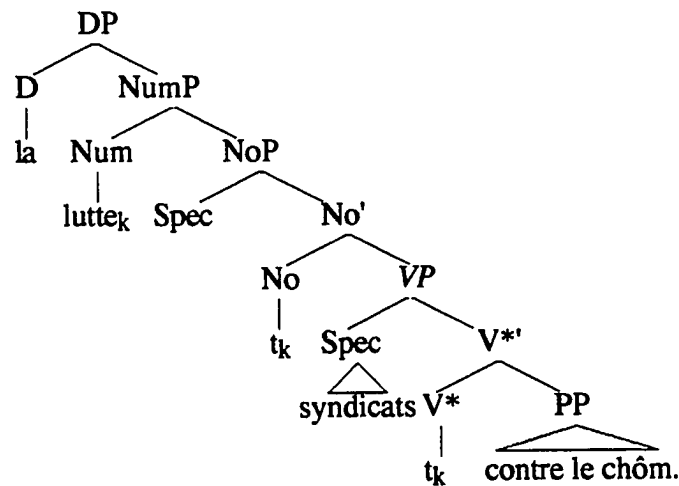
Let us now look at (183). Recall that in section 2, I proposed that the object-subject order in underived nominals was due to the the fact that SpecNoP is bi-directional: since the subject of underived nominals moves to SpecNoP to receive case, (182b) is derivable. In contrast, the subject of event nominals does not move to SpecNoP since the specifier of a nominalizing affix is not a case position. As a result, (183b) is not possible.

Turning to (184), we will see in chapter 7 that only complements to No⁰ may be moved rightward. Since in (184c) but not in (184a), the subject DP is within the complement of the affix, only in (184) can the subject be extraposed along with the object. This is illustrated in (186)-(187) (rightward moved constituent in italics):

(186)



(187)



Summarizing, that nouns of the struggle-type allow post-nominal agents in English is not an isolated fact; rather, it is related to the fact that, in French, they allow extraposition of their subject together with their object, and to the fact that the word order object-subject is not allowed.

Chapter 4

Adjective placement*

0. Introduction

In this chapter, I will show that adjectives which have adverbial counterparts exhibit a general distributional pattern similar to that of the corresponding adverbs (see Jackendoff 1972, 1977).¹ In other words, just as is the case for adverbs, the position of adjectives in DP is predictable from their meaning. Differences between French and English (e.g. French, but not English, allows post-nominal adjectives) will be argued to be the result of the same parameter responsible for the word order differences between the two languages discussed in chapter 2, i.e. presence versus absence of head-movement to inflectional morphology.

* The structure of event nominals presented here is radically different from the one proposed in Valois (1991a). However, the central idea remains the same, i.e. that adjectives in event nominals pattern like adverbs in clauses.

¹ It should be kept in mind that it is not my intention here to conduct an exhaustive study of adjective placement in French and English. Although it would be desirable to derive the contrast between the red book and le livre rouge by the application of noun-movement in French, matters are not that simple. The distribution of adjectives in French is rather complex: some may only appear in pre-nominal position, others only in post-nominal position, and still others in either position. Moreover, some adjectives do not have the same meaning depending on whether they appear in pre- or post-nominal position. In this chapter, I will focus on event nominals for two reasons: (i) event nominals are the most "clause-like" of all nouns, and most adjectives occurring in those nominals have adverbial counterparts; and (ii) adjectives in event nominals do not (generally) change meaning according to the position they occupy in the DP.

1. The position of adjectives in event nominals

Given our assumptions about the parallel between clauses and Noun Phrases, it is reasonable to expect that the position of adjectives in event nominals will parallel that of adverbs in clauses, both language internally and cross-linguistically.² In particular, we expect (i) the relative position of adjectives to be predictable from their meaning just as the position of adverbs is, and (ii) French and English to differ with respect to the relative position of the head noun and adjectives, as does the position of the verb with respect to adverbs in the two languages. I will come back to (ii) in section 3. But for now, I will discuss the position of adjectives in English event nominals.

1.1. Adjectives in English event nominals

In essence, Jackendoff's (1972) analysis of the positional distribution of adverbs in English implies that the position of adverbs is predictable on the basis of their meaning, i.e. manner adverbs are adjoined lower than sentential adverbs, etc. Jackendoff distinguishes six classes of adverbs:

² A similar idea was independently developed by Crisma (1990), although within a substantially different structure of DP.

Table 1. Jackendoff's (1972) positional classification of adverbs

Class I:	<u>Initial, Aux, VP-final (meaning change)</u> cleverly, clumsily, carefully, carelessly, happily, truthfully
Class II:	<u>Initial, Aux, VP-final, (no meaning change)</u> quickly, slowly, reluctantly, sadly, quietly, frequently
Class III:	<u>Initial, Aux</u> evidently, probably, certainly, unfortunately, naturally
Class IV:	<u>Aux, VP-final</u> completely, easily, totally, handily, badly, mortally
Class V:	<u>VP-final</u> hard, well, more, early, fast, home, slow, terribly
Class VI:	<u>Aux</u> truly, virtually, merely, simply, hardly, scarcely

For the purpose of this chapter, I will concentrate on the first four classes. (1)-(4) illustrate the distribution of those adverbs:

- (1) a Clumsily, John dropped his cup of coffee.
b John clumsily dropped his cup of coffee.
c John dropped his cup of coffee clumsily.
- (2) a Slowly, John dropped his cup of coffee.
b John slowly dropped his cup of coffee.
c John dropped his cup of coffee slowly.
- (3) a Evidently George read the book.
b George evidently read the book.
c *George read the book evidently.
- (4) a *Completely George read the book.
b George completely read the book.
c George read the book completely.

Adverbs of classes I and II have the same distribution, the difference between the two classes being that Class I adverbs may undergo a meaning change depending on their position in the tree. For instance, in (1a), clumsily modifies the event of dropping while in (1c) it qualifies the manner in which the cup was dropped. Rochette (1990) proposes to collapse these two classes of adverbs, and to base-generate adverbs according to their selectional restrictions. In Rochette (1988), she had proposed that

predicates select one of three types of sentential complements: proposition, event, or action. In turn, these complements are syntactically realized as CP, IP, and VP respectively. Similarly, adverbs may also select one of the three types of arguments, and are base-generated accordingly: they are adjoined to IP (or CP) if they select a proposition, to IP (or VP) if they select an event, and VP if they select an action complement (see her work for details). Table 2 illustrates the possible positions of the three classes of adverbs in a clausal structure like that proposed in Pollock (1989) (relative position of Agr and Tense according to Belletti 1988):

Table 2: Adverbs adjunction sites

probably-class: (= Class III) are adjoined to TP (or, perhaps, to Agr):³

frequently-class: (= Classes I and II) are adjoined to TP (or Agr) or VP:⁴

completely-class: (= Class IV) are adjoined to VP:

3 Adjunction to Agr accounts for the occurrence of the probably- and frequently-class adverbs between the subject and the auxiliary in English. This option is not available in French:

(i) *Pierre probablement a interrompu la conversation.
Pierre probably has interrupted the conversation.

(ii) *Pierre fréquemment a interrompu la conversation.
Pierre frequently has interrupted the conversation.

It is possible that English (i) and (ii) involve head-movement of the adverb to the left of the auxiliary rather than base-generated adjunction to Agr, an option somehow not available in French. If this is true, it would allow us to maintain that adverbs (and adjectives- see below) are all adjoined to maximal projections, rather than having to say that some may adjoin to heads.

4 That adverbs of the frequently-class can be attached lower than adverbs of the probably-class can be seen by the French sentences in (i)-(ii):

(i) Ils ont envahi fréquemment la planète.
they frequently invaded the planet

(ii) *Ils ont envahi probablement la planète.
they probably invaded the planet

Basically, provided that only one adverb may adjoin to a given projection (see section 3.4), co-occurrences of adverbs always obey the hierarchy: probably-class > frequently-class > completely-class. This can be seen by pairing members of each class, as illustrated in (15)-(17):⁵

- (5) a They [TP probably [vp completely invaded Jupiter]]
 b *They completely probably invaded Jupiter.
- (6) a They [TP frequently [vp completely invaded Jupiter]]
 b *They completely frequently invaded Jupiter.
- (7) a They [TP probably [vp frequently invaded Jupiter]]
 b *They frequently probably invaded Jupiter.

The hierarchy of occurrence must be obeyed even if, according to Table 2, adverbs of the probably and the frequently classes can both adjoin to TP. According to Jackendoff 1972, this follows from the restriction on adjunction of more than one adverb to the same projection (see also Stowell 1981, and section 3.4). This can be seen more clearly when an ambiguous adverb of the frequently-class co-occurs with an adverb of the probably-class:

- (8) a John intelligently answered the question.
 b John intelligently stupidly answered the question.

(8a) is ambiguous. It can either mean that it was intelligent of John to answer the question (frequently-class), or that the answer John gave was an intelligent one (completely-class) (on this, see Stowell 1990). However, (8b) can only mean that it

⁵ Since co-occurrences of three adverbs (or adjectives) is somewhat awkward, I will stick to pairs of modifiers. But it is interesting to note that, to the extent that (i) is acceptable, it represents the only possible ordering:

(i) They probably frequently completely invaded Jupiter.

was intelligent of John to give a stupid answer. Here, since stupidly is already adjoined to VP, intelligently can only be adjoined to TP. As a consequence, intelligently cannot be interpreted as a VP-adverb of the completely class.

Having said this, our assumption about the parallelism between Noun Phrases and clauses leads us to expect adjectives corresponding to these adverbs to obey the same hierarchy. In other words, if adjectives are classified into three classes similar to the ones proposed for adverbs, we do not expect adjectives of the complete-class to precede adjectives of the frequent-class, or members of the frequent-class to precede members of the probable-class. Looking at the examples in (9)-(11), this is exactly what we find (the classification of adjectives is shown in Table 3; I will return to the precise sites of adjunction momentarily):

Table 3: Adjective classification⁶

probable-class: probable, unfortunate, etc.;

frequent-class: clever, clumsy, careful, careless, frequent, etc.

complete-class: complete, easy, total, bad, mortal, brutal, etc.

⁶ As observed by Jackendoff (1977), the correspondence is not perfect between adjectives and adverbs. For instance, intelligent is not equivalent to intelligently in the sentential reading:

- (i) The intelligent response of the union to the government.
- (ii) The union intelligently responded to the attack by the government.

A discussion of these asymmetries is beyond the scope of this chapter.

- (9) a The probable complete invasion of Jupiter.
b *The complete probable invasion of Jupiter.
- (10) a The frequent complete invasion of Jupiter.
b *The complete frequent invasion of Jupiter.
- (11) a The probable frequent invasion of Jupiter.
b *The frequent probable invasion of Jupiter.

Summing up, adjectives are classified in three classes which are similar to those proposed for adverbs. Depending on the class to which they belong, adjectives are base-generated at different levels in the Noun Phrase, accounting for their relative ordering.

2. French

I will now look at the distribution of adjectives in French event nominals. Since I argued in chapter 2 that the head noun moves up (to Num⁰) in French, we should, on the one hand, expect various combinations of noun-adjective word order, and, on the other hand, French to differ from English in some cases.

Contrary to English, where adjectives always occur in pre-nominal positions, adjectives in French event nominals may appear on either side of the noun. This creates several possible combinations of two (or more) adjectives and the noun. However, not all combinations are possible. We will see that the various combinations follow from the assumptions I made about adjectives so far, combined with the fact that adjectives can optionally incorporate into the head noun.

It was proposed in chapter 2 that N⁰-movement, like V-movement, is parameterized, with the value set positively in French, but negatively in English (cf.

Longobardi 1990, Cinque 1990). One piece of evidence for this asymmetry was given by Cinque (1990) in his treatment of argument adjectives (i.e. those which may bear an agent θ -role, cf. Kayne 1984) in Italian. On the assumption that these adjectives are base-generated in SpecNP, Cinque argued that the contrast between Italian (12a) and English (13) is accounted for if the noun moves past the adjective to a position between D and N in Italian but not in English:

- (12) a L'[AgrP [Agr *invasione*]_i [NP *tedesca* *t_i* dell'Austria]]
 the invasion German of Austria
- b *L'*invasione* dell'Austria *tedesca*.
 c *La *tedesca* *invasione* dell'Austria.
- (13) The [NP German invasion of Austria]

Similarly, returning to our three classes of adjectives, N⁰-movement in French accounts for the fact that any adjective may appear in post-nominal position (details in section 3) . This is indeed the case:

- (14) a L'*nvasion*_i *probable* *t_i* de Jupiter
 the invasion probable of Jupiter
- b L'*invasion*_i *fréquente* *t_i* de Jupiter
 the invasion frequent of Jupiter
- c L'*invasion*_i *complète* *t_i* de Jupiter
 the invasion complete of Jupiter

Crucially, (15) below shows that the post-nominal position cannot be the result of right-adjunction of the adjective; otherwise, adjectives should be allowed to appear after a direct object, which they are not:

- (15) *L'invasion de Jupiter complète/fréquente/probable.
the invasion of Jupiter complete/frequent/probable

In addition to the post-nominal position, any adjective may also occur in pre-nominal position:⁷

- | | | |
|--------|--|------------------------|
| (16) a | La probable invasion de Jupiter.
<i>the probable invasion of Jupiter</i> | <u>probable</u> -class |
| b | La fréquente invasion de Jupiter.
<i>the frequent invasion of Jupiter</i> | <u>frequent</u> -class |
| c | La complète invasion de Jupiter.
<i>the complete invasion of Jupiter</i> | <u>complete</u> -class |

In spite of this dual behavior, the order of occurrence of adjectives strictly follows the hierarchy established above: adjectives of the probable-class must precede those of the frequent-class, and those of the frequent-class must precede those of the complete-class:

- | | |
|--------|--|
| (17) a | Les probables fréquentes invasions de Jupiter. ⁸
<i>the probable frequent invasions of Jupiter</i> |
| b | *Les fréquentes probables invasions de Jupiter. |
| c | La probable complète invasion de Jupiter.
<i>the probable complete invasion of Jupiter</i> |
| d | *La complète probable invasion de Jupiter. |
| e | La fréquente complète invasion de Jupiter.
<i>the probable complete invasion of Jupiter</i> |
| f | *La complète fréquente invasion de Jupiter. |

7 This does not apply to argument adjectives which are restricted to post-nominal position; see discussion in section 5.

8 Co-occurrence of probable and fréquente is a little awkward since fréquente implies that an invasion has taken place many times, while probable does not imply that an invasion has taken place at all. But, for some reason, using the plural form of the head noun improves the sentence considerably.

I propose that the pre-nominal position of adjectives in French event nominals is the result of adjunction of the adjective to the head noun (or incorporation as proposed by Stowell 1981 or Pesetsky 1987b for English).

There are at least two sets of facts which distinguishes between pre- and post-nominal adjectives, and which suggest that pre-nominal adjectives are incorporated into the noun. First, pre-nominal adjectives can never be phrasal (cf. Stowell, Pesetsky op. cit.):

- (18) a L'invasion [AP improbable aux yeux des Terriens] de Jupiter.
the invasion improbable to the eyes of the Earthlings of Jupiter
b *L'[AP improbable aux yeux des Terriens] invasion de Jupiter.
the improbable to the eyes of the Earthlings invasion of Jupiter

Since only X^0 adjectives appear pre-nominally, the contrast between (18a) and (18b) strongly suggests that pre-nominal adjectives are derived through head-movement from the post-nominal position.

Second, only pre-nominal adjectives trigger "liaison" with a following vowel-initial word:

- (19) a Les fréquentes ([z]) invasions de Jupiter.
b Les invasions (*[z]) infrequentes de Jupiter.

The contrast between (19a) and (19b) follows if one assumes that liaison is the result of incorporation of an X^0 (cf. Stowell 1981 for a similar conclusion concerning the different phonological shapes of English determiners; see footnote 10): in (19a), the

adjective has incorporated into the head noun from the post-nominal position, while in (19b), it has remained in the post-nominal position.

Returning to (17), the derivation of e.g. (17e) is then as in (20) (labelling of brackets to be discussed below). First, the noun moves up a step (a). Then complète moves to the left of the noun (b). The newly formed complex [complète-invasion] moves up (c), followed by adjunction of fréquente to the left of the complex (d):

- (20) a la fréquente invasion_i complète t_i de Jupiter.
 b la fréquente [complète_k invasion_i] t_k t_i de Jupiter.
 c la [complète_k [invasion_i]]_x fréquente t_x t_k t_i de Jupiter.
 d la [fréquente_y [complète_k invasion_i]] t_y t_x t_k t_i de Jupiter.

Before we close, something must be said here about head-movement. I have argued that adjectives are adjuncts to nominal projections. This means that examples such as (20) are cases of head-movement out of adjunct position, which is usually not allowed (cf. Baker 1988). However, this type of movement does not represent an isolated case in French. Consider (21):

- (21) a J'ai dit beaucoup de bêtises dans cette pièce.
 I said a lot of stupid things in this room
 b J'y_i ai dit beaucoup de bêtises [pp t_i].
 I there-said a lot of stupid things

We saw in chapter 1 that cliticization involves movement of an X⁰ head of its XP projection. In (21a), the locative PP is not sub-categorized by the verb, and yet the clitic head may move out of its maximal projection, as shown in (21b). To account for such examples, Sportiche (1990) argues that an XP is never a barrier for extraction of its head as long as the XP is i-commanded (cf. chapter 1). This condition is also

independently needed in cases of direct object clitic movement in French. Consider (22):

- (22) a Il les a écrites, ces lettres.
 he them-wrote, these letters
 b Il les a écrit, ces lettres.

According to the system presented in chapter 1, agreement in (22a) is triggered by XP-movement of the pronoun to the agreement/case position. The fact that no agreement is triggered in (22b) then indicates that the pronoun has not moved through the agreement position. Consequently, prior to cliticization, the pronoun has undergone XP-movement and adjoined to VP. From there, the head of XP cliticizes onto the verb in INFL. Again, the last step is case of head-movement out of an adjoined position. The conclusion is, extraction of a head out of its maximal projection must be allowed in French.

To summarize, I proposed that the fact that French, but not English, allows adjectives to appear post-nominally is the result of the different setting of the parameter discussed in chapter concerning head-movement to inflectional morphology. I also argued that pre-nominal adjectives are derived via adjunction of the head of AP to the left of the head noun. Arguments for this were based on the peculiar behavior of pre-nominal adjectives: only they are allowed in pre-nominal position, and only they trigger liaison with a following vowel-initial word.

3. Adjunction sites

I will now clarify the situation with respect to the exact adjunction sites of the different types of adjectives. We will also see that restrictions on one adjunction per

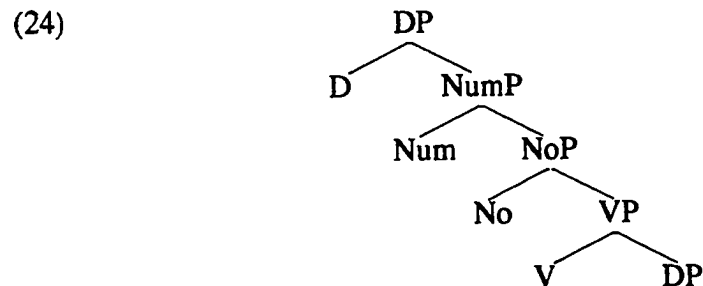
maximal projection will account for co-occurrence, as well coordination, restrictions of adjectives.

3.1. English subjectless nominals

A look at English subjectless event nominals will give us a first approximation of the adjunction sites of adjectives. Consider first (23):

- (23) a The probable brutal invasion of Jupiter. probable & complete classes
 b The frequent brutal invasion of Jupiter. frequent & complete classes
 c The probable frequent invasion of Jupiter. probable & frequent classes

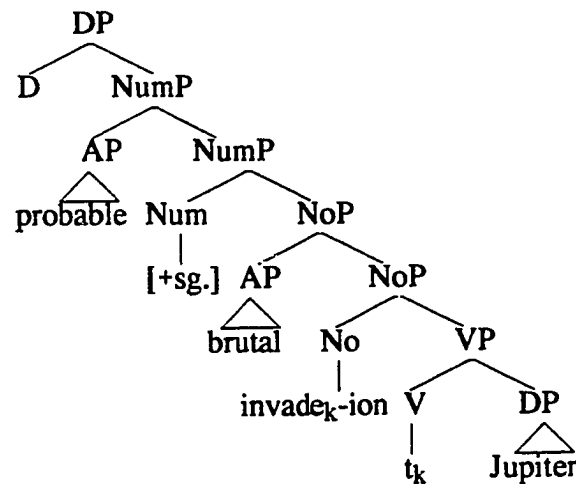
In accordance to the discussion in chapter 3, the structure of a subjectless event nominal is as in (24):



If, as it should be, Adjective Phrases are adjoined to maximal projections, this does not leave us any choice as to the adjunction sites of the two adjectives in (23): one is adjoined to NumP, the other one to NoP.⁹ For instance, the structure of (23a) is as in (25):

⁹ We would not want to say that adjectives of the complete-class are adjoined to the VP projection, keeping adjunction to verbal projections to adverbs.

(25)



The problem is, there are only two possible adjunction sites in (25), but three classes of adjectives. As we will see in section 3.4, the problem is not an artefact of the structure in (25), i.e. it is not because of a lack of DP-internal projections.

Again, the parallel with adverbs offers a solution to our problem; we saw in Table 3 that some adverb classes share the same adjunction site. For instance, while adverbs of the completely class adjoin to VP, adverbs of the frequently class may adjoin either to IP or to VP. Similarly, I propose that, while adjectives of the complete class adjoin to NP, adjectives of the frequent-class may adjoin either to NumP or to NoP. As an illustration, take (23c): here, probable adjoins to NumP, while frequent takes the option of adjoining to NoP. For their part, adjectives of the probable class may only adjoin to the highest possible adjunction site, i.e. NumP, just as adverbs of the probably class may only adjoin to IP.

Table 4 summarizes the range of adjunction sites for adjectives:

Table 4. Adjunctions sites of adjectives (final)

<u>probable</u> -class: NumP;	(e.g. <u>probable</u> , <u>evident</u>)
<u>frequent</u> -class: NumP or NoP:	(e.g. <u>frequent</u> , <u>clever</u>)
<u>complete</u> -class: NoP;	(e.g. <u>complete</u> , <u>brutal</u>)

We will see in section 3.4 how the adjunction sites proposed in Table 4 enable us to maintain the prediction concerning the ordering of adjectives. But for now, I will turn to French event nominals, and examine the interaction between the proposed base-position of adjectives, and noun-movement to Num⁰. Once again, we will see that the fact that the noun moves to Num⁰ creates more adjective-noun combinations than English. I will also present some facts which suggest that the noun moves as high up as D in French.

3.2. French: N-to-D?

If the base-generated adjunction sites of adjectives in French are as in English, we seem to run into the following problem: we saw in section 2 that any adjective may appear in post-nominal position in French, which we took as evidence that the noun moves past the adjective:

- (26) a L'invasion probable de Jupiter.
 the invasion probable of Jupiter
- b L'invasion fréquente de Jupiter.
 the invasion frequent of Jupiter
- c L'invasion brutale de Jupiter.
 the invasion brutal of Jupiter

The problem arises with respect to adjectives of the probable-class. If we assume, as it is the case in English, that these adjectives are adjoined to NumP, and that the head noun only moves so far as to Num⁰ in French, something else must be said to explain the fact that probable appears in post-nominal position in (26a). Obviously, the simplest solution is to say that the noun moves past the NumP-adjoined probable. The problem is, there is only one X⁰ past NumP where the noun can move too, i.e. D⁰.

In fact, that the head noun moves to D would be consistent with what I have observed in section 2 concerning pre-nominal adjectives. Recall that one argument for head adjunction of pre-nominal adjectives was that only these trigger liaison with a following vowel-initial word. I proposed that this was a reflex of the close phonological relation created by incorporation of the adjective into the head noun. Similarly, there is a very close, in fact even stronger, phonological relation between a noun and its determiner in French (see also Stowell 1981 for English in footnote 10), since liaison (and schwa-deletion) is obligatory when the noun is vowel initial:

- (27) a Les *(z) enfants.
 the children
- b La petite école.
 the little school
- c *La école.
 the school
- d L'école.
 the school

Assume again that the phonological processes described above are contingent on incorporation of the head noun into D.¹⁰ We could see the process as a consequence of the determiner's subcategorization restrictions. Assume a determiner in French has the subcategorization frame [_ N], and that this frame must be satisfied at S-structure. This forces the head noun to move up, accounting for the post-nominal occurrence of adjectives of the probable-class (for ease of exposition, I will keep giving derivations in terms of N-to-Num from now on).

The question now is, what about the pre-nominal position of adjectives of the probable-class? The problem is, if the head noun moves to D, how does the adjective end up between the determiner and the noun? There are two possible solutions for this: either the adjective moves to D first, followed by the head noun, or the adjective first adjoins to the left of the noun in Num⁰ from its NumP adjoined position, creating a [N A [N N]] complex, which itself moves to D. The second solution is more plausible since it does not require altering the sub-categorization frame of D to include adjectives.

Returning to the examples in (17), which involved more than one adjectives, we are now in a position to label the bracketing. I will illustrate with (17e), with the first two steps of the derivation are shown in (20):

¹⁰ Stowell (1981) argues that the a versus an form of the indefinite article, and the [ʒə] versus [ʒi] pronunciation of the definite article before vowel-initial words is also a reflex of incorporation.

- (17) e La fréquente complète invasion de Jupiter.
- (20) a la fréquente [Num invasion_i] complète t_i de Jupiter.
 b la fréquente [Num complète_k [Num invasion_i]] t_k t_i de Jupiter.

First, the verb moves up to No⁰, then the newly formed noun moves to Num⁰ (a). Then, the adjective complète adjoins to Num, forming the complex [Num complète [Num invasion]] (b). Then, depending on which of the above options we might want to take, either the head of the NumP-adjoined AP fréquente adjoins to the left of the complex, with the latter further moving to the right of D, or fréquente moves to D followed by the complex [Num complète [Num invasion]]. In the first case, the rest of the derivation in (20) is as in (28), in the second case, it is as in (29):

- (28) c. la [NumP t_x [Num fréquente [Num complète_k [Num invasion_i]]]] t_k t_i de Jupiter.
 d. [D la [Num fréquente [Num complète_k [Num invasion_i]]]]_h [NumP t_x t_h t_k t_i de Jupiter]
- (29) c. [D la fréquente_x [NumP t_x [Num complète_k [Num invasion_i]]] t_k t_i de Jupiter]]
 d. [D la fréquente_x [Num complète_k [Num invasion_i]]]_h [NumP t_x t_h t_k t_i de Jupiter]]

Since head adjunction of adjectives to N is optional, we predict various combinations when two adjectives co-occur, depending on whether both or only one of them has incorporated. I give some examples below involving one pre- and one post-nominal adjective:

- | | | |
|--------|--|---|
| (30) a | La complète invasion probable de Jupiter.
<i>the complete invasion probable of Jupiter</i> | Adjunction of
<u>complete</u> -class |
| b | La complète invasion fréquente de Jupiter.
<i>the complete invasion frequent of Jupiter</i> | Adjunction of
<u>complete</u> -class |

c	Les fréquentes invasions probables de Jupiter. <i>the frequent invasions probable of Jupiter</i>	Adjunction of <u>frequent</u> -class
d	La fréquente invasion complète de Jupiter. <i>the frequent invasion complete of Jupiter</i>	Adjunction of <u>frequent</u> -class
e	La probable invasion complète de Jupiter. <i>the probable invasion complete of Jupiter</i>	Adjunction of <u>probable</u> -class
f	Les probables invasions fréquentes de Jupiter. <i>the probable invasions frequent of Jupiter</i>	Adjunction of <u>probable</u> -class

It should be pointed out that the analysis also predicts that the hierarchy discussed above will be obeyed. For instance, since by the Head-Movement Constraint, (Travis 1984), incorporation must proceed step-by-step, there is no way to derive a phrase where an adjective of the complete-class precedes an adjective of the frequent-class in pre-nominal position:

(31) *La complète fréquente invasion de Jupiter.

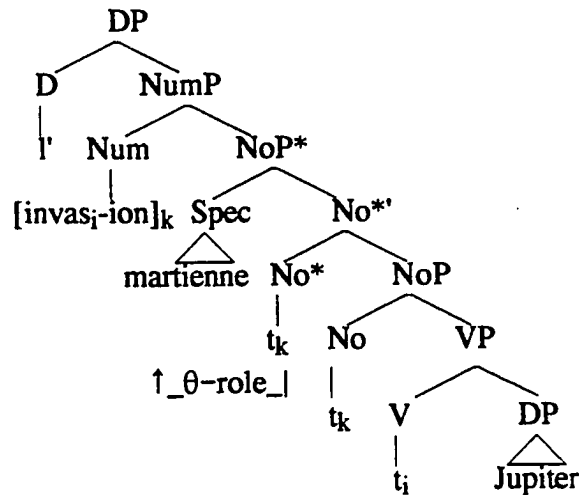
3.3. Argument adjectives

I will now turn to event nominals with adjectival external arguments; more precisely, I will look at the interaction between argument adjectives and those belonging to the three classes discussed so far. We will see that the discussion will provide us with still more information as to the exact adjunction sites of the various adjectives in both French and English.

I will begin by looking at French. I argued extensively in chapter 3 that the external argument of a derived nominal is discharged in SpecNoP* after V-movement to the nominalizing affix, as the structure in (33) illustrates (omitting N-to-D and movement of the object to SpecVP):

(32) L'invasion martienne de Jupiter.

(33)



I also argued above that adjectives of the complete-class are adjoined to NoP. These two proposals make the right prediction with respect to the co-occurrence of argument adjectives and adjectives of the complete-class:

- (34) a L'invasion martienne brutale de Jupiter.
b *L'invasion brutale martienne de Jupiter.¹¹

But a problem arises in English since the relative order of argument adjectives and adjectives of the complete-class is the opposite as that found in French:

¹¹ Crisma (1990) notes opposite judgements for Italian:

- (i) L'atteggiamento ostile americano.
the attitude hostile american
(ii) *L'atteggiamento americano ostile.

This suggests that, as in English, the complete-class adjective is adjoined to NoP* (and not to NoP) in Italian (cf. example (35) and text following).

- (35) a *The Martian brutal invasion of Jupiter.
b The brutal Martian invasion of Jupiter.

The only way out of this problem is to assume that adjectives of the complete-class are adjoined to NoP* in English, but to NoP in French. This is not necessarily undesirable, since this discrepancy between French and English with respect to the adjunction sites of adjectives is also reflected in the distribution of adverbs in the two languages. For example, adverbs of the probably-class can appear before the auxiliary in English, but not in French:

- (36) a They frequently have benefited from the departmental funds.
b *Ils fréquemment ont bénéficié des fonds du département.

Similarly, adverbs of the same class can occur between a past participle and a direct object in French, but not in English:

- (37) a *The neighbors have bought recently a new micro-wave oven.
(OK if Heavy-NP Shift)
b Les voisins ont acheté récemment un four à micro-ondes.

3.3.1 Summary

Summarizing so far, I have argued that adjectives are base-generated along the hierarchy probable-class > frequent-class > complete-class. Although there is a slight difference between French and English concerning the adjunction site of the complete-class adjectives, the three classes are base-generated according to the same hierarchy in both languages. That any adjective may follow the head noun in French was argued to be the result of N-movement. Also, adjectives in French event nominals may appear pre-nominally as a result of adjunction of the head of AP to N.

3.4. Adjective co-occurrences and coordination

I will now take a look at possible sequences of adjectives, and propose that co-occurrence restrictions are not limited to members of the same class, but rather to adjectives which can share an adjunction site.

Limiting ourselves to (less awkward) occurrences of pairs of adjectives, we saw in (23) above that adjectives of any class may co-occur with adjectives of any other class, provided that the hierarchy illustrated in Table 4 is obeyed. Now the question is whether two adjectives of the same class can co-occur.

In his analysis of adverbs, Jackendoff observes that two adverbs of the same semantic class cannot co-occur. The following examples illustrate:

- (38) a *Evidently John probably left.
 b *Usually John frequently leaves Mary at home.

In the (a) example, two adverbs of Jackendoff's class III co-occur while in (b) the two adverbs belong to class II. The question is, is this co-occurrence restriction subject to semantic or syntactic constraints? In other words, is it possible for two adverbs (or adjectives) of the same class to co-occur if the semantics of the two adverbs allows it? The answer seems to be that it is. Below are some examples involving co-occurrences of adverbs and adjectives of the frequent/ly class:

- (39) a They frequently carefully invaded Jupiter.
 b The frequent careful invasion of Jupiter.
- (40) a They cleverly carefully invaded Jupiter.
 b The clever careful invasion of Jupiter.

(39) and (40) suggest that co-occurrence restrictions are more semantic than classificatory.

Interestingly, only modifiers of the frequent/ly-class may co-occur (without being coordinated; see section 3.5):

- (41) a *The Martians probably unfortunately will invade Jupiter. probabl/y-class
 b *The probable unfortunate invasion of Jupiter.
- (42) a They frequently cleverly invaded Jupiter. frequent/ly class
 b The frequent clever invasion of Jupiter.
- (43) a *They brutally completely invaded Jupiter. complete/ly class
 b *The brutal complete invasion of Jupiter.

I proposed earlier (see Table 2) that adverbs of the probably-class are adjoined to TP, those of the frequently-class to either TP or VP, and those of the completely-class to VP, and that corresponding adjectives are adjoined to NumP, NumP or NoP, and NoP respectively. The solution to (41)-(43) now becomes obvious, if we assume, along with Jackendoff, that only one adverb may adjoin to a given projection. Since only modifiers of the frequent/ly class are assigned two adjunctions sites, only (42) is derivable: here, frequent is adjoined to NumP, while clever is adjoined to NoP*.¹²

¹² However, it seems that there is some ordering restriction on the occurrence of two modifiers of the same class, probably due to some scopal properties of the modifiers involved: (i) is not as good if the order of modifiers is reversed:

- (i) ?They cleverly frequently invaded Jupiter.
 ?The clever frequent invasion of Jupiter.

As T. Stowell (p.c.) points out, this restriction could be interpreted in terms of the Theta-Criterion if we assume that adverbs θ -mark the projection they adjoin to. Then double-adjunction would constitute a θ -Criterion violation since the projection would receive the same θ -role twice.

In addition to accounting for (41)-(43), the restriction to one adjunction per XP accomplishes one more thing: it accounts for the fact that an adjective (or adverb) of the probabl/y-class always precedes an adjective (or adverb) of the frequent/ly-class. Since both types of adjectives may appear at the NumP level, they could potentially both adjoin to NumP. But since double adjunction is not possible, when they co-occur the adjective of the frequent-class must make way for the adjective of the probable-class by adjoining to NoP.

Summarizing, we saw that co-occurrences of adjectives are possible as long as no two adjectives are adjoined to the same level. Among other things, this accounts for the fact that adjectives of the probable-class always precede adjectives of the frequent-class, even if either may potentially attach to NumP. As a result of this restriction, the adjective belonging to the probable-class adjoins to NumP, forcing adjunction of the frequent-class adjective to NoP.

3.5. Coordination

We are now in a position to explain some puzzling facts concerning coordination of adjectives. We will see that, aside from semantic constraints,

coordination of adjectives is possible between adjectives of different classes, as long as both adjectives are allowed to appear at the same level.

Interestingly, it is possible to coordinate two adjectives which belong to two different classes. For instance, coordinating adjectives of the frequent- and the complete-classes is possible:

- (44) a The frequent and brutal invasion of Jupiter.
b The careful and complete invasion of Jupiter.

This, I will claim, shows that coordination does not depend on the class to which the adjectives belong, but rather on whether they may potentially occur at the same level. Since adjectives of both the frequent and the complete classes can adjoin to NoP, they can be coordinated. Once again, we might explain this in terms of the Theta-Criterion. Suppose that, when two θ -marking constituents are coordinated, the selectional restrictions of each conjunct percolate up to the entire coordinated structure, and the whole structure itself assigns a θ -role. Therefore, each conjunct must be able to individually assign the same θ -role to the XP, otherwise a selectional restriction clash occurs. The same applies to adverbial or adjectival modifiers: since the level the modifiers attach to is a reflection of its selectional restriction (Rochette 1990), modifiers must be allowed to adjoin to the same maximal projection in order to be coordinated.

Having said this, coordination of an adjective of the probable-class with an adjective of either one of the other two classes is impossible:

- (45) a *The probable and brutal invasion of Jupiter. probable & complete classes
b *The probable and frequent invasion of Jupiter. probable & frequent
classes

The oddness of (45a) is not surprising, since adjectives of the probable-class and those of the complete-class never occur at the same level. More surprising is (45b), since adjectives of both the probable- and the frequent- classes can adjoin to NumP. Here, it is evident that some semantic constraints are at play. For instance, the above example implies that some invasion is both probable and brutal or frequent. But, obviously, an event cannot be both probable and somehow qualified.

Note, finally that argument adjectives cannot be coordinated with any other adjective:

- (46) *The Martian and brutal invasion of Jupiter.

This is expected since the argument adjective is the only one which is base-generated in SpecNoP* (chapter 3).

4. Agreement

I will now discuss agreement between noun and adjective in French. I will argue that the agreement process involves a special case of control of an AP-internal PRO by the head noun.

Adjectives in French agree both in number and gender with the head noun, whether one or more adjectives is/are present, and this, independently of the position of the adjective(s):

- (47) a La complète (fem. sing.) destruction (fem. sing) de Jupiter.
 the complete destruction of Jupiter
- b La destruction (fem. sing.) complète (fem. sing.) de Jupiter.
 the destruction complete of Jupiter
- c La fréquente destruction complète de Jupiter.
 the frequent complete destruction of Jupiter
- d La fréquente complète destruction de Jupiter.
 the frequent complete destruction of Jupiter

The adjective-noun agreement is interesting for two reasons: (i) this type of agreement seems to involve an unusual process of head-head agreement, while normal cases of grammatical agreement usually involve specifier-head relations; and (ii) if noun-adjective agreement is a reflection of some kind of specifier-head agreement between the adjective and the noun, then it is not obvious how we would account for the occurrence of an infinite number of adjectives inside a Noun Phrase without assuming an infinite number of specifiers as well.

But a closer investigation of the problem provides an easy solution. First, since we know that adjectives take external arguments, this should be reflected syntactically.

For instance since the adjectives in (47) take invasion as an external argument, the internal structure of the APs is as in (48) (Stowell 1983):

(48) [_{AP} PRO [_{A'} adjective]]

Now all head nouns in French are marked for gender.¹³ Once it has reached the Number position, the noun carries all of its features (number and gender). Since from that position, the noun m-commands everything within the Noun Phrase, we can now

13 It is plausible that the gender in derived nominals is carried by the nominalizing morpheme itself. In support of this claim, Barbaud, Ducharme & Valois (1982) showed that vowel-initial derived nominals containing a suffix associated with masculine gender never undergoes the common process of (optional) feminization applying to underived nouns in Montreal French. Consider the underived nominal in (i):

- (i) a Un beau gros (masc. sg.) avion.
 a nice big plane
 b Une belle grosse (fem. sg) avion.

Avion is listed in the dictionary as a masculine noun. While a majority of speakers use it as such (i-a), a significant number use it as a feminine noun (i-b). This was argued to be the result of the confusion triggered by the phonology of the determiner system in Montreal French in the context of vowel-initial nouns, in which the determiner, due to a common rule of vowel laxing, takes on a phonological form associated with the phonological form of the determiner in consonant initial feminine nouns:

- (ii) a Une orange (fem.). œnɔʀãʒ
 b Un avion. (masc.) œnavjɔ̃

As a result, vowel-initial nouns such as avion are often times reanalyzed as feminine nouns. In contrast, it was shown that no speaker used derived nominals such as aspirateur as a feminine noun:

- (iii) a Un beau gros interrupteur.
 a nice big vacuum switch
 b *Une belle grosse interrupteur.

But this is easily explainable if it is the nominalizing affix -teur itself which bears masculine gender, since this gives the speaker a clear clue as to the gender of the noun inasmuch as -teur is usually opposed to -trice in masculine-feminine pairs such as instituteur/institutrice 'teacher (masc.)', 'teacher' (fem).

construe agreement between the noun and the adjective(s) as a special case of control: since the noun "controls" any PRO within the lower AP(s), it transmits all of its features to it. Then, agreement between PRO and the head of AP is done by the usual specifier-head process.¹⁴

5. Non incorporation of referential adjective

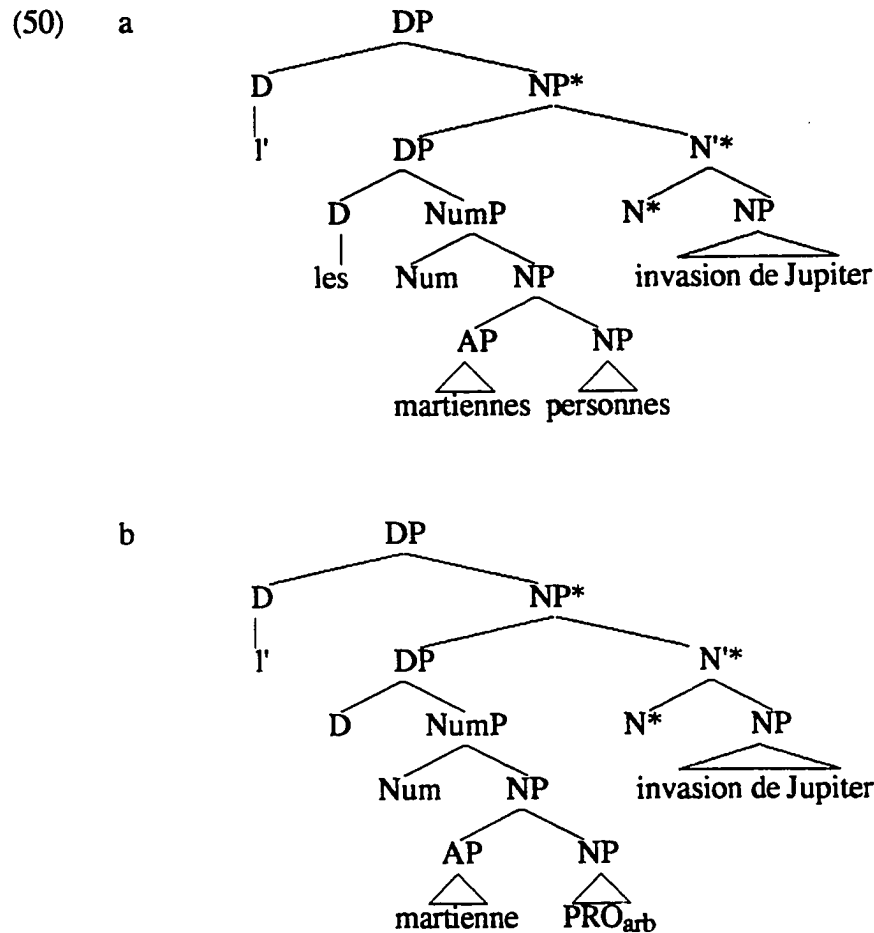
I have argued that the pre-nominal position of adjectives in event nominals is the result of head-movement of the adjective out of the AP. The question is, why can't the head of a referential AP move out of the AP and adjoin to the left of the head noun, yielding (49):

(49) *La martienne_i invasion [NP* [AP t_i] de Jupiter]

But (49) is only a problem if we adopt the common assumption that the external argument of the event nominal is an AP. However, this is rather odd, since arguments are usually projected as Noun Phrases. I propose that the external θ -role of invasion in (49), just as any other θ -role, is projected as a DP, and that the adjective martienne, just like other adjectives, is the head of an AP modifier. The structure of the AP modifier is the same as other APs, i.e. its specifier contains a PRO external argument which is controlled by the argument of the adjective. Furthermore, the DP contains an arbitrary PRO which corresponds to the sub-set of people which the

¹⁴ Since the noun does not move up in English, PRO, especially with adjectives of the probable-class, is not c-commanded by the head noun. We can approach the problem in either one of two ways: (i) since there is no agreement between adjectives and nouns in English, it does not matter whether PRO is controlled or not; (ii) PRO must be controlled no matter what, and control is done at LF in English. The first approach is the strongest one as it ties the absence of head-movement to the absence of noun-adjective agreement. But we will see in chapter 5 that there is support for the second approach, i.e. that PRO must be controlled even in the absence of adjective-noun agreement.

adjective denotes. Put differently, the D-structure of the DP martienne in (49) is parallel to that of the DP les personnes martiennes 'the Martian people', prior to movement of *personnes* to Num⁰, as shown in (50):¹⁵



Given the structure in (50b), it is clear why the referential adjective martienne may not get out of DP: just as verbs may not get out of the CP in which they originate and adjoin to a higher verb, the referential adjective may not get out of the DP in which it originates.¹⁶

¹⁵ See Sportiche (1990) for a similar proposal.

¹⁶ This restriction could be attributed to the HMC and the type of X⁰ a head adjoins to. For instance, movement of a verb to C⁰, then to the verb of a matrix clause would result in improper head-

6. Conclusion

The main point of this chapter was to proposed that adjectives in event nominals, like adverbs in clauses, belong to different classes, and as such are generated at various places in DP. Differences between French and English are the result of the fact that the noun moves to the head of NumP in French, but not in English.

movement (from an A'-head to an A-head) (see Koopman 1984; also Lema and Rivero (1990)). Similarly, movement of the adjective to D followed after adjunction to the noun is improper movement.

Chapter 5

NP-ellipsis and sloppy identity

0. Introduction

In this chapter, I examine cases of ellipsis in Noun Phrases, more precisely those which Jackendoff (1971) has labelled "N'-deletion". We will see that ellipsis in DP exhibits properties similar to VP-ellipsis, and is thus subject to the same LF-interpretation rules Williams (1977) proposed for VP-ellipsis. I will also argue that NP-ellipsis is found in French DPs, even though, at first sight, no material seems to have been deleted.

We will then see that, as observed recently by Otani & Whitman (1991), the copying rule in ellipsis contexts can apply to a null XP out of which the head X has been moved. This and differences with respect to the possible interpretation of gapped Noun Phrases in French and English will support the claim that head-movement applies in the former, but not in the latter.

Finally, we will see why adjectives are not allowed in gapped Noun Phrases. I will argue that this is a consequence of the fact that, in those cases, there is no overt noun to control the AP-internal PRO (cf. chapter 4).

1. VP-ellipsis and N'-deletion

As is well-known, a VP in English can be null as long as an auxiliary verb is present:¹

- (1) a Jack likes chocolate, and Joanne *(does) [vp e] too.
- b Julie had been to Death Valley, but Mario *(had) [vp e] not.
- c Sam has been thinking about buying a house, and *(has) [vp e] Mona too.

Null VPs are possible in a wide number of contexts (cf. Williams 1977, among others). For instance, the null VP need not necessarily be part of a conjunct (as shown in (2)), and can be found in an embedded CP (3a), a WH-island (3b), a sentential noun complement (3c), or a relative clause (3d):²

- (2) a Jack liked chocolate way before Mary did.
 - b Julie had been to Death Valley, the year before Mario did.
 - c Sam has been thinking about buying a house while Mona has not.
-
- (3) a John likes Mary's interpretation of Beethoven's 5th symphony, and Bob said that Mike thinks that Jim does too.

¹ Either the VP is literally deleted as in Ross (1967), Sag (1976), or null in the syntax as in Wasow (1972), Williams (1977), Haik (1985).

² Compare with Gapping (cf. Jackendoff 1971, McCawley 1988):

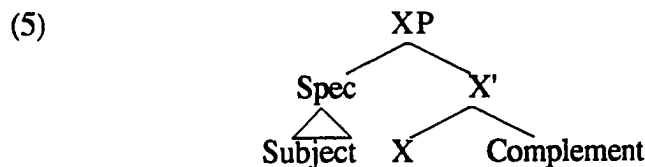
- (i) a *Jack hired Mary because Bill Mona..
- b *Jack likes Mary, and Bob said that Bill Mona.
- c *Jim likes Mary, and Bob wonders why Bill Mona.
- d *Jim likes Mary, and Bob is aware of the fact that Bill Mona.
- e *Jim likes Mary, and Bob knows a man who Mona.

- b John likes Mary's interpretation of Beethoven's 5th symphony, and Bob wonders why Jim does too.
- c John likes Mary's interpretation of Beethoven's 5th symphony, and Bob is aware of the fact that Jim does too.
- d John likes Mary's interpretation of Beethoven's 5th symphony, and Bob knows a man who does too.

As pointed out by Jackendoff, a similar process of ellipsis is found in Noun Phrases, in the same contexts of occurrence:³

- (4) a Tina saw Jack's pictures and Nellie saw Dan's [e].
- b Tina saw Jack's pictures before she saw Dan's [e].
- c Tina saw Jack's pictures while Nellie saw Dan's [e].
- d Tina saw Jack's pictures and Jim said that Nellie saw Dan's [e].
- e Tina saw Jack's pictures and Jim wonders when Nellie saw Dan's [e].
- f Tina saw Jack's pictures and Jim is aware of the fact that Nellie saw Dan's [e].
- g Tina saw Jack's pictures and Jim knows a man who saw Dan's [e].

Since at the time, X'- structures were of the form in (5), cases such as (4) were referred to as N'-deletion constructions:

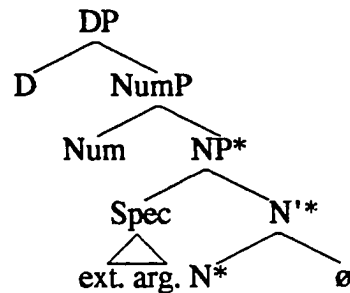


³ Again, Gapping differs in that it is not possible if the gap is not in the same immediate conjunct as its antecedent:

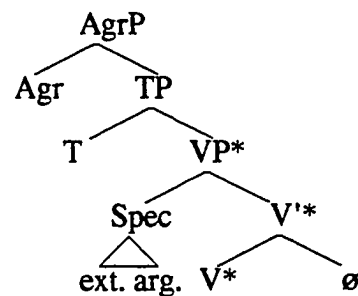
- (i) a *Jack liked Mary's picture of Paris because Bill liked Mona's _ of London.
- b *Jack likes Mary's picture of Paris, and Bob said that Bill likes Mona's _ of London.
- c *Jim likes Mary's picture of Paris, and Bob wonders why Bill likes Mona's _ of London.
- d *Jim likes Mary's picture of Paris, and Bob is aware of the fact that Bill likes Mona's _ of London.
- e *Jim likes Mary's picture of Paris, and Bob knows a man who likes Mona's _ of London.

Given our assumptions about the structure of DP, we can reinterpret ellipsis in both DP and VP as involving a null maximal projection, as illustrated in (6) and (7):

(6) NP-ellipsis



(7) VP-ellipsis



It is well-known, that null VPs may be interpreted in a number of ways (Ross 1967, Sag 1976, Williams 1977, among others). Consider (8) and (9):

- (8) Jim talks about himself continuously, and Carl does too.
- (9) Kim likes her cat and Karn does too.

In (8), only one interpretation is possible, i.e. that Carl talks about himself. On the other hand, there are two possible interpretations for the sentence in (9): under one interpretation the same cat (Kim's or somebody else's cat) is involved in both

conjuncts (strict identity), while under a second interpretation Kim and Karn each like their own cat (sloppy identity).

Williams (1977) proposed to account for the various interpretations of a null VP with a series of LF-interpretive rules which, in essence, create a λ -expression for the antecedent VP, which is then copied onto the null VP.^{4, 5} Then a Pronoun or a Reflexive Rule turns the pronoun or the reflexive into a variable bound by the λ -expression. The LF-derivation of (8) is shown in (10):

(10) Jim talks about himself continuously, and Carl does too.

Derived VP Rule

Jim [$\text{vp } \lambda x [\text{vp } x \text{ talks about himself}]$] continuously, and Carl does [$\text{vp } e$] too.

Reflexive Rule

Jim [$\text{vp } \lambda x [\text{vp } x \text{ talks about } x]$] continuously, and Carl does [$\text{vp } e$] too.

VP Rule

Jim [$\text{vp } \lambda x [\text{vp } x \text{ talks about } x]$] continuously, and Carl does [$\text{vp } \lambda x [\text{vp } x \text{ talks about } x]$] too.

4 See Haik 1985 for a different approach involving VP-adjunction at LF; see Hirschbühler 1982 for potential problems with Williams' approach; see Zagana 1986, 1988, and Lobeck 1986 for an account of VP-ellipsis contexts.

5 It should be noted that the range of interpretations might not be contingent on the presence of a null VP, depending on the status of so in English (Ross 1967, Keenan 1971):

- (i) a Jim talks about himself constantly and so does Bill.
b Jim talks about himself constantly and Bill does so too.
- (ii) a Jim talks about his cat all the time and so does Bill.
b Jim talks about his cat all the time and Bill does so too.

As for (9), the sloppy reading obtains if the Pronoun rule applies, otherwise, the strict reading obtains. (11) illustrates the derivation corresponding to the sloppy identity interpretation:

(11) Kim likes her cat and Karn does too.

Derived VP Rule

Kim [$\text{vp } \lambda x [\text{vp } x \text{ likes her cat}]]$ and Karn does [$\text{vp } e$] too.

Pronoun Rule

Kim [$\text{vp } \lambda x [\text{vp } x \text{ likes } x\text{'s cat}]]$ and Karn does [$\text{vp } e$] too.

VP Rule

Kim [$\text{vp } \lambda x [\text{vp } x \text{ likes } x\text{'s cat}]]$ and Karn does [$\text{vp } \lambda x [\text{vp } x \text{ likes } x\text{'s cat}]]$ too.

Interestingly, the same range of interpretations are possible with null NPs:

- (12) a I saw Janet's picture of herself and Jack saw Julie's.
 b I saw Janet's picture of her cat and Jack saw Julie's.

The interpretation of the second conjunct in (12a) is that Jack saw Julie's picture of herself, while in (12b) it is either that Jack saw Julie's picture of Janet's cat, or that he saw a picture of Julie's cat. The null hypothesis is of course that the set of rules proposed to account for the various readings in VP-ellipsis contexts also applies to derive the range of interpretations triggered by null NPs. In other words, parallel to the Derived VP and the VP Rules, there should be a Derived-NP as well as an NP-Rule. The LF-derivations corresponding to (12a) and to the the sloppy reading in (12b) are then as in (13a) and (13b) respectively (omitting irrelevant details):

(13) a Derived NP Rule

I saw Janet's [NP λx [NP x 's [NP picture of herself]]] and Jack saw Julie's [NP e].

Reflexive Rule

I saw Janet's [NP λx [NP x 's [NP picture of x]]] and Jack saw Julie's [NP e].

NP Rule

I saw Janet's [NP λx [NP x 's [NP picture of x]]] and Jack saw Julie's [NP λx [NP x 's [NP picture of x]]].

b Derived NP Rule

I saw Janet's [NP λx [NP x 's [NP picture of her cat]]] and Jack saw Julie's [NP e].

Pronoun Rule

I saw Janet's [NP λx [NP x 's [NP picture of x 's cat]]] and Jack saw Julie's [NP e].

NP Rule

I saw Janet's [NP λx [NP picture of x]] and Jack saw Julie's [NP λx [NP x 's [NP picture of x 's cat]]].

In the next section I turn to French and argue that, against all appearances, there is a process of NP-deletion in French Noun Phrases as well.

2. French

As opposed to English, French does not seem at first glance to allow null elements in Noun Phrases. As we can see below, French counterparts of English null-NP constructions involve the presence of some kind of pronominal element which

agrees in number and gender with its antecedent (I will refer to these constructions as "celui-DPs"). This is illustrated in (14), where the DP following celui is interpreted as the agent:⁶

- (14) a Tina a vu le portrait de Jack et Nellie a vu celui de Dan.
Tina saw Jack's portrait and Nellie saw Dan's
- b Tina a vu les portraits de Jack avant que Nellie ne voie ceux de Dan.
Tina saw Jack's portraits before Nellie saw Dan's
- c Tina regardait la photo de Jack pendant que Nellie regardait celle de Dan.
Tina was looking at Jack's picture while Nellie was looking at Dan's
- d Tina a vu les photos de Jack et Jim a dit que Nellie a vu celles de Dan.
Tina saw Jack's pictures and Jim said that Nellie saw Dan's
- e Tina a vu les photos de Jack et Jim se demande quand Nellie a vu celles de Dan.
Tina saw Jack's pictures and Jim wonders when Nellie saw Dan's
- f Tina a vu les photos de Jack et Jim est au courant du fait que Nellie a vu celles de Dan.
Tina saw Jack's pictures and Jim is aware of the fact that Nellie saw Dan's
- g Tina a vu les photos de Jack et Jim connaît un homme qui a vu celles de Dan.
Tina saw Jack's pictures and Jim knows a man who saw Dan's

Nonetheless, the same range of readings we found for English is possible in celui-DPs. As an illustration, take (15), where the possible interpretations are shown in parentheses in (16):

⁶ Of course, since arguments in underived nominals are not necessarily projected, other interpretations than the strict and the sloppy readings are also possible. For instance, Dan in the second conjunct may be interpreted as the theme argument, in which case no gap is present.

- (15) a Tina a vu la photo de Jack (agent) de lui-même et Nellie a vu celle de Dan (agent).
 b Tina a vu la photo de Jack (agent) de son chat et Nellie a vu celle de Dan (agent).

Reflexive interpretation

- (16) a Tina a vu la photo de Jack de lui-même et Nellie a vu celle de Dan (de lui-même).
Tina saw Jack's pictures of himself and Nellie saw Dan's

Strict interpretation

- b Tina a vu la photo de Jack_i de son_i chat et Nellie a vu celle de Dan (de son_i chat).
Tina saw Jack's picture of his cat and Nellie saw Dan's

Sloppy identity

- c Tina a vu la photo de Jack de son chat et Nellie a vu celle de Dan_i (de son_i chat).
Tina saw Jack's picture of his cat and Nellie saw Dan's

Crucially, the range of interpretation cannot be attributed to the way the pronoun itself is interpreted, since pronouns are never responsible for sloppy identity readings. Consider (17):

- (17) Pierre parle à son chat et Marc lui parle aussi.
Pierre talked to his cat and Marc talks to it too

Here, the pronoun lui does not yield the sloppy interpretation 'Marc_i parle à son_i chat aussi' in the second conjunct. In the next section, I will argue that celui-DPs actually contain a null NP, and that the various readings in (15) can then be seen as the result of the application of the LF-interpretation rules discussed above. But first, we need to see what the structure of celui-DPs looks like. I turn to this in the next section.

3. Celui-DPs

Considering the particular morphology of celui, a rather plausible assumption is that it is a combination of the demonstrative determiner ce and a pronominal element corresponding to the head noun, i.e. celui, celle, and ceux are a combination of ce and the pronouns lui for masculine, elle for feminine, and eux for plural nouns. As it is the case for other pronouns, the pronominal head may have an antecedent either in discourse or in the same sentence (cf. (18)), and, as mentioned above, it must bear the same number and gender features as its antecedent (cf. (19)):

- (18) a J'aime bien le tableau de Louise. Par contre, celui de Marc me plaît moins.
I like Louise's painting. However, Marc's pleases me less
- b Je préfère le tableau de Louise à celui de Marc.
I like Louise's painting better than Marc's

- (19) *Je préfère le tableau_i (masc, sg.) de Louise à celle_i (fem. sg.) de Marc.

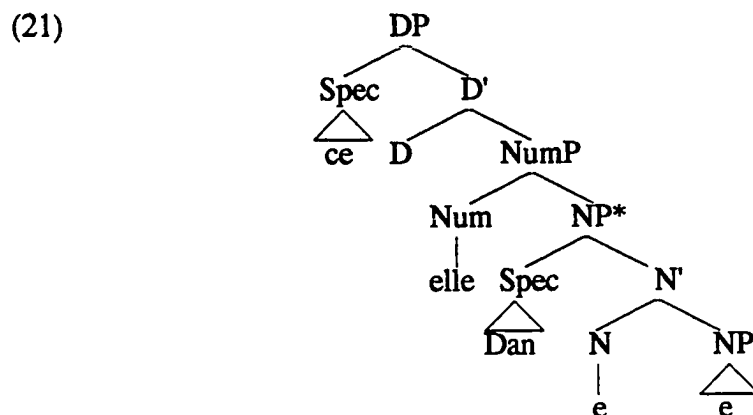
Regarding the pronominal part of celui, I will capitalize on a proposal of Ritter (1990) who claimed that third person pronouns are base-generated in Num⁰. According to Ritter, this accounts for the fact that, in Hebrew, third person pronouns co-occur with a demonstrative determiner, assuming that the latter is generated in D:

- (20) ha-yeled ha-hu
the-boy the-he
'That boy'

This is exactly what I claimed celui-DPs to be, i.e. a combination of the demonstrative-like ce and a third person pronoun.⁷ I then propose that the pronominal head in celui-

⁷ I still maintain that "ordinary" pronouns are XPs: while subject or object pronouns are XPs, lui in celui-DPs pronominalizes a noun, not an XP.

DPs is generated in Num⁰, with the demonstrative ce generated in SpecDP (see Appendix chapter 3 for a discussion of demonstratives). To illustrate, the S-structure of celle de Dan (with Dan as the external argument) in (15) is as in (21):



Note that, in certain cases, a similar analysis can be proposed for English as well. Take (22)-(23):

(22) I saw John's picture and Mary saw Jim's.

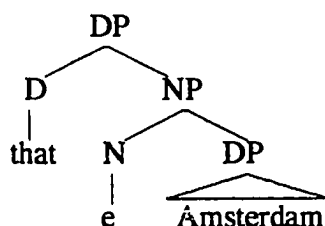
(23) a I saw the picture of your home town and Millie saw that of Amsterdam.

b I saw a picture of your hometown. *But I heard that Millie only saw Amsterdam's.

In addition to the agent or the possessor, both John and Jim in (22) may be interpreted as the theme argument. But when the object is inanimate, as in (23), the gapped head appears preceded by a determiner homophonous with the demonstrative. It is then natural to analyze (23a) on a par to celui-DPs, i.e. with the demonstrative in SpecDP, and a silent head in NP:⁸

⁸ Cf. Martin (1986) who suggests that examples such as (23a) involve a base generated silent head.

(24)



Returning to the different readings of (15), the crucial point is that, according to the structure in (21), the second conjunct in (15) is null. This provides the proper environment for the application of the Derived NP, the Pronoun/Reflexive, and the NP Rules. (25) illustrates:

(25) *Reflexive interpretation*

Derived NP Rule

Tina a vu la photo_k de Jack [NP λx [NP x [NP t_k de lui-même]]] et Nellie a vu celle_k de Dan [NP e].

Reflexive Rule

Tina a vu la photo_k de Jack [NP λx [NP x [NP t_k de x]]] et Nellie a vu celle de Dan [NP e].

NP Rule

Tina a vu la photo_k de Jack [NP λx [NP x [NP t_k de x]]] et Nellie a vu celle_k de Dan [NP λx [NP x [NP t_k de x]]].

b *Sloppy identity*

Derived NP Rule

Tina a vu la photo_k de Jack [NP λx [NP x [NP t_k son chat]]] et Nellie a vu celle de Dan [NP e].

Pronoun Rule

Tina a vu la photo_k de Jack [NP λx [NP x [NP t_k du chat de x]]] et Nellie a vu celle de Dan [NP e].

NP Rule

Tina a vu la photo_k de Jack [NP λx [NP x [NP t_k du chat de x]]] et Nellie a vu celle_k de Dan [NP λx [NP x [NP t_k du chat de x]]]

In the next section, we will see that sloppy identity readings obtain even if the head noun is not the same in the two conjuncts. The fact that this is true of French, but not of English, will further support the parameterization of head-movement in the two languages we have discussed in previous chapters.

3.1. Head-movement and sloppy identity

Otani & Whitman (1991) argue that sloppy identity in Japanese null object constructions constitute an argument for verb-raising out of VP (also Huang 1984).⁹ Their argument is based on the fact that sloppy identity readings obtain even if the verb in the second conjunct is not semantically or syntactically similar to that of the first conjunct (cf. Xu 1986 on Mandarin). Consider (26) where [e] is the null object in (26b):

⁹ See also Raposo 1986, Doron 1990, and Kato 1991.

- (26) a John_i-wa [vp zibun_i-no roba-o tataki-]-ta.
 John-TOP self-GEN donkey-ACC beat-PERF
 'John_i beat self_i's donkey'
- b Bill-mo [e] ker-ta
 Bill-also kick-PERF
- = 'Bill_i also kicked self_i's donkey'
 = 'Bill also kicked John's donkey'

Assuming that the VP Rule can copy a VP into a null VP no matter what the index of the trace of its head is, Otani & Whitman claim that V-raising out of VP in (14b) provides exactly the proper environment for the application of Williams's LF-interpretive rules, since it creates a VP void of overt material:¹⁰

- (27) Bill_i-mo [vp [[e] t_i -] ker_i-ta.

This analysis makes an important prediction with respect to sloppy identity in DPs: since, as we saw in previous chapters, the noun moves out of the NP shell in French underived nominals, but not in English, sloppy identity should be possible in the former, but not in the latter. Consider (28), where the underlined DPs represent the external argument:

- (28) a J'ai vu la photo de Paul de son chat ainsi que le portrait de Jean.
 I saw Paul's picture of his cat as well as John's portrait
- b J'ai vu la photo de chaque fille de son chat ainsi que le portrait de chaque garçon.
 I saw every girl's picture of her cat as well as every boy's portrait

¹⁰ As Otani & Williams observe in their footnote 4, this means that the VP Rule only copies unindexed verbal traces. In other words, it does not matter to the VP Rule that the trace in the second conjunct (27) does not have the same index as the verb (or its trace) in the first conjunct.

The judgments are subtle, but the sloppy identity reading is possible in (28). In (28a), the second conjunct may be interpreted as: *le portrait de Jean_i de son_i chat*, while in (28b), across-the-board binding by the QP is possible: *le portrait de chaque_i garçon de son_i chat*. The S-structures of the second conjuncts are shown in (29):

- (29) a ... le portrait_k de Jean [NP t_k]
 b ... la photo_k de chaque garçon [NP t_k]

As a result of head-raising in (29), the proper environment for the application of the rules discussed above is created. Consequently, the sloppy identity reading can be derived with the application of the Derived NP Rule and the Pronoun Rule, as illustrated in (30):

(30) Head-raising

J'ai vu la photo_k de Paul [NP t_k de son chat] ainsi que le portrait de Jean [e]

Derived NP Rule

J'ai vu la photo_k de Paul [NP λx [NP x [NP t_k de son chat] ainsi que le portrait de Jean [e].

Pronoun Rule

J'ai vu la photo_k de Paul [NP λx [NP x [NP t_k du chat de x] ainsi que le portrait de Jean [e].

NP Rule

J'ai vu la photo_k de Paul [NP λx [NP x [NP t_k du chat de x] ainsi que le portrait_k de Jean [NP λx [NP x [NP t_k du chat de x].

Now, take the English counterpart of (28a):

(31) I saw Paul's picture of his cat but I didn't see John's portrait.

Interestingly, the sloppy identity reading is clearly not possible in (31), i.e. the interpretation cannot be that I saw John's portrait of John's cat. But this is predicted: since there is no N-raising in English (cf. chapter 3), the NP shell in (31) contains overt material (i.e. the head noun) which is different from the material contained in the first conjunct. In other words, because of the lack of head-movement, the second conjunct can never be as in (32):

(32) I saw Paul's picture of his cat but I didn't see John's portrait [e].

Consequently, the NP Rule cannot apply.

4. On the absence of adjectives in gapped DPs: support for the \emptyset -head

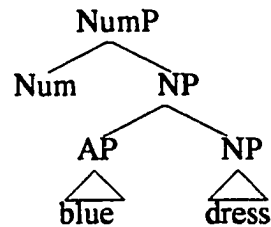
I would now like to address the problem of the absence of adjectives in gapped DPs. Consider (33)-(34):

(33) a J'aime la robe rouge de Lise mais je préfère celle de Louise.
b *J'aime la robe rouge de Lise mais je préfère celle bleue de Louise.

(34) a I like Lisa's red dress but I like Louise's better.
b *I like Lisa's red dress but I like Louise's blue better.

To account for the ungrammaticality of the (b) sentences, one possible solution immediately comes to mind. Suppose adjectives in (33)-(34) are attached to NP:

(35)



We could then say that a null NP necessarily includes the higher NP shell, and that as a result, adjectives are never possible in null NP constructions. However, there are at least three problems with this approach. First, recall from chapter 3 that some adjectives may be adjoined quite high inside DP. For instance, I argued that, in event nominals, adjectives belonging to the probable class are adjoined to NumP. Such adjectives are still impossible in NP-ellipsis constructions:

- (36) I heard about the Americans' probable invasion of Iraq, but I don't know anything about the Canadians' (*probable).

Second, it is not true that null NPs must include the higher NP shell, since other NP-adjuncts can co-occur with null NPs:

- (37) a I like John's picture from three years ago, and I also like Bill's from last year.
b I like John's picture by this photographer, and I also like Bill's by his sister.

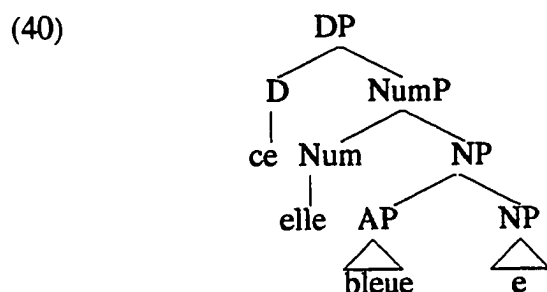
And third, adjectives are also impossible in gapped DPs, i.e. where there clearly is no null NP shell:

(38) I like Lisa's pretty drawing of her cat and Mona's (*careful) of her dog.

In order to provide a solution to the ungrammaticality of (33)-(34), we must first return to the proposal made in chapter 4 concerning the structure of APs. There, I assumed, that adjectives are of the form shown in (39), where PRO corresponds to the external argument of the adjective:



I also argued that agreement in person and number between adjectives and nouns in French is mediated through control of the AP-internal PRO by the c-commanding noun. The problem with (33)-(34) is now clear: since there is no overt head in celui-DPs (or gapped DPs as a matter of fact), control of the AP internal PRO is not possible:¹¹



¹¹ This crucially implies that the pronominal head *lui* in Num⁰ is not a proper controller. But this is expected if only lexical items (or their projection) may act as controllers; since *lui* can be seen as merely a functional head corresponding to a spell-out of the number and gender features of its antecedent, then it is only natural that it cannot be a controller.

Turning to English, an explanation in terms of the lack of control of the AP-internal PRO needs a little more discussion, given that the head noun does not move up, and, as a consequence, does not c-command PRO to begin with. In footnote 14 of Chapter 4, I observed that, since there is no agreement between adjectives and nouns in English, it is possible that control of the AP-internal PRO is not necessary after all. But I also mentioned that, alternatively, we could say that control is obligatory, and that, in English it takes place in LF after the head noun has moved up (possibly to D; cf. Longobardi 1990) for selection purposes. The interesting point about the ungrammaticality of (34b) is that it favors the second approach: if control of PRO is obligatory in spite of the absence of agreement. Then, since there is no overt head in both NP-ellipsis and gapped DPs, control of the AP-internal PRO cannot take place.¹²

¹² There exist cases of adjectives with non-overt heads in French, which Ronat (1977) argued to be the result of a deletion process. These are illustrated in (i):

- (i) Luc a acheté le livre rouge, tandis que moi j'ai acheté le bleu.
Luc bought the red book, and I bought the blue (one)

Adjectives with non-overt nouns only appear in a restricted set of contexts;

(1) they only occur with underived nominals:

- (ii) *J'ai entendu parlé de l'invasion brutale de Jupiter, mais pas de la rapide de Vénus.
I heard about the brutal invasion of Jupiter but not of the rapid one of Venus

(Note by the way that one-pronominalization is not so good either.)

(2) they only occur with the definite article:

It is worth noting that if an overt head is actually present, the sentence becomes grammatical:

- (41) I like Lisa's red shoes, but I like Nicole's green ones better.

5. VP-deletion in French

There is one last problem I would like to address concerning null elements in French. I have argued all along that French allows NPs to be null. However, on the face of examples such as (42b), it has generally been assumed that French does not allow null VPs (Emonds 1978):

- (42) a John has done his homework and Jane has [e] too.
b *Jean a fait ses devoirs et Jane a [e] aussi.

On the other hand, examples such as (43) seem to suggest that VP-ellipsis is indeed possible, as long as no auxiliary is present:

-
- (ii) a *J'ai acheté un rouge.
I bought the red
b *J'ai acheté ce rouge.
I bought this red

(3) they are only possible with a sub-set of adjectives, i.e. those denoting colors or size:

- a J'ai acheté le gros.
I bought the big one
b J'ai acheté le rouge.
I bought the red one
c *J'ai acheté le magnifique.
I bought the magnificent one

If we assume, following Hornstein & Lightfoot (1990) that gapped elements are unindexed at PF (basically contentless), but that deleted elements are indexed at S-structure, this means that the AP-internal PRO is controlled at LF, contrary to the NP-ellipsis cases where the head is empty at all times.

- (43) Marie a parlé à Jules et Pierre aussi.
Mary talked to Jules and so did Pierre

That (43) is a case of VP-ellipsis seems all the more plausible since sloppy identity readings (cf. (44)), as well as across-the-board pronoun binding (cf. (45)), are possible, as the parentheses indicate:

- (44) Pierre aime son chat et Marie_i (aime son_i chat) aussi.
Pierre likes his cat and Mary does too

- (45) Chaque enfant a reçu un cadeau et chaque_i adulte (a reçu un_i cadeau) aussi.
each child received a gift and each adult too

However, it can be argued that examples such as (44) and (45) do not involve ellipsis, but rather that they represent instances of a different process called stripping. Stripping is very similar to VP-ellipsis, but differs from it in a number of important ways (see Doron 1991 and references there, McCawley 1988). First, constituents other than the subject can be left behind after stripping, but not with VP-ellipsis:

- (46) a John baked the cake, but not the cookies.
b *John baked the cake, but did not the cookies.

Second, as opposed to VP-deletion, stripping is sensitive to island constraints (Ross 1967). Compare (47a) with (47c), and (47b) with (47d):

- (47) a *Bob taught the first class, and Jim was fired because not the second class.
b Bob taught the first class, and Jim was fired because he did not.
c *Bob taught the first class, and Jim wonders why not the second class.
d Bob taught the first class, and Jim wonders why Bill did not.

With this in mind, let us return to (43)-(45). Crucially, we can see that the subject may be deleted, and that ellipsis is subject to island constraints:

- (48) a Marie a parlé à Jules et à Pierre aussi.
Mary talked to Jules and Pierre too
- b Pierre aime son chat et son chien aussi.
Pierre likes his cat and his dog too
- c Chaque enfant a reçu un cadeau ainsi qu'un livre.
each child received a present as well as a book
- (49) a *Marie a parlé à Jules et Claude se demande quand Pierre aussi.
Mary talked to Jules and Claude wonders when Pierre too
- b *Pierre aime son chat et Marie se demande si Jules aussi.
Pierre likes his cat and Mary wonders if Jules too
- c *Chaque enfant a reçu un cadeau et Marie se demande si chaque adulte aussi.
each child received a gift and Mary wonders if each adult too

The conclusion is then that (43)-(45) are not cases of VP-ellipsis.

Having said this, it is easy to show that the null-NP constructions in French are not instances of stripping since, among other things, they are not sensitive to island constraints, as (50) illustrates where sloppy identity is possible:

- (50) a J'ai vu la photo du chat de Jacques, et je me demande quand Nicole a vu celle de Pierre_i (de son chat_i).
I saw the picture of Jacques' cat, and I wonder when Nicole saw Pierre's
- b J'ai vu la photo du chat de Jacques avant de voir celle de Jules_i de (son_i chat).
I saw the picture of Jacques' cat before I saw Jules'

We are then left with this question: why are null NPs possible in French, but not null VPs?

Following Zagana (1986, 1988), and Lobeck (1986), Doron (1990) argues that null VPs are subject to proper government, i.e. that they must be θ -governed. She then suggests that only elements that are base-generated in INFL can θ -mark their VP-complement (Chomsky 1986b). She then claims that the difference between Hebrew

and English (which allow null VPs) on the one hand, and French (which does not) on the other hand, is due to the fact that auxiliaries are base-generated in INFL (or T⁰ or Agr⁰) in the former, while they are base-generated as main verbs inside VP in the latter (cf. Emonds 1978).

In support of her claim that only lexical INFLs are θ -markers, she shows that only they can license a referential NP as a predicate in Hebrew. Null INFLs cannot:

- (51) a dani hu mar kohen
 Dani is Mr. Cohen
 b *dani [e] mar kohen

Doron explains the contrast in (51) by the fact that the referential DP mar kohen must receive a θ -role of predicate, and that the lexical INFL in (51a) is instrumental in assigning this θ -role. Since INFL is null in (51b), the referential DP cannot receive the predicate θ -role. In contrast, non-referential DPs are compatible with a null INFL, as shown in (52b), since they do not need to receive a θ -role of predicate:

- (52) a dani hu more
 Dani is teacher
 b dani [e] more
 Dani teacher

Returning to null VPs, the connection between θ -government and null VPs is now direct; only overt INFLs license null VPs, as the contrast in (53) shows:

- (53) a baxura tova, dina hi lo
 a nice person, dina is not
 b *baxura tova, dina lo
 a nice person, dina not

If Doron is right, we have a solution for the asymmetry between VP-ellipsis and NP-ellipsis in French: since the pronominal head lui is base-generated in Num⁰ as a sister to the null NP, Num⁰ θ -marks NP, insuring proper government of the null NP; on the other hand, since nothing is base-generated in French INFLs, null VPs cannot be licensed.^{13, 14}

6. Conclusion

I have argued that the range of interpretations in DPs containing a null NP shell is accounted for with the same interpretive rules Williams proposed for VP. In French, the null NP is licensed by a pronominal element in Num⁰. I also argued that the contrast between French and English DPs concerning the availability of sloppy identity when the noun differs in the two conjuncts constitutes evidence that the noun raises to Num⁰ in French but not in English.

¹³ Note that, given the Internal Subject Hypothesis, an analysis in terms of government of a null VP might force us to say that VP-ellipsis involves actual deletion of the VP containing the trace of the subject.

¹⁴ Something else must be said to account for the fact that no pronominal head is present in English gapped DPs.

Chapter 6

Indefinites and (other) Quantifier Phrases

0. Introduction

In this chapter, I will look at the syntax of indefinite, quantitative and partitive Noun Phrases. I will propose that all three types of Noun Phrases are a projection of a Q(uantifier) P(hrase). However, certain asymmetries with respect to extraposition, agreement, and the "strandability" of their determiner between the three types will be argued to be a consequence of minimal differences in their respective internal structure.

1. Indefinites as QPs

It has often been suggested that indefinites are like quantifiers in that they undergo QR at LF, unlike definite Noun Phrases which are more like "names" and are therefore interpreted "in situ" (see Hornstein 1984 for a discussion).¹ The similarity between the two types of nominals has been argued by Milner (1978) to be reflected in the fact that indefinites and quantitatives behave similarly with respect to a number of syntactic phenomena.

To illustrate, Milner noted that indefinites and numerals (such as deux 'two') share the following properties (French indefinites are of the form un and une in the masculine and feminine singular respectively, and des in the plural):

¹ See also Heim (1982) who argues that they are variables.

1. Both indefinites and quantitatifs are only compatible with count nouns:

- (1) a J'ai acheté deux livres.
I bought two books
- b J'ai acheté des livres.
I bought books
- c *J'ai acheté deux beurres.
I bought two butters
- d *J'ai acheté des beurres.
I bought butters

2. the French indefinite article un/une is homophonous with the numeral:

- (2) a J'ai acheté un livre.
I bought a book
- b J'ai acheté un livre.
I bought one book
- c J'ai acheté une pomme.
I bought an apple

3. the plural indefinite determiner may be inserted in numerical gradation strings:

- (3) J'ai marché pendant un kilomètre, deux kilomètres, des kilomètres.
I walked for a kilometer, two kilometers, three kilometers

4. The singular indefinite determiner, just like the numeral. can be stranded after cliticization of its complement:

- (4) J'en ai acheté un.
I of-them bought one

(ambiguous between the indefinite (any book) and the quantitative (exactly one book)).

Based on these similarities, Milner proposed that the two types of nominals share the same basic structure. To begin with, noting that quantitatives may contain an overt de genitive marker in other quantitative Noun Phrases such as beaucoup de livres 'many books', he proposes that Noun Phrases of the form deux livres also contain an underlying de (which is deleted by a late rule).² The underlying structure of deux livres is then as in (5):

- (5) [NP deux [N' de livres]]
two of books

According to Milner, that there is an underlying de in such constructions is corroborated by the fact that it surfaces when the N' constituent is right-dislocated:

- (6) J'en ai acheté deux, de livres.
I bought two, of books

Milner also notes that en-pronominalization leaves the numeral in (5) behind, while with indefinites nothing is stranded:

- (7) a J'en_i ai acheté deux_i.
I of-them bought two
 b J'en_i ai acheté t_j.
I of-them bought

This observation leads Milner to propose that a numeral is left behind in both (7a) and (7b), i.e. that there is a \emptyset plural numeral in (7b) corresponding to the overt deux in

² But not in the context of indefinite quantifiers such as beaucoup, peu, trop, etc:

- (i) J'ai acheté beaucoup de livres.
I bought many books

I will not discuss this here.

(7a). As a consequence the underlying structure of indefinites parallels exactly that of quantitatives. This is illustrated in (8) where the head noun is in an intermediate N'-projection, while the (overt or silent) determiner is in the specifier of NP:

- (8) Deux livres ---> [NP deux [N' de livres]]
 Des livres ---> [NP \emptyset [N' de+s livres]]

Milner then offers a number of arguments for the N' status of the constituent containing the head noun in structures such as (8). These arguments are based on some differences between quantitatives and noun complements (which are maximal projections) with respect to en- and dont-pronominalization.

First, he observes that en in quantitatives cannot resume an entire NP (cf. (9b)), while noun complements can (9a)):

- (9) a [ce livre de Zola]_i, j'en_i ai lu la fin t_i avec plaisir.
this book by Zola, I of-it read the end with pleasure
 b *[un livre de Zola]_i, j'en_i ai lu la fin t_i avec plaisir.
a book by Zola, I of-it read the end with pleasure

Second, under the assumption that relative pronouns correspond to maximal projections, Milner claims that the ungrammaticality of (10b) and (11b) shows that the constituent following the numeral in quantitatives cannot be an N^{max}:

- (10) a La personne dont je connais la soeur.
the person of-whom I know the sister
- b *Les livres dont j'ai lu trois.
the book of-which I read three
- (11) a Ce livre, l'auteur duquel je connais, se vend très bien.
this book, the author of-which I know, sells well
- b *Ces livres, deux desquels j'ai lus, se vendent très bien.
these books, two of-which I read, sell well

Another difference is that a noun complement can be pronominalized out of a derived subject, while the N' of quantitatives cannot (see also Rizzi 1990 among others):

- (12) a Voyez l'usine là-bas. La cheminée en est penchée.
see the factory over there; the chimney of-it is leaning
- b Voyez les cheminées de l'usine là-bas. *Deux en sont penchées.
see the chimneys over there; three of-them are leaning

Finally, in cases of left dislocation, the anaphoric pronoun always corresponds to a definite Noun Phase in noun complements (the contrast between (13a) and (13b)), while dislocation in quantitatives may involve pronominalization of an indefinite (13c):

- (13) a [Ce livre de Zola]_i, j'en_i ai lu la fin t_i avec plaisir.
this book by Zola, I of-it read the end with pleasure
- b *[Un livre de Zola]_i, j'en_i ai lu la fin t_i avec plaisir.
a book by Zola, I of-it read the end with pleasure
- c [Des livres de Zola]_i, j'en_i ai lu deux t_i.
books by Zola, I of-them read two

In the same vein, quantitative en may not move out of a definite Noun Phrase (cf. (14b)), while noun complement en can (cf. (14d)):

- (14) a J'ai les deux livres.
 I have the two books
- b *J'en ai les deux.
 I of-them have the two
- c J'ai vu la photo de Paris.
 I saw the picture of Paris
- d J'en ai vu la photo.
 I of-it saw the picture

Based on these differences, Milner concludes that the behavior of quantitative and indefinite Noun Phrases can be accounted for if, as opposed to noun complements, the constituent following the numeral or the \emptyset specifier in (8) does not constitute a maximal projection.

However, to claim that the part following the numeral in quantitative (or the \emptyset head in indefinite) Noun Phrases is not an XP is a rather undesirable conclusion. Aside from empirical facts which point to a different conclusion (see below), one conceptual reason is that it makes en-pronominalization rather exceptional in that it involves pronominalization of a non-phrasal constituent.³

There is also empirical evidence that the constituent following \emptyset or the numeral in (8) is an X^{\max} . Consider (6) again, where the second part of the quantitative NP has been moved rightward:

- (6) J'en ai acheté deux, de livres.
 I bought two, of books

³ This was also pointed out by Cardinaletti & Giusti (1990).

Given that it is certainly desirable to limit movement rules to X^{\max} (or X^0) constituents, the conclusion must be that the extraposed constituent in (6) is a maximal projection.

Finally, there are counter-examples to Milner's examples of relativization, which he took as barometer of the N' versus NP status of the constituent. As he himself notes, relativization of the second element of the quantitative Noun Phrase is possible if it takes place out of subject position (Kayne 1984, Elliott 1985, Belletti & Rizzi 1988, and Rizzi 1990):

- (15) Plusieurs livres, dont_i trois t_i sont déjà parus, ont reçu une critique favorable.
many books, of-which three have already appeared, received a good review

(16) shows that the constituent following the numeral can also be relativized:

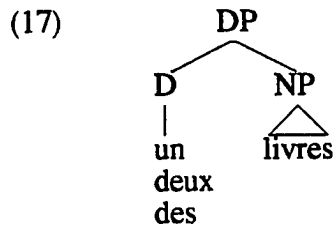
- (16) Ces livres, deux desquels sont déjà parus, ont reçu une critique favorable.
these books, two of-which have already appeared, received a good review

If we follow the logic of Milner's demonstration, we are forced to say that the constituents following the numeral in the above examples (the trace in (15) and desquels in (16)) correspond to maximal projections.

The problem is now to reconcile the fact that the N' constituent in (8) is actually an N^{\max} with the peculiar syntactic behavior of quantitative and indefinite Noun Phrases illustrated above. I turn to this in the next section, where I propose a unified structure for definite and quantitative Noun Phrases.

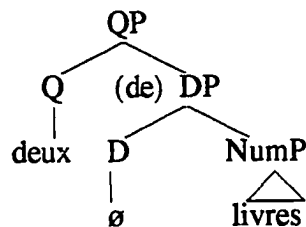
2. The structure

Given the similarity between indefinites and quantitives illustrated in (1)-(4), one direction we might want to take could be to assume that both types of nominals are DPs, with the indefinite determiner or the numeral as heads, as shown in (17):

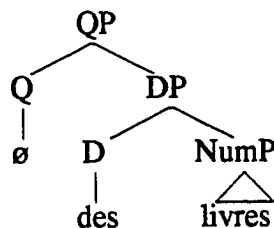


However, I will propose that the head of both types of Noun Phrases is Q, not D, and that the structure for deux livres 'two books' and des livres 'books' is as in (18a) and (18b) respectively, where an overt Q selects a DP with a [\emptyset] head, while a [\emptyset] Q selects a DP with an overt head.

- (18) a Deux livres.
 two books



- b Des livres.
 books



It should be noted that the fact that indefinites Noun Phrases are QPs have one conceptual advantage: since indefinites undergo QR at LF (Heim 1982), it makes the rule more transparent, since it now only applies to Noun Phrases headed by Q. I will now turn to empirical evidence in favor of the structures in (18).

There are four important differences between indefinites and quantitives which our proposal captures (some of which have been discussed above). The first difference was pointed out by Milner, and is illustrated in (19):

- (19) a J'en ai acheté deux, de livres.
I of-them bought two, of books
- b *J'en ai acheté \emptyset , de livres.
I of-them bought, of books
- c J'en ai acheté, des livres.
I of-them bought, books

In (19a), the constituent dislocated out of the quantitative Noun Phrase is of the form de N; on the other hand, with indefinites the dislocated string must be of the form des N, as shown by the contrast in (19b) and (19c). This is in fact a problem if both quantitives and indefinites share the structure Milner proposes in (8), since right dislocation of (underlying) [N' de N] should be possible in both cases. About this, Milner (p. 144) suggests that sentences such as (19c) do not involve right dislocation, under his assumption that dislocation is only possible when the specifier of NP is occupied by a an overt element in his structure (it contains deux in (19a), but \emptyset in (19b)). But this is a rather undesirable conclusion, since the whole point of (8) was to attribute a similar structure to both types of nominals based on similar syntactic behavior. Aside from this, (19) brings up another problem: the contrast between (19a)

and (19c) seems to indicate that the clitic pronoun en corresponds to two different strings in Milner's structure: de N in (19a), but the entire NP in (19c).

The structures in (18) offer a simple solution to this problem. Assuming along with Koopman (1990) and Shlonsky (1991) that Qs (optionally) assign (genitive) case to the right, then the clitic en always corresponds to the genitive DP in the structure. This has the nice advantage of making en cliticization uniform, since it now applies to genitive DPs throughout. En then corresponds to [DP \emptyset (de) livres] in (19a), while it corresponds to [DP des livres] in (19c); (19b) is not derivable since the \emptyset head takes a DP complement with a filled D, while the dislocated constituent corresponds to a DP with a \emptyset head.⁴

Now consider (20):

- (20) a Des livres, j'en ai.
 books, I of-them have
- b *Deux livres, j'en ai.
 two books, I of-them have

Since the numeral cannot be dislocated along with the head noun, (20b) confirms that en corresponds to a constituent which excludes the numeral. In other words, en does not correspond to QP in (18). Rather, I propose that the entire QP has been dislocated, the sentence being excluded as a consequence of the general prohibition against dislocation of QPs in French (cf. (22)):

⁴ I will assume, along with Milner, that there is a rule deleting de. With our structure, we could state the rule in terms of government by Q: de deletes when governed by Q, but does not when Q does not govern it. Hence, it "reappears" in dislocation and topicalization contexts.

- (21) *[QP deux livres]_i , j'en ai t_i.
- (22) a *Tous les enfants, je les ai vus.
 all the children, I them-saw
- b *Je les ai vus, tous les enfants.
 I them-saw, all of the children

As for (20a), the DP is dislocated, leaving the \emptyset -Q behind, as illustrated below:

- (23) [DP des livres]_i, j'en ai [QP \emptyset [DP t_i]]

A third difference between the two types of nominals is that, while numerals can be stranded, the indefinite article cannot:

- (24) a J'en ai acheté deux.
 I of-them bought two
- b *J'en ai achetés des.
 I of-them bought

Again, this can easily be accounted for with the structure in (18). While in (24a), the genitive DP is cliticized, leaving [Q deux] behind, (24b) is not derivable since the definite determiner is part of the cliticized DP complement of Q, i.e. it cannot be left behind by en-cliticization.

The fourth difference concerns agreement. Consider the following:

- (25) a J'en ai écrites, des lettres.
 I of-them wrote, letters
- b *J'en ai écrites deux.
 I of-them wrote two

(25b) shows that no past participle agreement is triggered when the QP-internal DP is cliticized. Consequently, the past participle in (25a) must be agreeing with the entire QP. I propose that the QP headed by deux in (25a) moves to the agreement position, followed by cliticization of the DP contained in it. (26) illustrates:

(26) J'en_k ai [[QP [Q' t_k]]_i] écrites t_i ...

Given our assumptions about the structure of quantitatives, there is a simple explanation for the lack of agreement in (25b): the DP, already being marked for genitive case by Q, cannot go through the agreement/case position; if it did, it would be receiving case twice, in violation of the conditions on chain formation (Sportiche 1983, Chomsky 1981, 1986b).

2.1. Summary

Based on distributional and syntactic similarities, I have argued that both quantitative and indefinite Noun Phrases are QPs. Differences between the two types of Noun Phrases with respect to certain syntactic operations are a consequence of some minimal differences in their internal structure; a direct consequence of this analysis is that it voids the need to assume that the constituent following the numeral (or the \emptyset Q) is an N'.⁵ At the same time, it unifies genitive case marking since only DPs can now be marked for genitive.

⁵ As for the contrast in (12), see Rizzi (1990) for a possible explanation. See also Elliot (1985) for differences between en and dont cliticization.

3. On the status of SpecQP and further problems

Looking at more complex sets of data raises the question of the status of SpecQP, i.e. whether it is an A- or A'-position. Consider (27) with the S-structure in (28):

- (27) a La ville dont j'ai vu une photo.
 the city of-whom I saw a picture
 b J'en ai vu deux photos, de cette ville.
 I of-her saw two pictures, of that city
- (28) a La ville dont_i j'ai vu [QP t [DP t_i une photo t_i]]
 b J'en_i ai vu [QP t_i deux [DP t_i photos t_i]].

Our movement theory forces extraction of the DP in (28) to proceed from SpecDP, an A'-position, to SpecQP. The logical conclusion at this point is then that SpecQP is an A'-position.

Consider now (29)-(32), assuming, following Shlonsky (1991), that the structure of the QP in (29) is as in (30); again, our assumptions about movement force us to assume that NP-movement of les enfants in (31) proceeds as in (32):

- (29) J'ai récompensé tous les enfants.
 I rewarded all the children
- (30) [QP tous les enfants].
- (31) Les enfants ont tous été récompensés.
 the children have all been rewarded
- (32) Les enfants_i ont [QP t_i tous t_i] été récompensés.

Under standard assumptions that SpecIP is an A-position,⁶ we are forced to conclude that the trace in SpecQP in (32) is in a A-position. Otherwise, the result is improper movement. But this not only conflicts with the conclusion reached for (28) (that SpecQP is an A'-position), but also with examples such as (33b), which involves the same quantifier than the one in (32):

- (33) a J'ai vu toutes les traductions de ce livre.
I saw all the translations of this book
- b J'en ai vu toutes les traductions.
I of-it saw all the translations

(34) illustrates the derivation for (33b):

(34) J'en_i ai lu [QP t_i toutes [DP t_i les traductions t_i]]

Here, one of the steps involves movement from SpecDP (an A'-position) to SpecQP. Then, in order for movement to be licit, SpecQP must be an A-position in (34).

Given these conflicting examples, I conclude that the specifier of QP can function either as an A- or an A'-position, i.e. it is unspecified for A/A'-status.

3.1. NumP-adjoined QPs

With the above discussion in mind, consider now (35):

⁶ But see Diesing 1990, Pesetsky 1989, Moritz 1989, Kinyalolo (1990).

- (35) a J'ai acheté les deux livres.
I bought the two books
- b *J'en ai acheté les deux.
I of-them bought the two

Given our structure, and the fact that SpecQP is not specified for A/A', nothing blocks movement of the genitive DP from SpecQP to SpecDP in (35b), since movement would be from an A'-position to an unspecified position:

- (36) J'en ai acheté [DP t_i [D' les [QP t_i Q' deux t_i]]]]

Still, the sentence is ruled out.

I want to propose that the structure of the DP in (35b) is not as in (36), but rather that, on a par with similar constructions involving other pluralizing adjectives (cf. (38)) which co-occur with definite articles, the numeral is actually adjoined to NumP:

- (37) les [NumP [QP deux] [NumP livres_i [NP t_i]]]

- (38) a Les maints efforts de Jacques ont porté fruit.
the many efforts of Jacques were fruitful
- b Les nombreux livres de Zola sont tous à la bibliothèque.
the many books by Zola are all at the library

The ungrammaticality of (35b) then simply follows from the fact that there is no genitive DP corresponding to the pronoun en in (37). A similar conclusion can be reached for (38):⁷

⁷ Not to mention that French does not allow the "stranding" of adjectives:

- (39) a *J'en ai apprécié les maints.
 I of-them appreciated the many
- b *J'en ai lu les nombreux.
 I of-them appreciated the many

This wraps up our discussion of quantitative and indefinite Noun Phrases. In the next section, I will turn to partitive QPs, which Milner argues to have a structure quite different from that of quantitatives. Although I agree with Milner, I will propose that partitives are headed by Q, not by N.

4. Partitives

I will now argue that partitive constructions are also headed by Q, with an internal structure significantly different from that of quantitatives. The structure I will propose is different from that assumed by Milner, who claims that the head of the construction is N.

As opposed to quantitative Noun Phrases which denote particular sets of objects, partitive constructions denote sub-sets of larger sets of objects. For instance,

-
- (i) a J'en_i ai acheté le rouge t_i.
 I of-it saw the red
- b J'en_i ai vu le magnifique t_i.
 I of-it saw the magnificent
- c J'en_i ai acheté les nombreux t_i.
 I of-them saw the many

(40) J'ai lu [un des livres de Zola].
I read one of the books by Zola

(41) *J'ai lu deux [des livres de Zola] et [poèmes de Rimbaud]
I read two of the books by Zola and poems by Rimbaud

(42) Deux des livres de Pierre.
two of the books of Pierre



Milner observes that examples such as (44) confirm the presence of an underlying N(P) in the first part of the construction, since that N(P) can both be cliticized, as in (44) or surface overtly as a full NP, as in (45):

- (44) a J'en_i ai lu t_i de ceux de Zola.
I of-them read those by Zola
- b J'en_i ai lu deux t_i de ceux de Zola.
I of-them read two of those by Zola
- (45) a J'ai deux livres [de ceux de Zola].
I have two books of those by Zola
- b J'ai lu ceux-ci de Zola.
I read those by Zola
- c J'ai lu deux livres des livres de Zola.
I read two books of Zola's books

As for the second part of the construction (the PP), Milner argues that, unlike the second part of the quantitative construction, it does not constitute an N'. Once again, his demonstration opposes quantitatives, partitives and noun complements, with the intention of showing that the PP in partitives behaves like a noun complement, and unlike the N' of quantitatives, with respect to a number of syntactic processes.

The main three points of comparison are illustrated in (46)-(48), where (a), (b), and (c) represent partitive, noun complement, and quantitative constructions respectively.

First, both partitive and noun complement (or genitive) en, but not quantitative en, can leave a gap in subject position:

- (46) a De ces pommes, deux ___ en sont gâtées.
of those apples, two of-them are rotten
- b Ces pommes, le goût ___ en est exquis.
those apples, the taste of-them is exquisite
- c *De pommes, deux ___ en sont gâtées.
apples, two of-them are rotten

Second, both partitive and genitive en, but not quantitative en, can pronominalize a definite Noun Phrase:

- (47) a De ces livres, j'en ai lu la plupart ____.
of these books, I of-them read the majority
- b Cet auteur, j'en ai lu le livre ____.
this author, I of-him read the book
- c *Les livres, j'en ai lu la plupart ____.
the books, I of-them read the majority

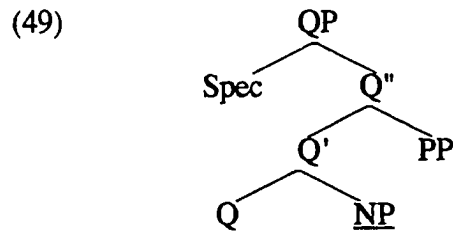
Finally, both partitive and genitive en, but not quantitative en, can appear after a definite article:

- (48) a J'en ai lu la plupart ____.
I of-them read the majority
- b J'en ai lu le livre ____.
I of-him read the book
- c *J'en ai lu les deux ____.
I of-them read the two

Based on somewhat similar facts drawn from Italian, Cardinaletti & Giusti (1990) propose the structure in (49), where the second part of the construction is a PP adjoined to a projection intermediate between QP and Q,⁸ in a three-level structure

8 As they observe, (49) implies that, in sentences such as (i), where the NP dominated by Q' is not overtly expressed, that NP dominates a pro (which, they argue, is "identified" by the NP contained in PP):

which parallels the structure proposed by Giorgi & Longobardi for Noun Phrases (cf. chapter 2):



There are clear advantages with (49) over the structure proposed by Milner. One of them is mentioned by Cardinaletti & Giusti. They observe that the fact that the PP is in an adjoined position (as opposed to being a complement of N) in (49) makes the first part of the construction (the underlined NP) completely independent, in the sense that it does not dominate the second part (as is the case with Milner's structure). This way, it accounts for the fact that it can be moved out of QP, leaving the adjoined PP behind (cf. (44a)).

Cardinaletti & Giusti note that there is evidence that the adjoined constituent is a PP, since extraction is not possible out of that constituent (cf. also Milner 1978)), just as extraction is never possible out of PPs in Italian (or French), as can be seen below:

-
- (i) a J'ai lu deux de ces livres.
 I read two of those books
- b J'ai lu deux [NP pro] [pp de ces livres]

- (50) a J'ai lu deux des livres de Zola.
I read two of the books by Zola
- b *J'en_i ai lu deux des livres t_i.
I of-them read two of the books
- c *J'en_i ai parlé [pp à la soeur t_i].
I of-him talked to the sister

Having said this, there is further evidence that the adjoined XP is a PP. This can be seen in (51), where an XP with the same semantic function (i.e. denoting the sub-set) is realized as a PP:

- (51) J'ai acheté deux pommes [pp parmi celles de ce marchand].
I bought two apples among those of this merchant

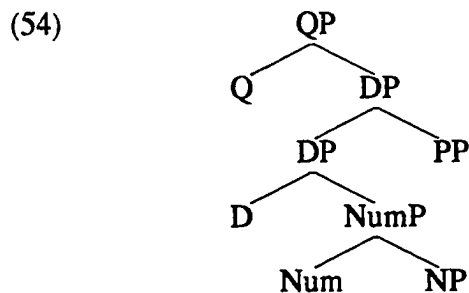
Note that, while the PP in partitives can be right-dislocated, it cannot be cliticized by en (see also (50b)) This offers strong support for our claim that en corresponds to a DP and not to a PP:

- (52) a J'ai lu deux livres t_i cette semaine [pp de ceux de Pierre]_i.
I read two books this week of those of Pierre
- b *J'en_i ai lu deux livres t_i, de ceux de Pierre.
I of-them read two books, of those of Pierre

As for the adjunct status of the PP, it is confirmed by the fact that long-distance extraction yields ECP-type violations:

- (53) a Desquels as-tu acheté deux livres?
of which ones did you buy two books
- b *Desquels sais-tu quand acheter deux livres?
of which do you know when to buy two books
- c Parmi lesquels as-tu acheté deux livres?
among which ones did you buy two books
- d *Parmi lesquels sais-tu quand acheter deux livres?
among which do you know when to buy two books

Although I agree with Cardinaletti & Giusti's and Milner's basic insight that partitives contain a bipartite internal structure, the structure I will propose differs from theirs. To begin with, I argued above that the categorial status of en is DP (while it is NP for Cardinaletti & Giusti), which had the nice result of making both the categorial status of all clitics (they are all DPs) and genitive case assignment (always assigned to a DP) uniform; but more importantly, the constituent in the first part of the partitive must be larger than just an NP since the head noun bears number features; in other words it contains (at least) a Number Phrase; finally, contrary to Cardinaletti & Giusti, I rejected Giorgi & Longobardi's three level structure (see discussion in chap. 2), on which their proposal is based. For all those reasons, I propose to modify the structure as in (54):



Returning to (46)-(48) -repeated below- we can see that the structure in (54) provides a straightforward account of the differences between partitives, indefinites, and quantitatives:

- (46) a De ces pommes, deux ___ en sont gâtées.
of those apples, two of-them are rotten
- b Ces pommes, le goût ___ en est exquis.
those apples, the taste of-them is exquisite
- c *De pommes, deux ___ en sont gâtées.
apples, two of-them are rotten
- (47) a De ces livres, j'en ai lu la plupart ____.
of these books, I of-them read the majority
- b Cet auteur, j'en ai lu le livre ____.
this author, I of-him read the book
- c *Les livres, j'en ai lu la plupart ____.
the books, I of-them read the majority
- (48) a J'en ai lu la plupart ____.
I of-them read the majority
- b J'en ai lu le livre ____.
I of-him read the book
- c *J'en ai lu les deux ____.
I of-them read the two

Adopting Rizzi's (1990) analysis, (46c) is ruled out for lack of head-government of the trace following deux; as for (47c) and (48c), neither of these examples contain a genitive DP corresponding to the clitic en (see section 3.1); in contrast, in both (46a) and (47a) the trace is head-governed, by the null head in (46a), and by plupart in (47a), as illustrated in (55):

- (55) a De ces pommes, [QP deux [DP \emptyset [DP t_i]]] en_i sont gâtées.
 b De ces livres, [DP la plupart t_i] en_i ont été vendus.

and in each of (47a)/(47b) and (48a)/(48b) there is a genitive DP inside the QP which corresponds to the pronoun en.

5. Beaucoup

As we saw in section 1, there exists a small sub-set of quantifiers in French which may appear in pre-verbal position, and bind a post-verbal empty category. There are two puzzling facts concerning these quantifiers. First, in cases of en-cliticization, past participle agreement (underlined) is only possible when the entire QP is moved to the agreement position:

- (56) a J'en ai écrites, des lettres.
 I of-them wrote, letters
 b *J'en ai écrites deux.
 I of-them wrote two

Second, the sub-set of quantifiers that may appear in pre-verbal position is very small:

- (57) J'en ai beaucoup écrites, des lettres.
 I of-them many wrote, letters
 (58) *J'en ai deux écrites, des lettres.
 I of-them two wrote, letters

I observed earlier that the contrast between (56a) and (56b) implies that past participle agreement is triggered when the entire QP is moved to the agreement position. In (56a), the QP [\emptyset [DP des livres]] moves to the agreement position, followed by cliticization of the DP, leaving the [\emptyset] Q behind. In (56b), cliticization of the DP alone does not trigger agreement. The reason, I argued, is that the genitive DP

cannot move through the agreement/case position since it would then be receiving case twice. The derivation is similar for (57), except that this time, Q is overt: the QP headed by beaucoup moves to the agreement/case position, followed by cliticization of the DP, leaving beaucoup behind in pre-verbal position. The derivation for (57) would then be as in (59):

(59) J'en_k ai [[QP beaucoup t_k]_i écrites t_i]

However, a closer look at the structure according to the present framework shows that the situation is a little more complex. Recall that in periphrastic tense constructions, the participial affix projects two layers, one containing the external argument, one containing the VP, and that the agreement position is the the lower projection of the affix, i.e. it is lower than the past participle. The structure is shown in (60):

(60) J'en_y ai [IpP* [écrit_i es]_x [IpP [QP beaucoup t_y]_o t_x [VP t_i t_o]

Given this, something else must be said to derive the pre-verbal position of beaucoup in (57) on the one hand, and to block the same derivation for sentences such as (61) where agreement is not triggered on the other hand:

(61) *J'en ai écrites beaucoup.

Finally, we must explain why the derivation that allows (57) cannot derive (62) at the same time:

(62) J'en_k ai [[QP deux t_k]_i écrites t_i]

Based on sentences such as (63) below, Milner suggests that the difference between numerals and the beaucoup class (which includes trop, assez, peu) with respect to their ability to appear in pre-verbal position, is due to a structure preservation constraint which limits the class of pre-verbal quantifiers to those which can occur in that position independently. Beaucoup belongs to that class, but deux is not:

- (63) a Les enfants ont beaucoup dormi.
 the children have a lot slept
 b *Les enfants ont deux dormi.
 the kids two slept

Milner concludes that the simplest solution to the contrast in (57)-(58) is to assume that beaucoup is simply base-generated in pre-verbal position.

In his study, Obenauer (1984) does not take a stand as to whether beaucoup in quantified nominal constructions is base-generated in, or moved to, the pre-verbal position. He observes that, no matter how beaucoup ends up in pre-verbal position, it binds an empty category in the post-verbal NP (cf. (64b)):⁹

⁹ As Obenauer (1976) observes, the separability of beaucoup and de livres in (64b) cannot be the result of movement of the entire QP to the pre-verbal position, followed by further extraposition of de livres. If that were the case, it is not clear how (ii) would be ruled out when the QP is WH-moved, given that a possible source for it is (i), followed by extraposition of de livres (see Obenauer op. cit.; see Rizzi 1990 for a different account of the contrast between (i) and (ii)):

- (i) Combien de livres as-tu beaucoup lus?
 (ii) *Combien as-tu beaucoup lus de livres?

There is another reason to believe that the extraposition analysis is incorrect; as (iii) shows, past participle agreement is triggered only when the entire QP is WH-moved:

- (64) a Il a acheté beaucoup de livres.
he has bought many books
- b Il a beaucoup acheté [e] de livres.
he has many bought books

There are in fact arguments both for movement and for base-generation of pre-verbal beaucoup. In favor of movement, there is the fact that beaucoup cannot bind an empty category inside an opaque XP:

- (65) a *J'ai beaucoup parlé à [e] d'enfants.
I have Q talked to children
- b *J'ai beaucoup dormi pour guérir [e] de petits maux.
I have Q slept to heal little aches
- c *J'ai beaucoup considéré t_k intelligents [[e] d'étudiants]_k
I have Q considered intelligent students
- d *J'ai beaucoup regardé la photo (de) [e] d'enfants
I have Q looked at the picture of children

If we assume the empty category in (65) to be the trace of movement, (65a) is ruled out for whatever factor rules out preposition stranding in French (Hornstein & Weinberg 1981, Kayne 1984, Aoun 1985); (65b) and (65c) are both cases of extraction out of a non- θ position, a purpose clause in (65b), and an inverted DP in (65c); finally, (65d) is ruled out as a case of improper movement (SpecDP (to SpecQP) to SpecNP):

-
- (iii) a Combien de livres as-tu achetés.
how many books have you read
- b Combien as-tu acheté*s de livres.
how many have you read books

Under the extraposition analysis, the QP in (iii-b) would first undergo WH-movement as in (iii-a), and trigger agreement.

- (66) J'ai beaucoup regardé la [NP t_i [N' photo (de) [QP [DP t_i d'enfants]]]]]
 ↑ _____ x _____ |

Arguments for base-generation are of two types. First, the relation between beaucoup and the empty category must be strictly local, as is exemplified in (67):

- (67) *J'ai beaucoup dit que Louise avait lu [e] de livres.
I have Q said that Louise had read books

Here, beaucoup is not in the same clause as the empty category it binds. The point is, if pre-verbal beaucoup is derived by movement, we have no explanation as to why it can only move as far as the VP containing the quantified nominal.

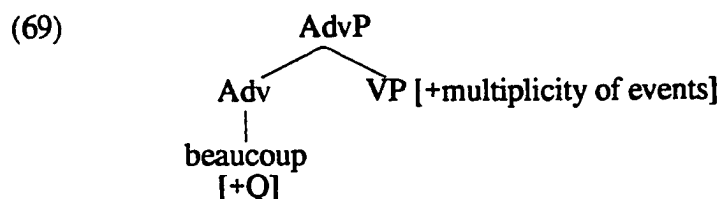
The second type of argument comes from Obenauer's observation that, in its quantificational meaning, pre-verbal beaucoup is limited to verbs which may express multiplicity of events. A verb such as apprécier 'to appreciate', not being of the proper type, does not allow a pre-verbal beaucoup to bind a post-verbal empty category (68a), although it allows the presence of adverbial beaucoup (68b):

- (68) a *J'ai beaucoup apprécié [e] de films.
I have Q appreciated films
 b J'ai beaucoup apprécier de film.
I have a lot appreciated this film

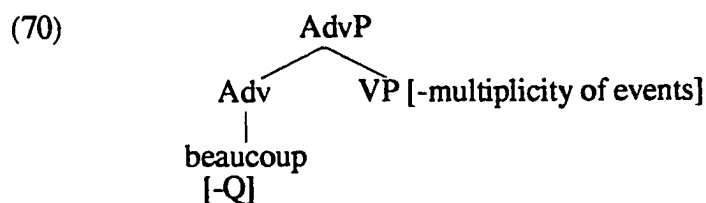
A movement analysis of pre-verbal beaucoup would have to explain why it may move to the pre-verbal position of some verbs, but not of others.

The question is how to reconcile the two sets of apparently contradictory data. Suppose we reinterpret Obenauer's observation that quantificational beaucoup can only appear in pre-verbal position of certain verbs in terms of the selectional properties of

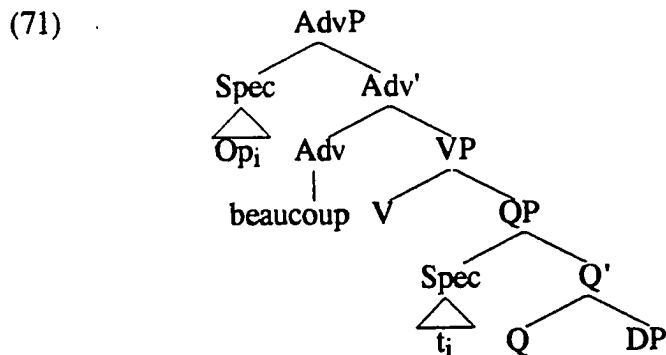
beaucoup. I then propose that quantificational beaucoup is an adverb that only selects a VP of the proper kind, i.e. a VP headed by a verb which may express multiplicity of events. This is schematized in (69):



(68a) is then ruled out automatically, since apprécier is not a verb of the right type: here beaucoup is quantificational since it binds a post-verbal empty category. Consequently, it should select a verb which can express multiplicity of events, which apprécier is not. On the other hand, (68b) is fine since beaucoup in its adverbial meaning can select any verb, including verbs of the apprécier-type. This is schematized in (70):



I further propose that, in order to be interpreted, beaucoup must contain a quantificational operator in its specifier at S-structure. Then, the trace of this operator, which originates in SpecQP, is in fact the post-verbal empty category which Obenauer has assumed to be bound by beaucoup:



This solution has the advantage of accounting both for the fact that only Qs of the beaucoup type can appear in pre-verbal position (since numerals are not adverbs, see below), and of explaining the data in (65).¹⁰ In the first case, since numerals are not

¹⁰ This analysis calls for a revision of Rizzi's (1990) account of the contrast in (i):

- (i) a Combien as-tu acheté de livres?
 how many have you bought books
- b *Combien as-tu beaucoup acheté de livres?
 how many have you a lot bought books

Rizzi derives the ungrammaticality of (i-b) by assuming that beaucoup is an A'-specifier which locally A'-binds the trace of combien, causing a Relativized Minimality violation. Since under our analysis beaucoup is a head, something else must be said. Suppose that in (i-b), combien, just like the silent operator, originates in SpecQP and moves to SpecCP through SpecAdvP. The problem then is, there is no quantificational operator in SpecAdvP at S-structure in (i-b). Here, it is crucial to assume, following Obenauer, that reconstruction of combien into its base position is not allowed (see Obenauer op. cit. for details).

Contrastively, movement of the entire QP over beaucoup (through SpecAdvP) is possible:

- (ii) Combien de livres as-tu beaucoup lus?
 how many books have you a lot read

But here, only the adverbial interpretation of beaucoup is possible since it does not bind a post-verbal empty category. Then, there is no need for a quantificational operator in SpecAdvP at S-structure.

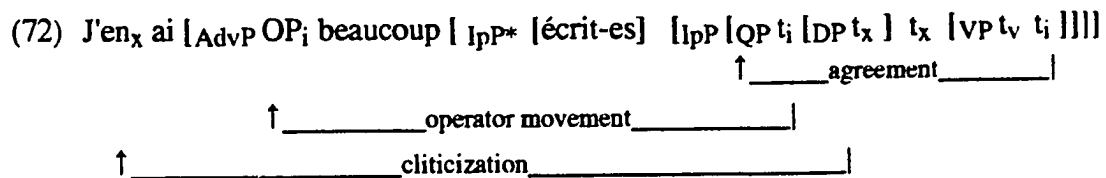
Finally, the following contrast needs to be explained:

adverbs, they do not have the semantic property of selecting a VP. In the second case, since we have interpreted [e] as the trace of operator movement, the examples in (64) are excluded for the same reasons mentioned above. Note that this analysis also derives the locality requirement between beaucoup and [e] (cf. (67)): since the operator is not a WH-phrase, it cannot go through the specifier of CP in order to move to the SpecAdvP of the main clause.

Returning to (60), we have to account for the fact that beaucoup must be in pre-nominal position when it triggers agreement. This is easy if we see (rightfully so) the whole IpP projection as a verbal projection. Then beaucoup selects not just a VP, but the participial projection. As a result, the structure of (57) will be as in (72), where the QP first moves to the case position, triggering agreement, followed by movement of the empty operator from SpecQP to SpecAdvP. Then, the QP-internal DP cliticizes to the verb in Infl (through adjunction to IpP*).

-
- (iii) a Combien de livres as-tu beaucoup apprécié?
 how many books have you a lot appreciated
- b *Combien as-tu beaucoup apprécié de livres?
 how many have you a lot appreciated books

As we saw above, beaucoup only allows the adverbial meaning ('a lot') with verbs of the apprécier type. It would then be difficult to justify the presence of a silent operator which blocks movement of combien to SpecCP in (iii-b). Therefore, the ungrammaticality of (iii-b) cannot be attributed to the lack of a quantificational operator in SpecAdvP at S-structure. One possibility is that in its adverbial meaning, beaucoup is in the specifier of AdvP, and that, as a result, movement of the QP to SpecCP is blocked.



6. Conclusion

In this chapter, I argued that indefinite, partitive, and quantitative Noun Phrases are all headed by Q, and that minimal differences in their internal structure account for their asymmetric syntactic behavior. The proposal has the advantage of unifying en-cliticization and genitive case assignment to DPs. I also proposed an account of pre-verbal quantifiers which reconciled the fact that only a small sub-set of quantifiers can occur in pre-verbal position with the fact that the post-verbal empty category bound by the quantifier cannot occur in opaque contexts.

Chapter 7

Extrapolation, Heavy-XP Shift, and word order

0. Introduction

In this chapter, I will look at various processes which alter the order of DP-internal constituents i.e. Heavy NP-shift and PP-extrapolation. It will be argued that all these operations apply similarly in both clauses and DP, which will lead to the conclusion that the distribution of DP-internal XPs in French is not "free" as is generally assumed (cf. Milner 1982), but results from the application of the two syntactic operations mentioned above. I will argue that these processes cannot apply beyond the domain of either CP and DP, and that apparent cases of extrapolation out of DP are the result of a two-step process which involves first Heavy-NP Shift, and then movement of a sub-constituent of the shifted Noun Phrase back to the case position, leaving an XP behind.

I then look at the status of the shifted position and propose that the HNPS position in French is not an A'-position in the usual sense, and consequently it does not prevent extraction of a sub-constituent out of it. This will lead us to somewhat modify the typology of positions to include the notion of canonical versus non-canonical case and θ -position.

Finally, I discuss cases of rightward movement of strings which, at first sight, do not appear to form a constituent. I will show that they are indeed constituents, and

that they involve rightward movement of an XP shell out of which the head has already moved.

The analysis will lend strong support to the layered structure of DP, as well as for N-movement to a functional category outside of the argument structure of the head noun.

1. Heavy-NP Shift

Heavy-NP Shift alters the canonical word order of constituents by moving a DP direct object¹ (to the right in the cases we are interested in) over another constituent, as long as the moved direct object is phonetically "heavy" (or focussed; see Rochemont 1978, 1986; Stowell 1981). For instance, in French a direct object may never occur after an indirect object unless the object is heavy²

- (1) a Luc a donné un livre à Simone.
Luc gave a book to Simone
- b *?Luc a donné à Simone un livre.
Luc gave to Simone a book
- c Luc a donné à Simone un livre qu'elle a beaucoup apprécié.
Luc gave to Simone a book she really appreciated

We saw in chapter 3 that, aside from DPs containing two genitive arguments, the relative order of XPs in DP is rather strict. Let us look at the data once again:

1 Also from subject position in French (cf. Deprez 1988).

2 This is not true of Italian (cf. Burzio 1986).

- (2) a La lutte des syndicats contre le chômage.
the struggle of the unions against unemployment
 b ??La lutte contre le chômage des syndicats.
- (3) a Le déferlement des troupes sur leur territoire.
the spreading tide of the troops on their territory
 b *Le déferlement sur leur territoire des troupes.
- (4) a Le débarquement des troupes en Normandie.
the landing of the troops in Normandy
 b *Le débarquement en Normandie des troupes.
- (5) a La dégustation du vin par les invités.
the tasting of the wine by the guests
 b *La dégustation par les invités du vin.
- (6) a Le portrait d'Aristote par Rembrandt.
the portrait of Aristotle by Rembrandt
 b ??Le portrait par Rembrandt d'Aristote.
- (7) a La photo de Pierre par ce photographe.
the picture of Pierre by this photographer
 b ??La photo par ce photographe de Pierre.
- (8) a L'arrestation du coupable la semaine dernière.
the arrest of the culprit last week
 b ??L'arrestation la semaine dernière du coupable.
- (9) a La description de l'incident par Pierre hier.
the description of the incident by Pierre yesterday
 b ??La description par Pierre hier de l'incident.

The (a) examples in (2)-(9) represent the canonical word order imposed by our structure: (2)-(4) represent the subject-object order; (5)-(7) shows that the agent adjunct phrase must follow the direct object, while (8)-(9) shows the same for other adjuncts. As the (b) examples show, the non-canonical word order is not possible (with normal intonation). However, if the second element in the (b) examples is heavy, the phrases become perfectly acceptable:

- (10) La lutte contre le chômage de tous les syndicats de la ville.
the struggle against unemployment of all the unions of the city
- (11) Le déferlement sur leur territoire des troupes du Général Alcazar.
the spreading tide on their territory of General Alcazar's troops
- (12) Le débarquement en Syldavie des troupes du Général Tapioca.
the landing in Syldavia of General Tapioca's troops
- (13) La dégustation par les invités du vin que Julie a rapporté de Californie.
the tasting by the guests of the wine that Julie brought from California
- (14) Le portrait par Rembrandt de ce célèbre philosophe grec.
the portrait by Rembrandt of this famous Greek philosopher
- (15) La photo par ce photographe de tous les enfants de la classe de Pierre.
the picture by this photographer of all the kids in Pierre's class
- (16) L'arrestation la semaine dernière du prisonnier de la prison municipale.
the arrest last week of the city jail prisoner
- (17) La description par Pierre hier de l'incident qui a troublé la communauté.
the description by Pierre yesterday of the incident that troubled the community

Of course, making the first element in the (a) examples does not alter the grammaticality of the phrases:

- (18) La lutte de tous les syndicats de la ville contre le chômage.
the struggle of all the unions of the city against unemployment
- (19) Le déferlement des troupes du Général Alcazar sur leur territoire.
the spreading tide of General Alcazar's troops on their territory
- (20) Le débarquement des troupes du Général Tapioca en Syldavie.
the landing of General Tapioca's troops in Syldavia
- (21) La dégustation du vin que Julie a rapporté de Californie par les invités.
the tasting of the wine that Julie bought from California by the guests
- (22) Le portrait de ce célèbre philosophe grec par Rembrandt.
the portrait of this famous Greek philosopher by Rembrandt
- (23) La photo de tous les enfants de la classe de Pierre par ce photographe.
the picture of all the kids in Pierre's class by this photographer
- (24) L'arrestation du prisonnier de la prison municipale la semaine dernière.
the arrest of the prisoner of the city jail last week
- (25) La description de l'incident qui a troublé la communauté par Pierre l'autre jour.
the description of the incident which troubled the community by Pierre the other day

The point is, this to be expected if the (a) examples represent the canonical word order since the relative heaviness of XPs should only have a bearing on non-canonical word order.

Before I move on, I would like to clarify one thing. Recall that I argued in chapter 2 (also in chapter 3) that adjunction is not possible within DP. But I just proposed that HNPS involves adjunction of an XP to the right. The answer to this question is to be found in the type of adjunction involved in rightward movement. For instance, there are numerous cases of adjunction to an intermediate projection in DP:

(i) relative clauses

- (26) Le livre que Lise a lu.
the book that Lise read

(ii) temporal adjuncts

- (27) Cette photo de Pierre d'il y a quelques années.
this picture of Pierre from a few years ago

(iii) by-phrase agents

- (28) La construction d'un édifice par les architectes.
the construction of a building by the architects

(iv) adjectival modifiers

- (29) L'invasion [NP [AP soudaine] [NP de Jupiter]] par les Martiens.
the invasion sudden of Jupiter by the Martians

What seems to be prohibited is movement out of DP by adjunction, rather than adjunction itself. Base-generated and rightward adjunction are allowed.

In the next section, I will support the claim that the non-canonical order in DP is indeed the result of a HNPS operation.

1.1. Parasitic Gaps

As (first) noted by Engdahl (1983), parasitic gaps are licensed by A'-movement, either of the WH- or the Heavy-NP Shift type:

- (30) a Who_i did you see t_i without recognizing PG?
 b I saw t_i without recognizing PG [all my friends from high school]_i

Since I have suggested the existence of Heavy-NP Shift in DP, the prediction is that parasitic gaps should also be licensed within the Noun Phrase. This prediction is borne out:

- (31) a Nous avons suggéré la vérification de tous ces nouveaux produits révolutionnaires.
we suggested the verification of all those new revolutionary products
 b Nous avons suggéré la vérification t_i par le syndicat [avant la distribution PG par les publicistes] [de tous ces nouveaux produits révolutionnaires].
we suggested the verification by the union before the distribution by the admen of all those new revolutionary products

The presence of a by-phrase agent (along with the definite determiner) in both Noun Phrases in (31b) ensures that there must be a gap in the object position of distribution, since as pointed out by Lebeaux (1984), Safir (1987), Grimshaw (1990), the direct object of event nominals is obligatory when the by-phrase agent is present:

- (32) *La fréquente distribution par les publicistes.
the frequent distribution by the admen

That the gap in (31b) is parasitic on the presence of an A'-bound trace can be shown by the ungrammaticality of (33):

- (33) *Nous avons suggéré la vérification de tous ces nouveaux produits révolutionnaires par le syndicat avant la distribution _ par les publicistes.
we suggested the verification of all those new revolutionary products by the union before the distribution by the admen

Here, there is no trace in the object position of vérification; consequently, the parasitic gap is not licensed. The parallel with clauses is clear, as shown in (34):

- (34) a Nous avons vérifié avant de distribuer [tous ces nouveaux produits révolutionnaires].
we verified before distributing all those new revolutionary products
- b *Nous avons vérifié [tous ces nouveaux produits révolutionnaires] avant de distribuer ____.
we verified all those new revolutionary products before distributing

It should be pointed out that examples such as (31b) support our claim that de-NPs are not PPs; if they were PPs, it would not be clear how they could license parasitic gaps, since PPs do not license parasitic gaps:

- (35) *J'ai donné un cadeau t avant que Pierre parle PG [pp à ce grand distrait de Paul].
I gave a present before Pierre talked to this absent-minded of Paul

I will now turn to PP-extraposition, and discuss upward-boundedness constraints on rightward movement.

2. PP-extraposition

We know from the substantial literature on the topic that PP-extraposition is possible either from subject or object position (references in the course of the discussion).³ It has also been observed that an extraposed XP cannot move out of the clause in which it originates (cf. Akmajian 1975, Selkirk 1977, Baltin 1981, 1987, Culicover & Rochemont 1990). The problem for us with respect to the parallel

³ However, there is no consensus as to the site of attachment of extraposed PPs: For instance, Baltin (1980) claims that extraposition out of subject involves adjunction to IP, and that PP-extraposition out of object is adjunction to VP; Culicover & Rochemont (1990) on the other hand, claim that extraposed PPs can adjoin to either VP or IP, no matter what the point of origin of the PP is. I will not be concerned with this issue, since the data in favor of one or the other position is not so clear (see op. cit. for details).

between DPs and clauses is that it seems, at first glance, that PPs do move out of DPs. But we will see that this in fact does not constitute a counter-example to the parallel between DP and CP, as I will propose a derivation which does not involve movement out of DP. For now, I will merely illustrate the restrictions on extraposition in DP and clauses. I will return to an analysis of the data in section 4.

2.1. From subject position

The general pattern is that PP extraposition out of subject position is possible only when the subject is derived (see Rapoport 1984 on relative clause extraposition). This explains the contrast between (36a,c,d) and (36d), where the (a) and (b) examples involve an unaccusative verb, the (c) example a passive, and the (d) example an intransitive verb:

- (36) a A man came with blond hair.
 b A man arrived with blond hair.
 c A man was seen with blond hair.
 d *A man spoke with blond hair.

Our assumption with respect to the internal syntax of DP is that the same restrictions on extraposition out of subject position operate in DP. This prediction is borne out as shows the contrast in (37), where the noun arrivée, but not discours in (37b), is unaccusative:⁴

4 Note that the same restriction applies to relative clause extraposition:

- (i) a L'arrivée d'un homme dans la pièce qui portait une moustache noire.
 the arrival of a man in the room who was wearing a black moustache
 b *Le discours d'un homme cette semaine qui portait une moustache noire.
 the speech of a man this week who was wearing a black moustache

- (37) a L'arrivée d'un homme dans la pièce avec une moustache noire.
the arrival of a man in the room with a black moustache
- b *Le discours d'un homme cette semaine avec une moustache noire.
the speech of a man this week with a black moustache

The fact that extraposition must operate out of object position explains Guéron's (1980) observation that the presence of a direct object is not compatible with extraposition out of subject position:

- (38) a *A man ate an apple with green eyes.
 b *A man entered the room with green eyes.

Again, DPs exhibit a similar behavior. Consider (39), where the underline constituent is the complement:

- (39) a *La lutte d'un homme contre son patron avec une moustache noire.
the struggle of a man against his boss with a black moustache
- b *Le déferlement d'une division sur leur territoire du 67^e bataillon.
the spreading tide of a division on their territory of the 67th Battalion
- c *Le rassemblement d'un groupe d'étudiants dans la pièce avec des pancartes.
the gathering of a group of students in this room with placards

2.2. From object position

PP-extraposition is of course also possible out of object position. It can involve either an argument (40a) or an adjunct (40b):

- (40) a J'ai donné un livre hier à Julie.
I gave a book yesterday to Julie
- b J'ai vu une fille sur le campus avec un pantalon à pattes d'éléphants.
I saw a girl on campus with bell-bottom pants

Once again, similar facts are found in DP; this is illustrated in (41), where a PP has been moved past the underlined adjunct :

- (41) a Les dons de Pierre cette semaine [à la communauté].
 the donations of Pierre this week to the community
- b L'arrestation d'un prisonnier cette semaine [au dossier plutôt chargé].
 the arrest of a prisoner this week with a rather heavy criminal record
- c La construction du stade olympique en 1975 [par Taillibert].
 the construction of Olympic Stadium in 1975 by Taillibert

This, in addition to the data concerning HNPS, strongly suggests that there is a process of rightward movement in DP. In the next section, I further support the claim that non-canonical orders are indeed derived by a process of rightward movement by showing that some facts could not be explained if one does not assume rightward-movement at all in DP.

2.3. Further support for extraposition

First consider (42) where the relative scope of the QP tous les enfants and the definite article la depends on the position of the QP in DP:⁵

- (42) a J'ai vu la photo de tous les enfants prise en 1989.
I saw the picture of all the children taken in 1989
- b J'ai vu la photo prise en 1989 de tous les enfants.

In (42a) (which represents the canonical order), two interpretations are possible: there could either be one picture, taken in 1989, with every child in it, or there could be one picture for every child, and each picture was taken in 1989. But only the first interpretation is possible in (42b) (in which the QP has been rightward-moved). Whatever the reason is for this contrast, the point is that rightward movement of the direct object of photo alters the interpretation of the sentence.

Now consider (43):

- (43) a La photo de Paris d'il y a trois ans.
the picture of Paris from three years ago
- b ?La photo d'il y a trois ans de Paris.
the picture from three years ago of Paris

⁵ English requires plural in those cases (cf. Fiengo & Higginbotham 1981):

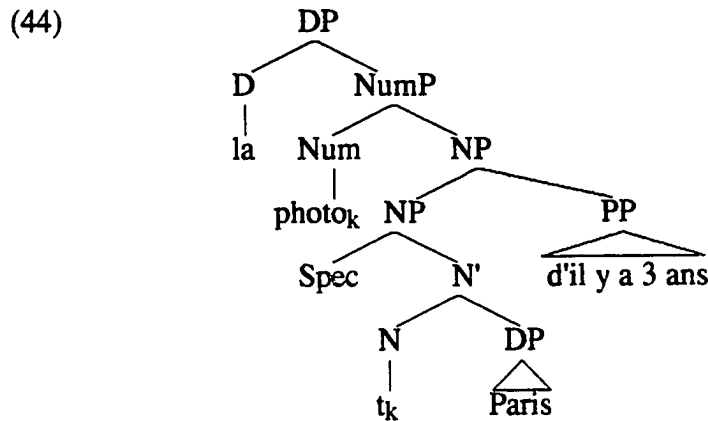
- (i) a I saw the picture of all the children. (only narrow scope of QP)
b I saw the pictures of all the children.

If, as we have assumed, the wide scope reading of the QPs involves movement to (or at least through) SpecDP, then the obligatory narrow scope in (i-a) can be assimilated to the impossibility of extracting out of definite DPs, under the assumption that the English definite article is in SpecDP at S-structure:

- (ii) a *Who did you see the picture of?
b *Who did you see that picture of?

- c La photo d'il y a trois ans de la ville où Pierre a fait son stage.
 the picture from three years ago of the city where Pierre did his training

(43a) represents the canonical word order where the adjunct d'il y a trois ans is adjoined to NP. The structure of (43a) is as in (44)- (omitting irrelevant details):



Consequently, the contrast between (43b) and (43c), where the direct object in (43c) is heavy, shows that the occurrence of the theme argument on the right of the adjunct is an instance of HNPS. But still, this leaves open the possibility that the non-canonical order is simply a consequence of the free-ordering of DP-internal XPs. I will now argue that this is not the case, and that phrases such as (43c) must be derived by rightward-movement. First, consider (45) from de Fourier (1980):

- (45) a *She_i bought a picture of Millie_i.
 b *Which picture of Millie_i did she_i buy?
 c *She_i bought a picture that Millie_i likes.
 d Which picture that Millie_i likes did she_i buy?

(45a) and (45b) are straightforward: In (45a), co-indexation of the pronoun and the R-expression Millie causes a Condition C violation, and (45b) shows that the violation holds after LF-reconstruction. But, interestingly, the contrast between (45c) and (45d)

shows that, when the R-expression is embedded in a relative clause, WH-movement voids the Condition C violation at LF (see Fourier, op.cit. for details).

Now, rightward A'-movement has the same effect. Although the contrast is not as sharp, (46b) is nonetheless more acceptable than (46a) with the intended interpretation:

- (46) a *Jack persuaded her_i to hire the guy that Mary_i likes yesterday.
 b ?Jack persuaded her_i yesterday to hire the guy that Mary_i likes.

Interestingly, a similar contrast is found in DP. Consider (47), where the pronoun lui is interpreted as the agent and Rembrandt as the theme argument:

- (47) a *J'ai vu un portrait de lui_i du célèbre Rembrandt_j.
I saw a portrait of his of the famous Rembrandt
 b *J'ai vu un portrait de lui_i t_j d'il y a a plusieurs années [du célèbre Rembrandt]_j.
I saw a portrait of his which dates from a few years ago of the famous Rembrandt
 c *J'ai vu un portrait de lui_i [de la maison où habitait Rembrandt_j] d'il y a plusieurs années.
I saw a portrait of his of the house where lived Rembrandt which dates from a few years ago
 d ?J'ai vu un portrait de lui_i t_k d'il y a a plusieurs années [de la maison où habitait Rembrandt]_jk.
I saw a portrait of his which dates from a few years ago of the house where lived Rembrandt

Condition C rules out (47a), while (47b) shows that extraposition of the theme argument does not alter the (un)grammaticality of the sentence. (47c) shows that embedding the R-expression Rembrandt in a relative clause preserves the ungrammaticality of the sentence if the theme stays in its canonical position. However,

if the relative clause containing the R-expression Rembrandt is extraposed, the sentence improves slightly ((47d)).

The point of these two sets of examples is that it is not obvious how we could explain the contrast between (47c) and (47d) on the one hand, and (42a) and (42b) on the other hand if the XPs were freely ordered within DP. But if (47d) and (42b) are derived by A'-movement of the direct object to the right, the analogy with (45d) and (46b) is direct.⁶

3. Upward boundedness

It is well-known that rightward movement of XPs is "upward-bound"; that is, an XP can only move so far up away from its point of origin (Akmajian 1975, Selkirk 1977, Guéron 1980, Baltin 1981, 198t, etc.). For instance, Akmajian (1975) argues that subjacency is responsible for the impossibility of extracting a PP out of a partitive NP, while extraction out of a regular NP is fine. This is illustrated in the following sentence:

- (48) a A review of a new book about French cooking came out yesterday.
b A review came out yesterday of a new book about French cooking.
c *A review of a new book came out yesterday [pp about French cooking].

The ungrammaticality of (48c) follows from the fact that the extraposed PP crosses two bounding nodes (NP¹ and NP²), as can be seen in (49):

⁶ I have no explanation as to why WH-movement yields better results than rightward A'-movement (i.e. the contrast between (45d) and (46b)). It is possible that a precedence factor is involved, causing a slight improvement of the sentences involving rightward movement.

- (49) *_{[NP1 A review of [NP2 a new book t_i] came out yesterday [pp about French cooking]_j].}

In (48b), however, the PP only crosses NP¹.

The same constraint operates within DP as well. First, consider (50), where the adjunct la semaine passée is construed with the noun adoption. Here, PP extraposition crosses only one DP, and the sentence is fine:

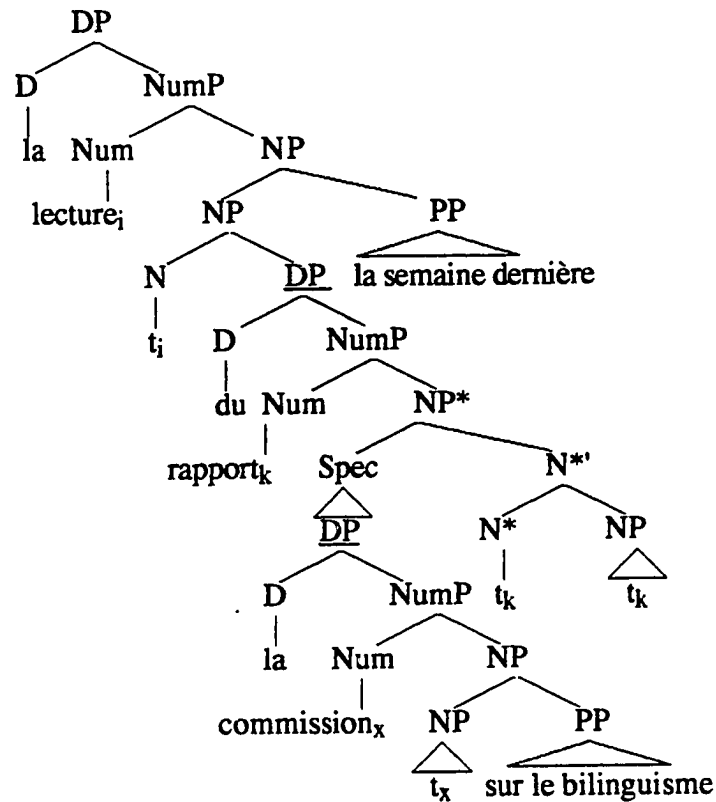
- (50) Nous avons entendu le rapport de _[DP la commission t_i] cette semaine
_{[pp sur le bilinguisme]_j}.
we heard the report of the commission this week on bilingualism

Now, (51) shows that PP extraposition within DP cannot cross two DPs, but that any other instance of rightward movement is fine, as long as only one or no DP is crossed:

- (51) a La lecture _{[DP du rapport de [DP la commission sur le bilinguisme]]} la
semaine passée.
the reading of the commission's report on bilingualism last week
- b *La lecture _{[DP du rapport de [DP la commission t_i]} la semaine passée
_{[pp sur le bilinguisme]_j}.
- c La lecture _[DP du rapport t_i] la semaine passée _{[DP de la commission sur le bilinguisme]_j}.
- d La lecture t_i la semaine passée _{[DP du rapport de la commission sur le bilinguisme]_j}.

The (simplified) structure of the basic phrase in (51a) is as in (52):

(52)



As the examples in (51) show, only the underlined DPs can be moved over the adjunct la semaine dernière (cf. (51c-d)). In (51c) one bounding node is crossed, while in (51d), no bounding node is crossed. In (51b), however, two bounding nodes are crossed (the underlined DPs).

Now PPs cannot be moved out of the clause in which they originate, in spite of the fact that it crosses only one bounding node, i.e. CP:

- (53) a Dennis said [that Ken will talk to Mary] the other day.
 b *Dennis said [that Ken will talk t_i] the other day [pp to Mary]_i

One way to reconcile examples such as (53), where one CP bounding node cannot be crossed, and examples such as (48) (and (51)), where crossing one DP bounding node

is fine, was proposed by Baltin (1981), who claims that Subjacency should be formulated as in (54):

(54) Generalized Subjacency

In the configuration $X \dots [A \dots [B \dots Y \dots]]$ X' ,

- a. X and Y cannot be related where A and B = one of NP, PP, and either or both S and S';
- b. X' and y cannot be related where A and B are both maximal projections.

As formulated, Generalized Subjacency makes rightward movement more restricted than leftward movement (the b. clause), since rightward movement is now restricted to the maximal projection immediately dominating the NP from which an XP is extracted; more precisely, it makes VP a bounding node for rightward-movement. According to the formulation in (54), the PP in (53) crosses two bounding nodes, VP and CP, in violation of Generalized Subjacency.

Pointing to the problem of the asymmetry between leftward movement and rightward movement, Culicover & Rochement (1990) propose a different approach. They claim that PP-extraposition is not derived by movement, but that it is rather subject to an interpretive principle such as the one formulated in (55) (cf. also Guéron 1980, and Guéron & May 1984):

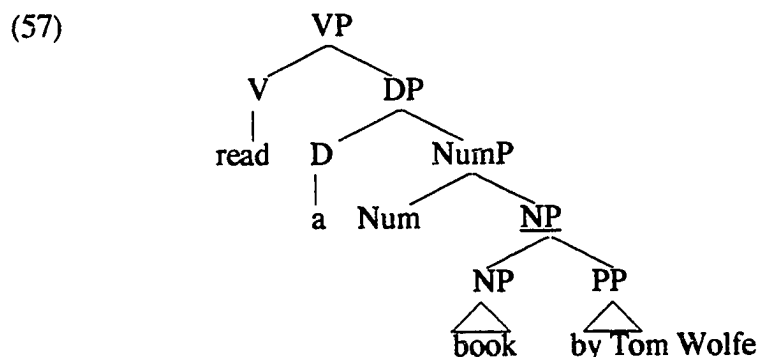
- (55) Complement Principle: β is a *potential complement* of α ($\alpha, \beta = X^{\max}$), only if α and β are in a government relation.

Basically, the Complement Principle ensures that a PP cannot appear higher than the projection containing its "antecedent". For instance a PP extraposed out of object

position will not be able to go beyond VP, since if it did, the PP and its point of origin would not c-command each other.⁷

However, given the structure I proposed in chapter 2, this definition cannot account for the fact that PPs are extraposable out of DPs. The structure of the DP in (56) prior to extraposition is as in (57):

(56) I read a book last week by Tom Wolfe.



According to the Complement Principle, the PP should not move beyond the (underlined) NP shell. Also, according to Generalized Subjacency, the underlined NP cannot be a bounding node for rightward movement, since it can move beyond it in (56). But this weakens the parallel between VP and NP established in chapter 2. In any event, the problem for us to address is still this: if DPs are like CPs, why is it that PPs cannot get out of CPs while they can move out of DPs?

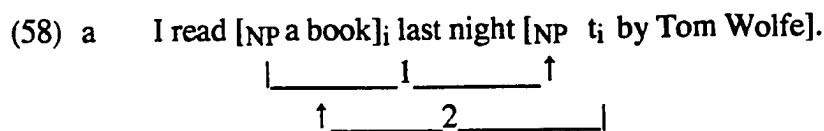
The first step towards a solution is then to say that, although PPs can move rightward, they cannot move beyond either CP or DP, and that PP-extraposition out of

⁷ They claim that PP-extraposition is VP-adjunction.

DP is actually not movement out of DP. This is what I propose and develop in the next section.

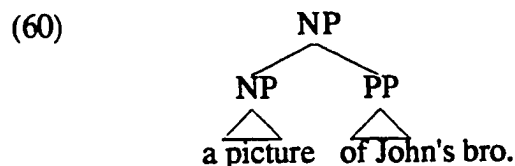
4. PP-"extraposition" out of DP

A logical solution to the asymmetry between DP and CP is to assume that there is actually no PP extraposition involved in examples such as (56). In fact, Stowell (1978) had proposed that PP extraposition out of Noun Phrases is actually the result of a two-step process: Heavy-NP Shift of the direct object followed by movement of the Noun Phrase back to its original position, leaving the PP behind. For instance, in (56), the entire Noun Phrase a book by Tom Wolfe moves to the right of the verbal adjunct, followed by movement of the NP a book back to its original position, leaving the PP behind :



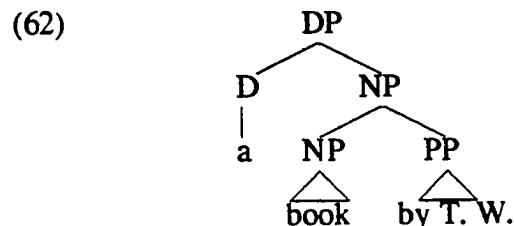
In the case of complements (cf. (59)), the entire NP undergoes reanalysis by which the PP ends up in adjoined position, as in (60), and the same two-step process mentioned above applies:

(59) I saw a picture last night of John's brother.

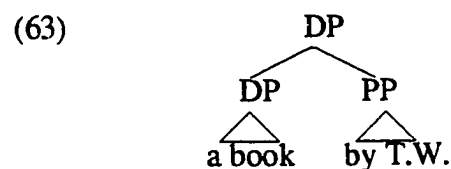


Since in our system there is a position available for Noun Phrase to move to, namely SpecVP, there is a natural way to implement Stowell's idea in the present framework. Let us first look at adjuncts inside DP. In essence, the structure of (61) is as in (62):

(61) A book by Tom Wolfe.



Suppose we interpret upward boundedness as follows: XPs can be adjoined anywhere in DP (or CP), as long as they do not move out of it.⁸ Then, from (62) we get (63):



Given that it contains both a DP and a PP, the larger DP in (63) is intrinsically heavy and may therefore undergo Heavy NP-Shift, as shown in (64)^{9, 10}:

⁸ One possible explanation for the fact that XPs cannot move beyond DP or CP could be that the specifiers of both DP and CP only allow WH-operators to move through them (this could mean that V2 effects are IP-internal- cf. Diesing 1990). Since rightward-moved XPs are not WH-operators, they cannot go through SpecDP. Consequently, they cannot move out of DP or CP since they would then be crossing both an X' and an XP projection (cf. chapter 1).

⁹ I will assume VP-adjunction.

¹⁰ To avoid the prohibition against adjunction to arguments (here DP), we must say that rightward movement within DP takes place after HNPS, i.e. when the DP is not in an argument position. At first glance, this seems to move the right result regarding the word order in DP. If we assume that reanalysis could take place at any point, we predict that the order of XPs in DP should be relatively

- (64) I read last night [DP [DP a book] [PP about Tom Wolfe]]

The surface structure in (58) is now easily derivable: assuming that Heavy NP-Shift occurs before case-assignment (see below for a discussion), the SpecVP position is available for the (lower) DP a picture to move into it (to get case and possibly transmit it to the DP shell left behind);¹¹ the derivation is shown in (65):

free. In other words, a phrase such as (i) should be perfectly acceptable, where the DP du stade has moved to the right:

- (i) *Le maire a fait une erreur en approuvant [DP la construction t_i par Taillibert [DP du stade]_j].

But, as shown earlier, this is not possible. Note that the DP in (i) is in argument position. Therefore, adjunction to DP, is not allowed (possibly because the DP is still in its θ -position). However, this is not enough. In fact, rightward movement is even more constrained than this; the generalization is that it is possible in cases where an DP further moves back to the case position. This is because otherwise, we predict that a shifted DP may in fact exhibit the word order in (ii) if no DP moves to the case position (compare with (iii):

- (ii) *Le maire a fait une erreur en approuvant en 1974 [DP la construction par Taillibert du stade].
the mayor made a mistake in approving in 1974 the construction by Taillibert of the stadium
- (iii) Le maire a fait une erreur en approuvant [DP la construction]_i en 1974 [DP t_i par Taillibert du stade].

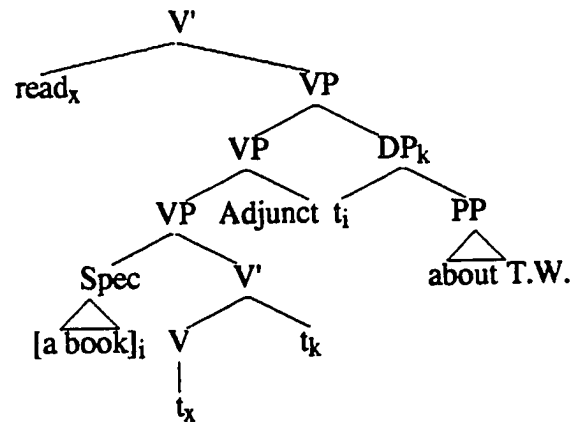
The requirement that the DP la construction must move to SpecVP in (iii) can be explained if case must obligatorily be discharged in the specifier of VP, which forces the direct object to move there (which goes against Sportiche's 1990 assumption that structural accusative case to a direct object is transmitted by an expletive pro in SpecVP).

That reanalysis may not take place in a θ -position is a necessary condition to bar cases of "extraposition" out of subject position. Otherwise, given that the subject is generated in VP, we could not rule out (iv), where the PP has adjoined to DP, and the DP has moved to subject position:

- (iv) [A man]_i spoke [VP [DP t_i [PP with green eyes]]]

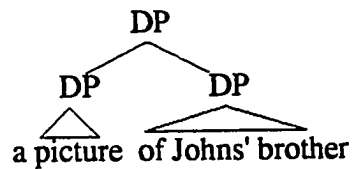
¹¹ As mentioned in the previous note, this departs from Sportiche (1990) who claims that direct objects receive accusative case not by moving to SpecVP, but through transmission from an expletive pro in SpecVP (see also chapter 3).

(65)



As for complements to N, we must assume the same process of reanalysis proposed by Stowell to be possible, as illustrated in (66a). Then the same two-step process applies to derive (66b):

(66) a



b I saw a picture last week of John's brother.

We will now see that similar facts are found in DPs. That is, complements or adjuncts to nouns can be found outside of their DP of origin. I will argue that the same two-step process of Heavy NP-Shift followed by DP-movement to specifier is at play in DPs.

I will illustrate with the event nominal arrestation in (67):

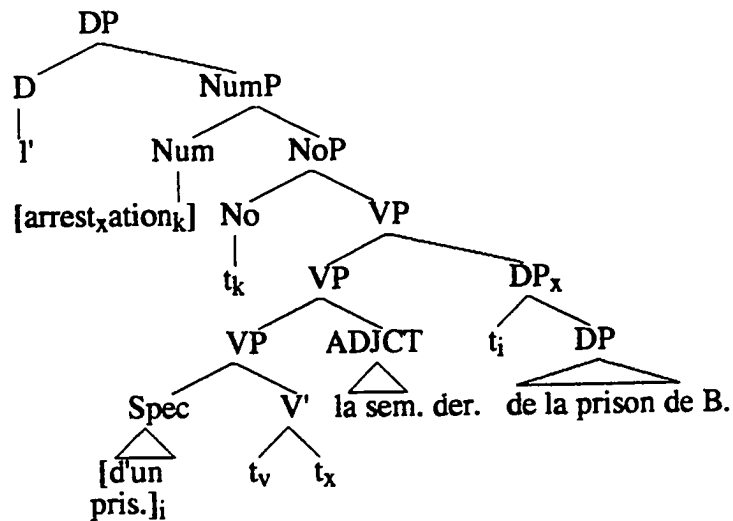
- (67) a L'arrestation [DP d'un prisonnier t_k] la semaine dernière [de la prison de Bordeaux]_k
the arrest of a convict last week from the Bordeaux Jail
- b L'arrestation [DP d'un prisonnier t_k] la semaine dernière [aux cheveux roux]_k
the arrest of a convict last week with red hair

The complement de la prison de Bordeaux in (67a), and the adjunct aux cheveux roux in (67b) both appear to have moved out of the DP containing them, since they occur after the temporal adverb la semaine dernière. Again, this is undesirable given that I argued that rightward-movement is DP- (and CP-) bound. But the proposal presented above offers a solution: first, the whole DP moves to the right of the adjunct, yielding (68):

- (68) L'arrestation t_i la semaine dernière [DP d'un prisonnier de la prison de Bordeaux]

Then, the adjunct de la prison de Bordeaux adjoins to DP (DP_x in (69)), and the DP d'un prisonnier moves to the SpecVP position. The resulting structure is shown in (69):

(69)



The question now is whether the trace left behind by movement to the SpecVP position is properly antecedent-governed. In other words, we must ensure that there is a command relation between the specifier position and the adjoined DP. As a matter of fact, Lasnik (1991) provides some data which strongly suggests that the specifier of VP is in an m-command relation with a VP-adjunct. Consider (70):

- (70) a *The D.A. proved that none_i of the defendants were guilty during his_i trial.
b The D.A. proved none_i of the defendants to be guilty during his_i trial.
c *The D.A. proved that the defendants_i were guilty during each other_i's trial.
d ?The D.A. proved the defendants to be guilty during each other_i's trial.

The contrasts in (70) show that binding inside a VP-adjunct is only possible if the binder is the subject of an ECM complement.

Sportiche (1990) argues that subjects of ECM complements receive case by moving to the specifier of the ECM verb, as illustrated in (71):

(71) We [vp believe_k [vp John [v' t_k [IP t_i to be crazy]]]]

He observes that this process accounts straightforwardly for an interesting observation of Huang (1991) in connection with the pre-posing of small clauses and VPs. Huang notes that, as opposed to regular cases of WH-movement (cf. Barss 1986), and on a par with VP-preposing, WH-movement of the predicate of a small clause does not increase the binding possibilities of a reflexive contained in it:

- (72) a Which picture of himself_{i,k} did Bill_i say that John_k likes?
 b Criticize himself*_{i,k} Bill_i said that John_k did.
 c How proud of himself*_{i,k} did Bill_i say that John_k is?

Huang takes examples such as (72) to support the Internal Subject Hypothesis, since in both (72b) and (72c) the subject has raised to SpecIP out of the lower clause VP and AP respectively, leaving a trace behind. This trace moves along with the WH-moved or pre-posed constituent, and acts as a subject for binding purposes, causing the reflexive to be bound within the bracketed VP or AP:

- (73) a [vp t_k criticize himself_k] Bill said that John_k did.
 b How [AP t_k proud of himself_k] did Bill say that John_k is?

Now Sportiche observes that the same binding requirements obtain with ECM verbs:

- (74) How proud of herself*_{i,k} did Mary_i say that Bill considers Jane_k ?

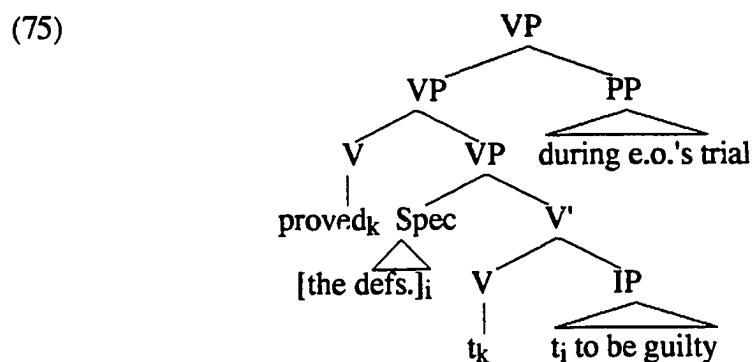
In (74), the reflexive in the WH-moved AP cannot be bound by Mary, in spite of the fact that WH-words can reconstruct into any of their traces, and as a result create various binding possibilities (Barss 1986), as illustrated in (75) :

(75) Which picture of himself did t''_i ; John say that Paul likes t'_i ?

Here, the reflexive may be bound either by Paul or by John. In the first case, the WH-reconstructs into t' , in the second case into t'' .

Obviously, reconstruction of the WH-phrase into the lower CP in (74) does not allow the reflexive to be bound by Mary. But this can be explained if the ECM subject Mary has moved out of the small clause, leaving a trace, and the entire small clause has been WH-moved. Consequently, independently of reconstruction, the reflexive will always be bound by the trace of the subject that has moved out of the ECM complement.

Returning to (70), the structure of e.g. (70d) is then as in (76), where the direct object has raised out of IP and up to the SpecVP case position:



As a consequence, both the antecedent and the reciprocal are contained within the same higher VP shell. If we define the requirement for A-binding in terms of m-command (cf. Aoun & Sportiche 1983), both (70b) and (70d) are accounted for.¹² Similarly,

¹² Recall that we had to reach the same conclusion in Chapter 2 to account for the possibility of binding within an adjunct by-phrase by the theme DP, where the by-phrase is adjoined to the NP containing the direct object (compare ((i a-b)):

(i) a Le portrait d'Aristote_i par lui-même_i.

SpecVP m-commands a VP-adjoined shifted NP. In contrast, no movement to SpecVP takes place in the (70a) and (70c), since the clausal subjects receive case not from the ECM verb, but from INFL.

Note that the fact that the trace inside the shifted DP must be governed by its antecedent in SpecVP makes the prediction that PP-extraposition out of a direct object must involve adjunction to VP (see Culicover & Rochemont and references there), as is generally assumed, indirectly deriving upward-boundedness. This is because the VP-adjoined position is the highest position in the c-command domain of SpecVP.

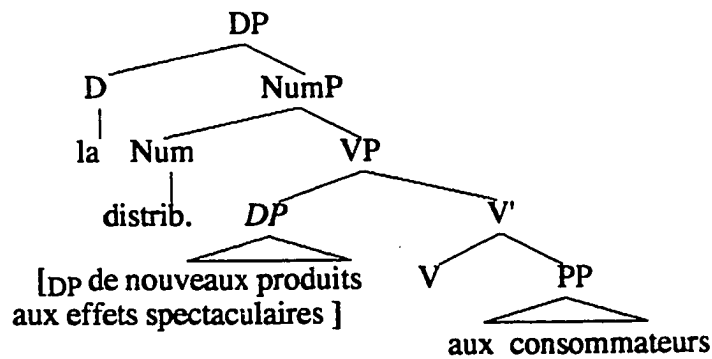
Our analysis also makes a number of predictions. First of all, we predict that, if SpecVP is filled, no complement or adjunct should appear outside of DP. This prediction is borne out. Consider the following, where the adjunct aux effets spectaculaires is an adjunct:

- (77) a La distribution de nouveaux produits cette semaine aux effets
 spectaculaires.
 the distribution of new products this week that have spectacular effects
- b *La distribution de nouveaux produits aux consommateurs cette semaine
 aux effets spectaculaires.
 *the distribution of new products to the consumers this week that have
 spectacular effects*

Adopting Larson's (1988) analysis, the structure of (77b) is as in (78) (omitting the NoP projection):

b *Le portrait de lui-même (=agent) d'Aristote.

(78)



The only way for the adjunct aux effets spectaculaires to appear outside of the italicized DP is for this DP to undergo Heavy-NP shift, followed by movement of the DP de nouveaux produits to SpecVP. However, since SpecVP in (78) is a θ -position, movement to it is not allowed (Chomsky 1981), and (77b) is not derivable.

We also derive the fact that that PP-extraposition can only occur out of object position, since HNPS, the first step of the process, is usually from object position.¹³ As shown in section 2, this is borne out:

- (79) a L'arrivée d'un homme dans la pièce avec une moustache noire.
the arrival of a man in the room with a black moustache
- b *Le discours d'un homme cette semaine avec une moustache noire.
the speech of a man this week with a black moustache

There are two questions that come to mind at this stage. First, we now have the opposite problem than the one we have been trying to solve, since the question now is: Why can't a PP appear outside of CP as a result of the same two step process developed for PP-extraposition out of DP. In other words, why can't a PP adjoin to a shifted CP, with the CP moving to SpecVP, leaving the PP behind? Recall that, in

¹³ Except for very stylistically marked cases of subject HNPS in French (cf. Deprez 1988).

order to account for the fact that nouns do not allow clausal complements, I argued in chapter 3 that CPs cannot move to SpecVP to receive case. If this is correct, then a PP could not be left behind as a result of movement of the CP to SpecVP.

The second problem is that the derivation involves movement of a sub-constituent from an adjoined position to a case position, i.e. what seems to be movement from an A'- to an A-position. This movement should constitute either a case of improper movement (if both segments constitute the same DP), or a CED violation (if the two segments are independent). In order to be tenable, the logic of our analysis leads to this conclusion: the HNPS position is not an A'-position, at least not in the usual sense. In fact, there are a number of reasons to believe that the HNPS position has properties typical of A-positions. I turn to this in the next section.

4.1. The (non A'-) status of the HNPS position

It can be argued that, although it is generally assumed that the HNPS position is an A'-position, it sometimes has properties typical of A-positions. Basically, the A'-status of a shifted XP usually derives from the fact that it is neither a θ - nor a case position. But given recent work on the typology of positions (cf. Mahajan 1990, Webelhuth 1990, among others), it is no longer clear that these qualifications clearly distinguish between types of positions, i.e. it is possible that the typology of positions involves more than a binary distinction between A and A'- (cf. Mahajan 1990, Webelhuth 1990, and Kural 1991 on "mixed" positions). It is beyond the scope of this work to embark on a detailed analysis of the typology of positions, but I will nevertheless discuss some facts which support the need for a more refined distinction between positions.

There are at least two types of syntactic behavior that distinguish A- from A'-positions: (i) extraction of a sub-constituent from an A'-position usually yields degraded results (but see Torrego 1986); and (ii) quantifiers and WH-phrases do not reconstruct from A-positions; (I will return to Parasitic Gap licensing momentarily).

Let us look at extraction first. Basically, extractions out of adjunct constitutes Constraints on Extraction Domains (CED) violations (cf. Huang 1982). Familiar French examples are given in (80):

- (80) a Il est arrivé beaucoup de gens hier.
there arrived many people yesterday
- b Il en est arrivé beaucoup hier.
there of-them arrived many yesterday
- c Il a dansé beaucoup de gens hier à ce party.
there danced many people yesterday at this party
- d *Il en a dansé beaucoup hier à ce party.
there of-them have danced many yesterday at this party

In (80b), since the verb arriver is unaccusative, cliticization takes place from argument position. However, danser in (80c-d) is an intransitive verb. Consequently, the subject in (80c) has been extraposed, and extraction out of that position is not possible, as shown in (80d).

In contrast, extraction out the HNPS is possible, as shown in (81b):

- (81) a J'ai vu la saisissante photo de cette personne cette semaine.
I saw the breath-taking picture of that person this week
- b La personne dont_i j'ai vu t_k cette semaine [DP la saisissante photo t_i]_k.
the person of-whom I saw this week the breath-taking picture

The same applies in English, where extraction out of the HNPS position is not as bad as one would expect:

- (82) (?)Who did you see last night a very nice picture of?

(81) contrasts sharply with extraction out of right-dislocated position (cf. (83)), where the dislocated DP is clearly not in argument position:

- (83) a Je l'ai vu cette semaine la saisissante photo de cette personne.
I it-saw this week the breath-taking picture of that person
- b *La personne dont_i je l'ai vu t_k cette semaine [DP la saisissante photo t_i] _k.
the person of-whom I it-saw this week the breath-taking picture

Moreover, in French extraction out of the HNPS position is even possible out of a WH-island:

- (84) Le photographe dont on se demande où exposer cette semaine les saisissantes photos.
the photographer of-whom we wonder where to exhibit this week the breath taking pictures

If the DP headed by photos in (84) was an adjunct in the usual sense, the sentence should clearly violate the ECP.

The second set of data involves the relative scope of a definite determiner and a QP in a Noun Phrase. In chapter 2, I observed that QPs can have either wide or narrow scope with respect to the definite determiner:

- (85) J'ai vu la photo de tous les enfants.
I saw the picture of all the children

In (85), one interpretation is that there is only one picture with all the children in it, while another interpretation is that there is one picture for every child. The wide scope reading of the QP was argued to be the result of LF-movement of the QP to SpecDP. Evidence for this was that the wide scope reading obtains in exactly the same contexts in which extraction out of DP is possible. In other words, the presence of a "higher" argument in DP blocks the wide scope reading, just as it blocks extraction:

- (86) a J'ai vu la photo de tous les photographes de Paris.
I saw the picture of every photographer of Paris
AGENT THEME (wide scope fine)
- b J'ai vu la photo de ce photographe célèbre de tous les enfants. | wide
I saw the picture of this famous photographer of every child | scope
AGENT THEME
- b' J'ai vu sa photo de tous les enfants. | not
I saw his picture of every child | OK
AGENT THEME

Now compare (87a) with (87b):

- (87) a J'ai vu la photo de tous les enfants cette semaine.
I saw the picture of every child this week
- b J'ai vu la photo cette semaine de tous les enfants.

In (87b), only the narrow scope reading of the QP tous les enfants is possible. That is, the only interpretation is that there is one picture on which all the children appear. This is in fact what is predicted if the shifted position is like an A-position given that reconstruction never takes place from A-positions (but see Belletti & Rizzi 1988): in (87b), the QP tous les enfants cannot reconstruct from the adjoined position into the SpecDP of photo.

Note that the change in scope cannot be attributed to the sole fact that the QP has been shifted. For instance, if reconstruction is not necessary, scope ambiguities persist even if the QP is still in a shifted position. Consider (88):

- (88) a Je n'ai pas rencontré tous les étudiants cette semaine.
I did not meet every student this week
- b Je n'ai pas rencontré cette semaine tous les étudiants.

In both (88a) and (88b), the QP can have either wide or narrow scope over the negation. But this is fine, in spite of the fact that the QP has been shifted in (88b), since no reconstruct into SpecDP is involved.

The conclusion is then that the HNPS position is not an A'-position.

There is an immediate problem, though, with the assumption that the shifted position is not an A'-position, since it is well-known that shifted positions licence parasitic gaps, a property usually attributed to A'-positions. However, the situation is not as problematic as it might seem at first sight.¹⁴ I would like to propose that the problem can be solved if the typology of positions is refined to include an additional type of position beyond the usual A- A'-types. The problem is this: on the one hand we must explain why the shifted position licenses parasitic gaps, while at the same time allowing extraction out of it, and on the other hand, we must distinguish between the shifted position and other typical A'-positions such as SpecCP.

To begin with, the generalization concerning the position in which both a WH-phrase and a shifted NP end up is that neither is a case position or a θ -position. Since both positions license parasitic gaps, the conclusion then seems to be that parasitic gaps are licensed by [-case, - θ] positions. But there is nonetheless another difference between the two positions: assuming, as above, VP-adjunction and m-command, a shifted DP, but not a WH-phrase in SpecCP, is clearly governed by its θ -assigner. Suppose that these are the two crucial factors which set the two positions apart. Then,

¹⁴ I will leave aside other possible solutions, such as that proposed by Larson 1990, which do not rely on movement.

the shifted position has dual status: it is like SpecCP since it is neither in a case nor a θ -position, but it is also like an argument since it is canonically governed by its θ -assigner. We might then formalize extraction and parasitic gap licensing in the following way:

[- θ , -case] positions license parasitic gaps;

θ -positions and case-positions allow extraction out of them.

That government by the θ -assigner should be defined in terms of m-command can be shown below. The idea is to rule in extraction from an extraposed position as in (81b), but to rule out extraction from a position which is too far up the tree. Consider (89):

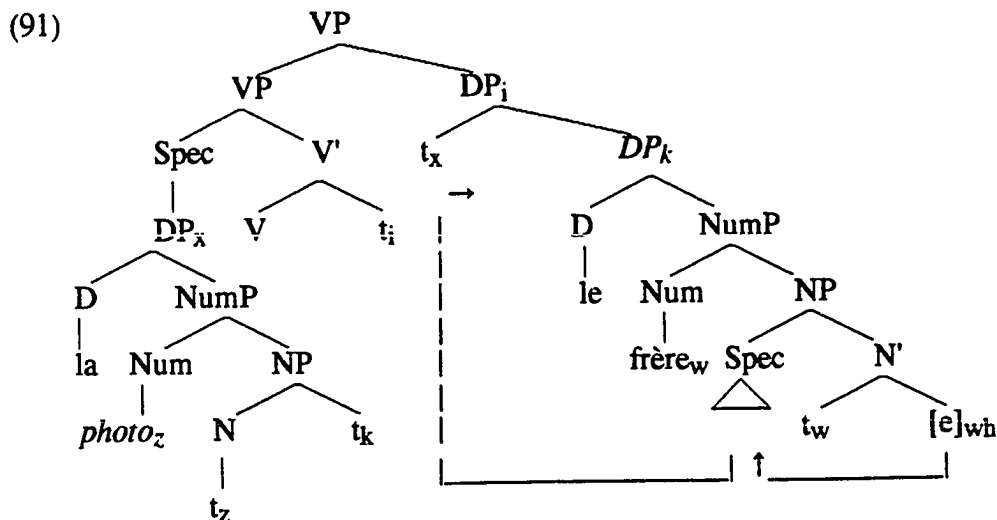
- (89) *La personne dont_i j'ai vu la photo cette semaine [du frère t_i]
the person of-whom I saw this week the portrait of the sister

In chapter 3, I argued that extraction out of the bracketed DP in (90) is ruled out as a case of improper movement:

- (90) La personne dont j'ai vu [DP la [NP t³ photo [DP t² du frère t¹]]] cette semaine.
↑ _____|

The problem here is movement from t² to t³, i.e. from an A'- (SpecDP) to an A-position (SpecNP).

Having said this, since the DP containing frère in (89) is outside of the matrix DP headed by photo, the WH-word eludes the illegal step illustrated in (90). Consider the structure corresponding to (89):



First, the entire complement of the verb la photo du frère de la soeur moves to the VP-adjoined HNPS position. Then, reanalysis takes place, adjoining the complement of photo (DP_k) to the DP containing it (DP_i). Then, from the complement position of frère, the WH-word moves to SpecNP (of frère), on to Spec DP_k (through adjunction to NumP), and out to SpecCP. At first sight, none of these movements is illicit (A-to-A'-to-A'). But a closer look at (91) provides an answer to the ungrammaticality of (89): after movement of the matrix DP_x to SpecVP, the (italicized) θ -marking head photo is too far down to govern DP_k . As a result, the position of the shifted DP cannot qualify as a θ -position, and extraction out of it is ruled out.

Returning now to the contrast between (81) and the right-dislocation case in (83b), clearly the position of the right-dislocated DP in (83b) does not qualify as a genuine θ -position. Here, the dislocated DP does not receive a thematic role at all, since the clitic pronoun itself is the argument. Consequently, WH-movement in (83b) has operated out of an A'-position.

In closing, it should not be surprising that the HNPS position does not act as "real" (adjunct) A'-positions. Clauses, for instance, which must be extraposed to the right (e.g. as a consequence of Stowell 1981's Case Resistance Principle), nonetheless allow extraction out of them:

- (92) a You said t_i to Jim [_{CP} that Mary sold her old books]_i
 b What_k did you say t_i to Jim [_{CP} that Mary had sold t_k]_i ?

To summarize, I argued that positions should be classified along the following two axes: (i) case and θ -positions versus non case and non- θ positions positions. Case and θ -positions allow extraction out of them, while non- θ -positions license parasitic gaps. The shifted position is [-case, + θ], while SpecCP is [-case, - θ].

5. Extrapolation of larger constituents

I will now look at extrapolation of what at first sight appears to be more than one constituent at the same time. We will see that those cases actually involve extrapolation of only one constituent dominated by a larger XP, out of which the head X has been moved.

Let us look at event nominals first. Various cases of extrapolation are illustrated below:

From inside DP

Tryadic event nominals; extraction over a by-phrase agent:

- (93) a La distribution [de nouveaux produits aux consommateurs] par les publicistes.
the distribution of new products to the consumers by the admen
- b La distribution par les publicistes [de nouveaux produits aux consommateurs].
- (94) a La remise [des trophées aux plus méritants] par le principal.
the giving away of the trophies to the most deserving by the principal
- b La remise par le principal [des trophées aux plus méritants].

Tryadic event nominals with adjunct:

- (95) a La distribution [de nouveaux produits aux consommateurs] par les publicistes durant le mois de juin.
the distribution of new products to the consumers by the admen in the month of June
- b La distribution par les publicistes durant le mois de juin [de nouveaux produits aux consommateurs].
- c La distribution par les publicistes [de nouveaux produits aux consommateurs] durant le mois de juin.

Dyadic event nominals; extraction over an adjunct:

- (96) a L'invasion [de la Chine par les Japonais] en un mois.
the invasion of China by the Japanese in one month
- b L'invasion en un mois [de la Chine par les Japonais].

Interestingly the word order in the above bracketed strings cannot be inverted, as shown below:

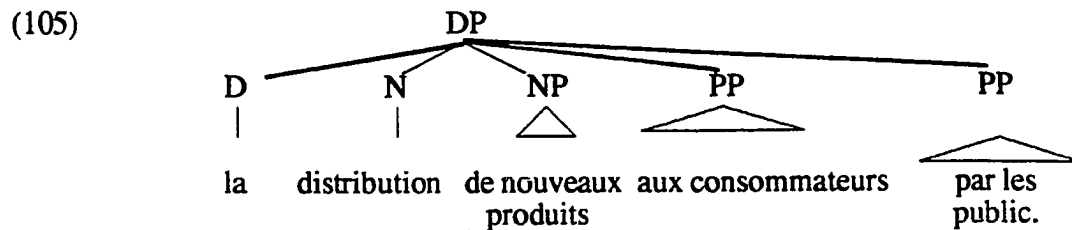
- (97) a *La distribution [aux consommateurs de nouveaux produits] par les publicistes.
the distribution to the consumers of new products by the admen
- b *La distribution par les publicistes [aux consommateurs de nouveaux produits].

- (98) a *La remise [aux plus méritants des trophées] par le principal.
the giving away to the most deserving of the trophies by the principal
- b *La remise par le principal [aux plus méritants des trophées].
- (99) a *La distribution [aux consommateurs de nouveaux produits] par les publicistes durant le mois de juin.
the distribution to the consumers of new products by the admen in the month of June
- b *La distribution par les publicistes durant le mois de juin [aux consommateurs de nouveaux produits].
- c *La distribution par les publicistes [aux consommateurs de nouveaux produits] durant le mois de juin.
- (100) a ??L'invasion [par les Japonais de la Chine] en un mois.
the invasion by the Japanese of China in one month
- b *L'invasion en un mois [par les Japonais de la Chine].

As expected, if the second element in the bracketed string is heavy, it may appear after all other DP-internal material:

- (101) La distribution par les publicistes aux consommateurs de nouveaux produits qui révolutionneront le marché.
the distribution by the admen to the consumers of new products that will revolutionize the market
- (102) La remise par le principal aux plus méritants des trophées qui soulignent leur excellente performance.
the giving away by the principal to the most deserving of trophies that underline their excellent performance
- (103) La distribution aux consommateurs par les publicistes durant le mois de juin de nouveaux produits qui révolutionneront le marché.
the distribution o the consumers by the admen in the month of June t of new products that will revolutionize the market
- (104) L'invasion en un mois par les Japonais de tout l'empire de la Chine.
the invasion in one month by the Japanese of the entire Chinese Empire

This again strongly suggests that the order of XPs inside DP is not completely free, i.e. that double-extraposition is not allowed, and that the bracketed constituents in (93)-(96) form some kind of larger constituent (see discussion below). Indeed, it is not clear how a flat structure for, say, (93) (cf. (105) below) could disallow (97):



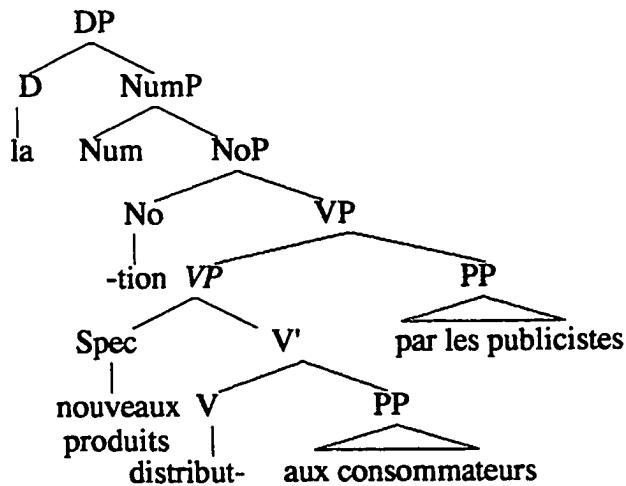
If the distribution of XPs were free, there would be no way to exclude (97)-(100), since nothing should prevent rightward movement of any of the constituents in (105).

However, the contrast between (93)-(96) and (97)-(100) can be readily explained if (93)-(96) simply follow from rightward movement of the entire bracketed string (I will return to (101)-(104) momentarily). I will illustrate with (93):

- (93) a La distribution [de nouveaux produits aux consommateurs] par les publicistes.
 the distribution of new products to the consumers by the admen
- b La distribution par les publicistes [de nouveaux produits aux consommateurs].
 the distribution by the admen of new products to the consumers

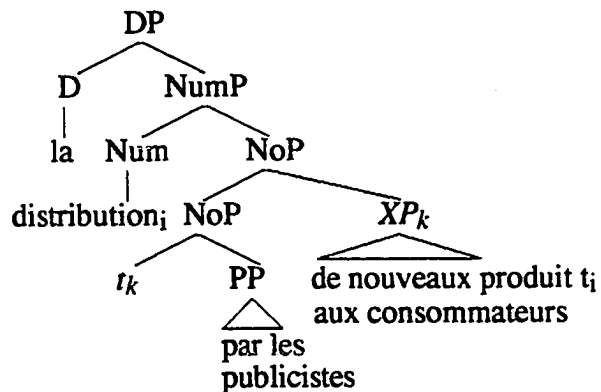
To illustrate, let us first look at the (D-) structure for (93a):

(106)



It is now easy to see that the phrase in (93b) can be derived by rightward movement of either the NoP or the VP projection (I will refer to it as XP for now), after raising of the verb to the affix, and of the V+affix complex to the head of NumP (I will assume adjunction to NoP, although nothing hinges on this):

(107)



That the direct object and the indirect object form a constituent is further supported by coordination facts:

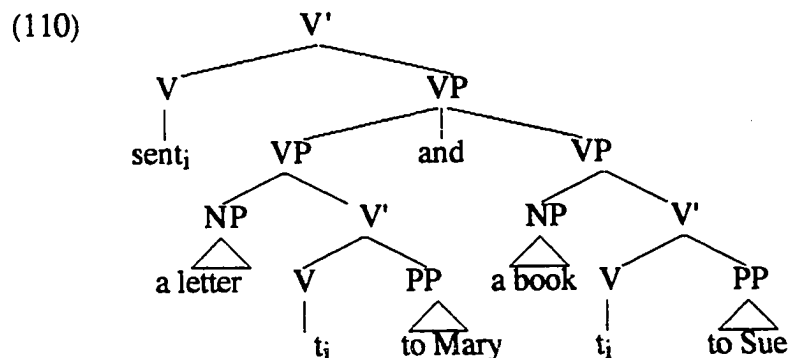
- (108) La distribution [de nouveaux produits aux consommateurs] et [de nouveaux dépliant aux marchands] par les publicistes.
the distribution of new products to the consumers and of new flyers to the merchants by the admen

Interestingly, examples such as (93b) show not only that the direct and indirect objects form a constituent, but also that, since it can move rightward, it must form a maximal projection.

Note that Larson (1988) provides a similar argument for the constituency of the direct object and indirect object in clauses. Consider his example in (109):

- (109) John sent a letter to Mary and a book to Sue.

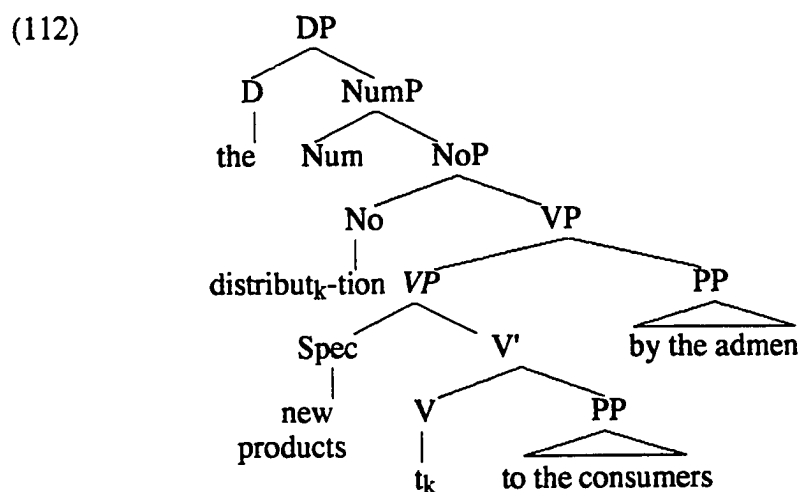
The VP-structure he proposes is (110), where the verb has undergone across-the-board raising:



The same type of data is also found in English, i.e. extraposition of a larger constituent is also possible, and the relative word order of the direct and indirect objects is fixed:

- (111) a We approved the distribution by the admen of those products to the consumers.
 b *We approved the distribution by the admen to the consumers of those products.

Since the noun does not move up to Num⁰ in English, (111) suggests that it is actually the VP shell which is rightward-moved (I will nonetheless keep referring to XP and Heavy XP Shift).¹⁵ But more importantly, (111a) supports the claim made in chapter 3 that movement to the head of NoP is obligatory, even in English. The structure of (111) is shown in (112), with the extraposable constituent in *italics*:

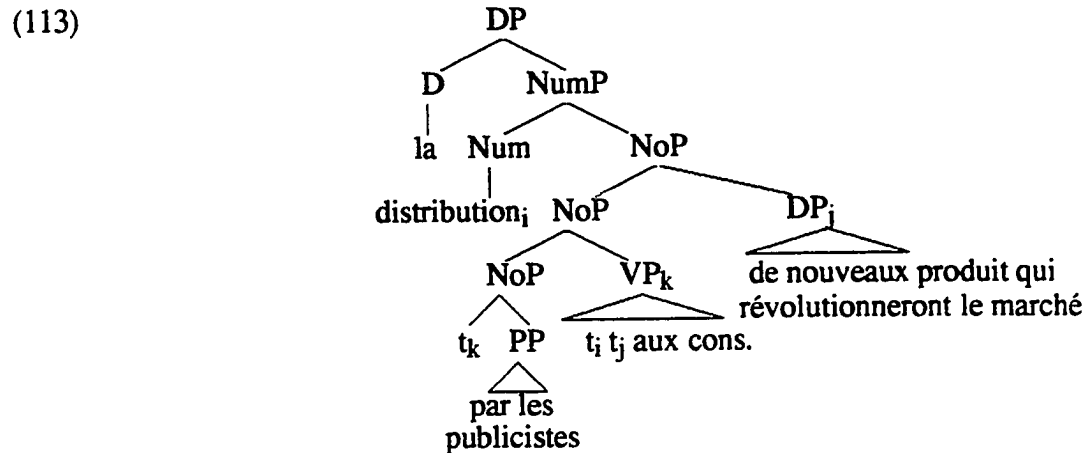


Returning to our examples, the ungrammaticality of the phrases in (97)-(100) is easily explained: since the canonical order of the XP shell in (107) (or the VP shell in (112)) is direct object-indirect object, the reverse order is not derivable. However, the reverse order is possible if the direct object within the XP shell undergoes Heavy-XP

¹⁵ That VPs can rightward moved is shown in (i):

(i) I [VP gave_k t_i] yesterday [VP all my books t_k to Jan]_i.

Shift. For instance, (101) is derived by Heavy-XP Shift, as in (107), followed by HNPS of the direct object de nouveaux produits qui révolutionneront le marché. The resulting structure is as (113):



Note that at this point PP-extraposition of aux consommateurs can also apply. If the PP moves out of VP over DP_j, the result will be the sentence in (114):

- (114) La distribution par les publicistes de nouveaux produits qui révolutionneront le marché aux consommateurs.
the distribution by the admen of new products which will revolutionize the market to the consumers

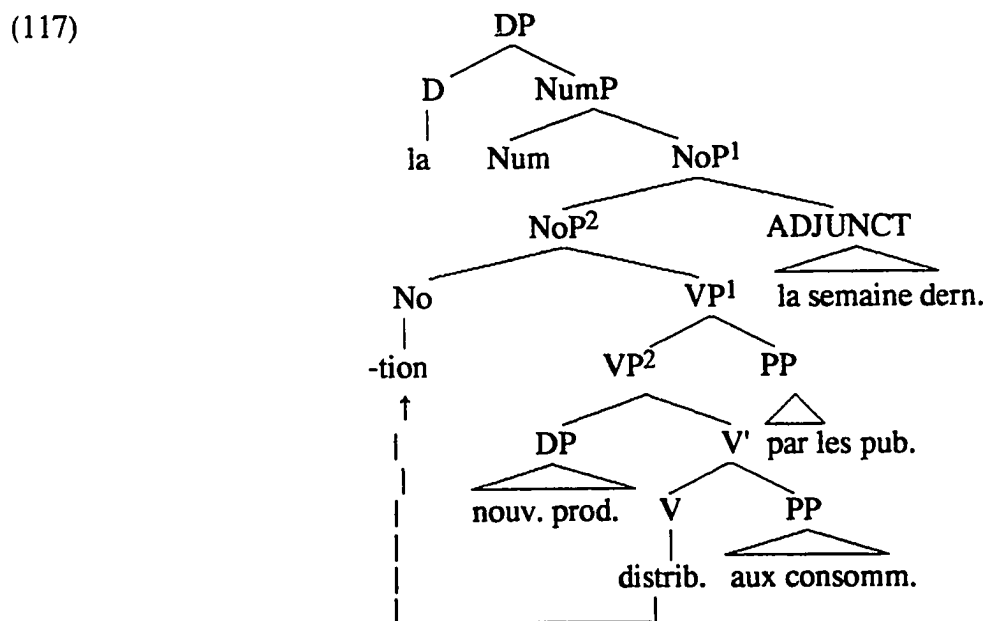
The PP can of course be extraposed from the basic structure in (95) as well- repeated below- and yield (115):

- (95) La distribution [de nouveaux produits aux consommateurs] par les publicistes durant le mois de juin.
the distribution of new products to the consumers by the admen in June
- (115) La distribution de nouveaux produits t_i par les publicistes [aux consommateurs] $_j$.
the distribution of new products by the admen to the consumers

Finally, if, in addition, a temporal adjunct is present inside DP, as in (116), the possibilities are even greater:

- (116) La distribution de nouveaux produits aux consommateurs par les publicistes la semaine dernière.
the distribution of new products to the consumers by the admen last week

The structure of (116) is as in (117):



It can be seen below that adjunction of any XP is possible either to the NoP containing the agent phrase (NoP²) or the larger NoP containing the temporal adjunct (NoP¹):

Adjunction of (heavy) DP to NoP¹:

- (118) La distribution t_i aux consommateurs par les publicistes la semaine dernière
[DP de tous ces nouveaux produits qui révolutionneront le marché];
*the distribution to the consumers by the admen last week of all those new
products that will revolutionize the market*

Adjunction of (heavy) DP to NoP²:

- (119) La distribution t_i aux consommateurs par les publicistes [DP de tous ces
nouveaux produits qui révolutionneront le marché]; la semaine dernière.
*the distribution to the consumers by the admen of all those new products
that will revolutionize the market last week*

Adjunction of VP² to NoP¹

- (120) La distribution_k t_i par les publicistes la semaine dernière [vp2 de nouveaux
produits t_k aux consommateurs]_i.
the distribution by the admen last week of new products to the consumers

Adjunction of VP² to NoP²:

- (121) La distribution_k t_i par les publicistes [vp2 de nouveaux produits t_k aux
consommateurs]_i la semaine dernière.
the distribution by the admen of new products to the consumers last week

Adjunction of VP¹ to NoP¹:

- (122) La distribution_k t_i la semaine dernière [vp1 de nouveaux produits t_k aux
consommateurs par les publicistes]
the distribution last week of new products to the consumers by the admen

Note that in each of (120) and (121), either the PP-agent phrase (cf. (123)) or a heavy
XP (cf. (124)) may undergo further extraposition:

- (123) a La distribution_k t_i t_x la semaine dernière [vp² t_k de nouveaux produits aux consommateurs]_i [par les publicistes]_x
the distribution last week of new products to the consumers by the admen
- b La distribution_k t_i t_x [vp² t_k de nouveaux produits aux consommateurs]_i la semaine dernière [par les publicistes]_x
the distribution of new products to the consumers last week by the admen
- (124) a La distribution_k t_i par les publicistes la semaine dernière [vp² t_x t_k aux consommateurs]_i [de nouveaux produits qui révolutionneront le marché]_x
the distribution by the admen last week to the consumers of new products which will revolutionize the market
- b La distribution_k t_i par les publicistes [vp² t_x t_k aux consommateurs]_i la semaine dernière [de nouveaux produits qui révolutionneront le marché]_x.
the distribution by the admen to the consumers last week of new products which will revolutionize the market

5.1. Summary

In this section, I argued that the layered structure I proposed for DP, along with the fact that movement to the affix is obligatory, provides an account for the various word order possibilities within the DP. The central point of the proposal was that, although the word order possibilities are numerous, not all possibilities are allowed. Rather, we saw that rightward movement is subject to the constraints applying to such syntactic operations as HNPS, HXPS, and PP-extraposition.

In the next section, we will see that there is a difference between certain types of nominals with respect to rightward-movement of larger XP shells. I will argue that the data provides evidence for the zero-affix in underived and result nominals, and for the fact that the specifier of SpecNoP is a case position in French.

6. Underived and result nominals

French underived and result nominals offer a different set of extraposition data than event nominals; the reason is that in these nominals, an overt subject may be projected in argument position (chapter 3). When it is, we will see that the subject may not be "extraposed" along with the direct object. I will argue that this is because the subject has moved out of the XP that undergoes rightward movement.

Consider (125):

- (125)
- a J'ai vu cette semaine la photo de Venice Beach.
I saw this week the picture of Venice Beach
 - b J'ai vu la photo cette semaine de Venice Beach.
I saw the picture this week of Venice Beach
 - c J'ai vu la photo de ce photographe cette semaine de Venice Beach.
I saw this photographer's picture this week of Venice Beach
 - d *J'ai vu la photo cette semaine de ce photographe de Venice Beach.
I saw the picture this week this photographer's of Venice Beach

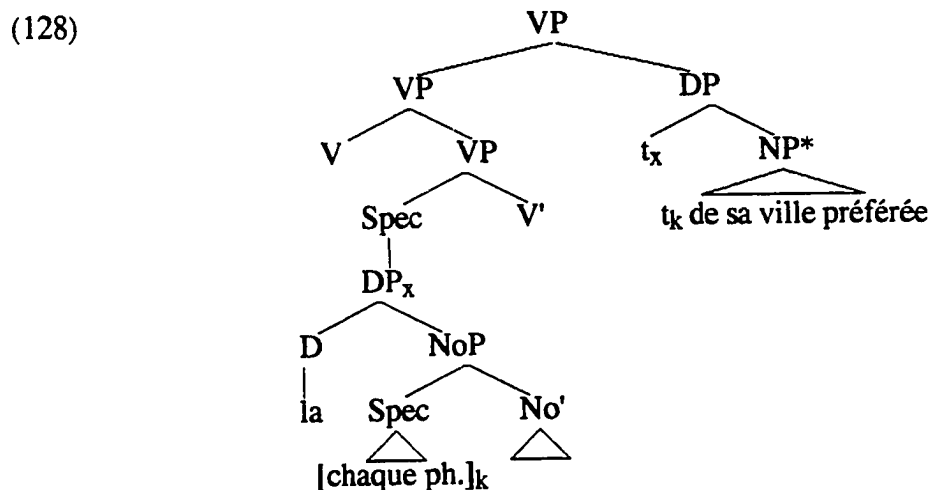
In (125a), the entire DP complement of vu is shifted to the right; (125b) is the result of "stranding" of the DP de Venice Beach after the DP containing it has moved to SpecVP, in the manner developed in the previous section. The same process derives (125c), the only difference being that a subject is also projected inside DP. The interesting case is (125d). Here, the subject and the object of the noun cannot be rightward-moved simultaneously. This restriction carries over to result nominals:

- (126) a Nous avons entendu la description de Pierre cette semaine de l'événement principal.
we heard Pierre's description this week of the main event
- b *Nous avons entendu la description cette semaine de Pierre de l'événement principal.
we heard the description this week of Pierre of the main event

The grammatical examples could be taken as evidence that only the NP shell containing the object can move rightward. However, we can show that, if a subject is apparently not moved along with the object (as in (125c)), the extraposed constituent must nonetheless contain the trace of the subject. Consider (127):

- (127) a Nous avons vu la photo de ce photographe_i cette semaine de lui-même_i.
we saw this photographer's picture this week of himself
- b Nous avons vu la photo de chaque_i photographe cette semaine de sa_i ville préférée.
we saw each photographer's picture this week of his favorite city

Under the account of extraposition out of DP presented in this chapter, the structure of (127b) will be as in (128):

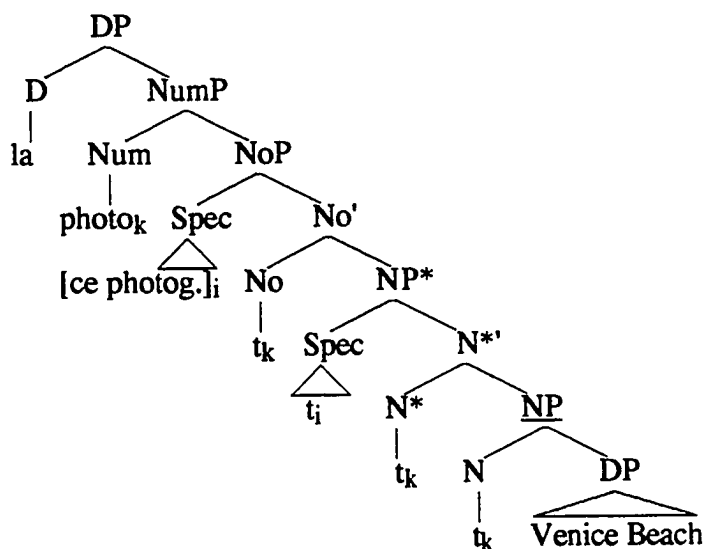


But in this position, the QP does not m-command the pronoun in NP*. We cannot attribute the binding relation between the QP and the pronoun to reconstruction of the

shifted DP into its base position since we argued earlier that a DP or NP does not reconstruct from the HNPS. But if the shifted DP contains the trace of the subject, the binding facts are accounted for. The conclusion is then that the extraposed constituent in (125c) and (127) must contain (at least the trace of) the subject. The question is, Which constituent exactly is extraposed?

In chapter 3, I argued that the subject of result and underived nominals moves to the specifier of a zero-affix in order to get case. The structure of (125d) was argued to be as in (129):

(129)



Since we just saw that the trace of the subject moves along with a shifted XP in (125c) and (127), it must be the case that it is the NP* projection above, and not NoP, that undergoes HXPS. The ungrammaticality of (125d) and (126b) is thus accounted for, since in these examples, it is clear that it is the NoP projected (which contains the subject) that has been moved rightward, which is not allowed. In other words, we may informally formulate the constraint on HXPS as follows: HXPS only involves XP as

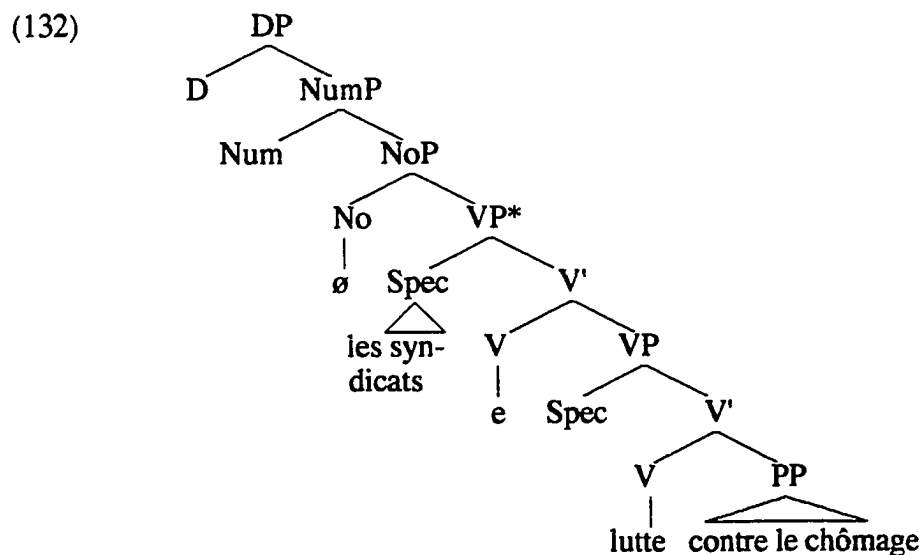
far up as the complement of No^0 . In fact, this is exactly what I have been assuming all along in this chapter under the label HXPS: we saw that one of the values for X in HXPS can be V, i.e. the VP complement of a nominalizing affix.

There is additional evidence that it is the complement of the affix that moves rightward. Consider (130):

- (130) a La lutte des syndicats contre le chômage.
 the struggle of the unions against unemployment

Based on the fact that subjects may appear either pre- or post-nominally in English nouns of the struggle class (cf. (131)), I argued in chapter 3 (see Appendix) that the structure of (130a) was as in (132):

- (131) a The struggle of the unions against unemployment.
 b The unions' struggle against unemployment.



Now consider (133) where the adjunct cette semaine is construed with the verb approuver:

- (133) a Nous avons approuvé la lutte des syndicats contre le chômage cette semaine.
 we approved the struggle of the unions against unemployment this week
- b Nous avons approuvé la lutte t_i cette semaine [des syndicats contre le chômage]_i.

Here, as opposed to (125d) and (126b), the subject can be moved to the right along with the PP object. But this is predicted since the subject in (133) is inside the complement of the affix. The only difference between (125)/(126) and (131b), is that the subject has moved out of the shifted XP in (125)/(126), but not in (131b).

7. Conclusion

In conclusion, in this chapter I argued: (i) that the order XPs in DP is regulated by the syntactic processes of HNPS, HXPS, and PP-extraposition, which obey the same upward-boundedness constraints which is at play in clauses; (ii) that PPs cannot move beyond their CP or DP of origin, and that apparent cases of PP-extraposition are derived by a two-step process of HXPS and DP-movement to SpecVP; (iii) that rightward movement of larger constituents provides support for obligatory movement to the nominalizing affix in English, as well as for the presence of a zero-affix in underived and result nominals; and (iv) that the HNPS position is not like an A'-position in the usual sense.

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