

NP's as just NP's

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ABSTRACT

The hypothesis initially defended in Abney (1987) that determiners, quantifiers, and adjectives are heads and NP is their syntactic complement became one of the standard analyses within P&P and early minimalist syntax, but, examined in an unprejudiced way, causes more difficulties than it solves at both the empirical and the conceptual level. Without rejecting the head status of articles and the DP view of nominals, Kayne (1994), Cinque (1995) and others have subsequently proposed that demonstratives, quantifiers, possessives, and adjectives be considered phrasal specifiers of various functional projections, rather than heads, with only articles treated as heads of DP, and such is now the standard view within Chomskian generative grammar, but the specifier theory is itself subject to serious objections. This work evaluates afresh the pros and cons of both accounts, but finally rejects them to return to the earlier NP analysis of NP's and the traditional view of articles, demonstratives, quantifiers, adjectives, PP's and relative clauses as modifiers of the noun, which, under the theory of modification presented in Author (2004a), accounts for the facts quite well and meets the Occamian ideals of Minimalist Theory rather better than current competitors.

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1. DETERMINERS AND MODIFIERS: STANDARD VIEWS WITHIN P&P/MINIMALIST SYNTAX

1.1. *The head theory*

In essence, what Abney's (1987) DetP Hypothesis helped explain with respect to the grammar of English nominals¹ was 1) why some determinerless NP's cannot function as arguments, 2) why articles, demonstratives, genitives and quantifiers precede nouns, 3) why only one token of each is possible *per* NP, 4) why determiners and adjectives seem to reject complements of their own if considered as phrasal dependents of nouns, 5) why strong determiners and certain adjectives license ellipsis of the XP's that follow them, and 6) why some 'personal pronouns' can occur (apparently) in the position of D preceding NP's, but not before DP's. None of those phenomena was accounted for under the traditional analyses offered in Chomsky (1972) or Jackendoff (1977), and therefore Abney's proposal was, and has remained, immensely influential.

However, as to 1), although, in English, singular common count nouns cannot be used to refer to individuals unless accompanied by a determiner, proper nouns refer on their own (indeed, they **reject** D's, Q's, etc.), as can plural count and mass common nouns, and the situation across languages in this respect is complex (cf. Carlson 1977; Chierchia 1998; Longobardi 2001). In retrospect, Stowell's (1989) and Longobardi's (1994) equation NP = predicate vs. DP = argument

¹ Of course, Abney's hypothesis had other attractive implications, e.g., it allowed for analysing *ing* nominals and sentential phrases in a parallel way, and it is not my purpose to deny its **other** merits. What is under scrutiny here is whether the generative grammarians' decision to start considering determiners as functional heads/specifiers of functional heads, instead of modifiers of nouns, was well-supported on empirical grounds and has led to a simpler and more explanatory overall grammar than could have been developed on the basis of the traditional view.

is misguiding or just wrong both ways in view of the existence of a) (presumed) DP predicates, cf. (1a, b), b) presumed NP arguments (cases cited, plus *home* in (1c-d) and the like), c) impossible bare NP predicates, cf. (1e), and d) predicative NP antecedents of relative clauses, cf. (1f), etc.,² although the fact that D can be phonetically empty in such analyses makes them difficult to falsify.³

- (1) a. Noam is a/the teacher.
 b. Noam is everything I ever wanted to be.
 c. He is at home.
 d. We went home.
 e. *Noam is teacher.
 f. Noam and Joan are teachers who earn \$200.000 a year.

Note, from a wider, and more theory-independent perspective, that if D were the UG key to reference, the fact that, in e.g. Indo-European, articles arose so late if at all (and apparently to compensate for inflectional losses in nouns) and the circumstance that many languages manage with no articles at all would be inexplicable. Current cross-linguistic research, in short, suggests that the referential capacity resides in the noun, rather than in the D element (cf. Giusti 2002: 65).

Abney's view that so-called 'determiners' are **heads** has also been questioned. In fact, demonstratives, possessive adjectives, and quantifiers have since been reanalysed as phrasal specifiers (cf. Cinque 1995; Giusti 1997, 2002; Brugè 2002; etc.), so nowadays only articles continue to be treated, somewhat asymmetrically, as heads (see e.g. Brugè 2002; Giusti 2002: 56), and the grounds of that analysis are also questionable.

To begin with what can be gauged from a theory-free perspective, even if no bare NP's could **ever** be used as arguments (which is **not** the case), such a test is inconclusive as proof of their non-head status (and the head status of determiners), for many lexical heads (e.g. verbs and prepositions) typically need their NP complements, adverbs like *well* are strictly required in cases like *they treated us well*, participles like *well-written* in (2) need an adverb like *well*, *solidly*, etc., and yet we do not even consider analysing V+object, V+adverb, or Adv+participle combinations as NP's or AdvP's, respectively, on such grounds.

- (2) a. a well-written book
 b. a solidly-built car

Hudson (2004) has recently re-examined the old problem of the relation between D and N from a perspective independent of the issues that motivated developments within P&P/Minimalist Grammar and concludes that they are **interdependent** and that **either** may act as head. That conclusion is compatible with Word Grammar (as with the present theory, in fact, although the

² Williams (1981: 86; 1983a: 436; 1983b: 297; 1984: 643; 1989: 286-287) has argued in detail that determiners and possessives/genitives are specifiers of NP's and may be structural subjects in cases like *Joe's destruction of the furniture*, but play no role in the saturation of the R feature that makes NP's alternatively referential and predicative. Rothstein (1985: 170), who follows Higginbotham against Williams in this respect, adds the important qualification that the closing category may act simply as a 'place-holder' turning NP's into arguments or predicates as needed.

³ See Giusti (1997: 102) on the non-semantic reasons why article-insertion is needed in certain languages, which Longobardi (2001) accepts. Longobardi (2001: 590) also notes that proper nouns refer **without** raising to D in English. That would seem to be an important exception to his basic proposal in Longobardi (1994), but, of course, if N-Raising is subject to parametrization, it is hard to prove the theory wrong. What triggers N-raising is the strength of D (see Longobardi 2001; Giusti 2002), which is claimed to be strong in Romance, where nouns raise, but weak (?) in English, where they do not, so the theory stands even if English would seem to be a blatant exception to the original proposal. Nevertheless, the correlation between argumenthood, referentiality, and D is much weaker and more indirect than initially claimed. Giusti (2002: 65), for example, concludes that the article is **not** the carrier of the [+Ref] feature at all, but, even if a correlation exists, it is mediated by such a complex system of parameters (cf. Longobardi 2001: 584) that it no longer directly argues for the head status of D wrt NP.

concepts of 'head' involved are very different), although inconsistent with minimalist assumptions. Yet, the arguments on which Hudson's conclusion rests are not themselves problem-free. For example, whether only one determiner is possible *per* N depends on the definition of 'determiner' and on how fine-grained the classification of determiners is. As Giusti (2002: 56-57) observes, 'determiner' is a spurious category covering rather heterogeneous classes. Indeed, the apparent conflation of articles, demonstratives, and possessives in a unique slot in modern English is just a diachronic accident. In closely related languages (Italian, Spanish, German, Old English, and even in modern English (cf. cases like *this your first day with us*), two or even three prospective 'determiners' (e.g., article, possessive, demonstrative) can co-occur within a single nominal.

Another fact that Hudson cites as suggesting that N depends on D, i.e., possible cliticization of D onto a P (French *au, du*, Spanish *al*, German *am, im*, etc.) is compatible with head status (N.B.: only under minimalist assumptions, i.e., Head Movement subject to Minimality), but does **not** prove that it is a head, or that it is acting as the head **governing** the NP, since specifiers of a lower category (e.g., English *not*) also cliticize onto the first higher head (i.e., the article could be a specifier of N and still cliticize onto the preposition).

Finally, Hudson invokes the existence of NP-internal ellipsis sites after determiners, which suggests head status for them if ellipsis is an ECP phenomenon, as Lobeck (1995) claims. However, a) precisely articles, the only 'determiners' that nowadays continue to be treated as heads, do **not** license NP-internal ellipsis, and b), although demonstratives, possessives, and quantifiers do, ellipsis need not be an ECP phenomenon. As shown below, it can be analyzed in alternative ways that do not imply dependence of N on D.

From a theory-internal perspective, a first *caveat* on the head status of articles is the analytic asymmetry they induce with respect to all other 'determiners'. That is an anomaly, and a suspicious one at that, in view of the fact that the articles of modern Indo-European languages derive from exactly the same sources demonstratives do (e.g., Spanish *el, la, lo* from the Latin demonstrative *ille, illa, illud*, English *the* from the Old English demonstrative *se, seo, that*, etc.).

Within current P&P/Minimalist research, though, the status of articles as functional heads is not in question, but the reasons, in my view, remain far from compelling. For example, Giusti (2002: 57) claims a) that articles adjust their form **exclusively** to that of NP-internal elements, and b) that they cliticize **only** onto NP-internal adjectives or nouns. However, such claims go through only if Case and prepositions are **internal** to the extended NP projection, a non-standard assumption. Under the prevailing view on such matters, articles are not that centripetal: against a), they obviously adjust their Case form to the requirements of NP-external heads (V, P, etc.); against b), they clearly cliticize onto NP-external prepositions (including unselected ones that must introduce *bona fide* predicates, cf. F. *coq au vin*). Note, furthermore, that even if Giusti's claims were accepted, centripetality does not necessarily imply that the article is a (functional) head. It does only if all other assumptions concerning head-movement are correct, but, of course, that begs the question, for head-movement in turn implies the existence of the F-heads in the first place. Giusti's arguments for the head status of articles, in sum, are not more compelling than Abney's, and, as a consequence, under minimalist assumptions, the analysis of articles as heads remains asymmetric and suspicious.

As regards 2), from the fact that articles, demonstratives and quantifiers overtly precede nouns in English and similar languages (by no means universally, see e.g. Dryer 1992, Cinque 1996, or Rijkhoff 2002), of course, it does **not** follow that they must be heads. They may just as well be adjuncts, or specifiers, as Jackendoff (1977) or Cinque (1995) claimed, respectively, not to mention the fact that surface position is a weak indicator of syntactic function anyway, especially within theories that allow hidden structure and massive movement. Demonstratives, for example, occur post-nominally in many languages (cf. Rijkhoff 2002) and cannot *prima facie* be analysed as specifiers in such cases. Yet, granted NP-raising, Cinque (1995), and then Bernstein (1997) or Brugè (2002), for example, can easily reconcile their occasional post-nominal appearance with specifier status. Under minimalist assumptions, that is a possible analysis provided a) some credible trigger is proposed for NP-Raising, and b) the extra stress and informational prominence of post-nominal demonstratives, cf. Spanish (3), can be accounted for.

(3) a. este chico

b. el chico éste

Of course, it is possible to attribute prosodic and informational prominence to specifiers (all non-dependents, even traditional ‘complements’, are specifiers in current minimalist analyses after all), but why should **grammatical** specifiers carry prominence? That is typical of complements and modifiers, which usually appear in XP-final focus position, but not of functional categories or their (derived) specifiers. Observe that, if it is alternatively assumed that post-nominal demonstratives are **focused modifiers**, their distribution follows without invoking NP-Raising. Why should an analysis with base-generation (i.e., Merge), NP-Raising, and prominence to trigger it (somehow) be more optimal than one with base-generation (i.e., Merge) constrained by prominence (say, Focus Last), but **no** NP-Raising? If prominence is to be involved anyway, why not use it to constrain Merge directly and do away with movement?

As to 3), that articles, demonstratives, and quantifiers cannot co-occur, whereas adjectives and other modifiers can, far from being an argument for functional head status, it turns out to be just false: under a sufficiently fine-grained syntactic/semantic classification, and leaving coordinative iteration aside as irrelevant, no class (not even adjectives) can be iterated. This is so by definition under any of several alternative theories of selection-satisfaction among which we need not choose here: simply, iterating items of the same class is bound to produce inconsistent structures (variously represented in terms of unchecked features, vacuous quantification, Theta-Criterion violations, unbound variables, or incompatible identification instructions in various grammatical theories). Thus, the apparent difference between articles, possessives, demonstratives, and quantifiers, on the one hand, and adjectives on the other, is simply a consequence of an inadequate subclassification of the latter. Under delicate analyses like Cinque (1995) and now Scott (2002), the difference vanishes, but it is not necessary or even helpful to tie that fact to the non-iterability of **functional** categories, for, obviously, if functional categories are not themselves delicately classified, they too can appear to iterate freely (e.g., multiple modality, negation, aspectual heads, adverbial heads, etc. in Cinque 1999 and subsequent ‘syntactic cartography’ work).

As regards 4), the lack of (any other) complements of articles, demonstratives, quantifiers, and pre-nominal adjectives, it is compatible with the view that they are heads taking (extended) NP's as their complements, but in no way forces us to assume that they are **not** specifiers or modifiers. Of course, if they are not heads, their unexpandability requires an explanation, for such items carry their own pre-modifiers and are obviously phrasal. Thus, in (4a-c) *only* and *nearly* must ‘modify’ the determiners and the numeral, respectively, since they clearly bear no syntactic relation to the noun, cf. (4d-e).⁴

- (4) a. only the first volume
 b. only this case
 c. nearly twenty books
 d. *only first volume
 e. *nearly books

Of course, if they are specifiers, this is potentially problematic,⁵ as all *bona fide* specifiers (e.g., subjects, objects, topics, foci, etc.) can be right-branching, but they **need not** be specifiers. If they are **modifiers**, the fact that nothing intervenes between them and the nominal head follows directly from the approach to modification in Author (2004a).

As to 5), from the fact that stressed determiners, quantifiers and (some) adjectives license empty categories (EC's hereafter), Lobeck (1991, 1993, 1995), invoking the ECP, concludes that

⁴ The most dubious case would seem to be Art, but note that [Art + Rel. Clause] was argued to be a constituent in early TGG work (e.g., Smith 1964), and that DP = D + CP in Kayne (1994).

⁵ Of course, it is not **necessarily** problematic, since articles, demonstratives, quantifiers, etc. could simply be unable to take any complements at all. However, the fact that they also reject post-modifiers (cf. **this here man*, vs. *this man here*, **twenty in all books* vs. *twenty books in all*, etc.) suggests that such an analysis is wrong.

they are heads governing the NP,⁶ but a) it is far from obvious that head-government should be the relevant factor licensing ellipsis, as direct objects of verbs and prepositions, for instance, are head-governed, would satisfy ECP if empty, and yet cannot be elided, and b) given the pro-drop facts and the systematic ellision of NP's and QP's after strong determiners in richly inflected languages, a plausible alternative immediately suggests itself, i.e., granted sufficiently rich inflection, any predicate can 'identify' its subject. Thus, to account for NP-internal ellipsis in English, German, and similar languages, it suffices to assume that determiners, quantifiers, and adjectives are one-place predicates of the N(P) and that the agreement features on the antecedent license ellipsis of the anaphor, as claimed in section 2 below.

Finally, as regards 6), whereas it is true that some 'personal pronouns' do occur preceding NP's and some QP's, but not DP's, cf. (5-6), this fact does not prove much, for most cannot, cf. (7). In other words, the behaviour of *we* and *you* is clearly idiosyncratic, a restrictive apposition analysis cannot be discarded, the phenomenon is not really explained, anyway, and, to that extent, neither follows from, or particularly supports, Abney's DetP Hypothesis.

- (5) a. we students
b. you girls
c. we two
d. you two

- (6) a. *we thirty
b. *we several

- (7) a. *we the students
b. *you the girls
c. *they three

Thus, without questioning its fertility and historical importance, the presumed empirical virtues of Abney's DetP hypothesis by no means offer conclusive proof of its adequacy or of the inadequacy of alternative analyses. In addition, there are powerful conceptual arguments that cast doubt on it, of which three will be mentioned here.

One is the utter chaos of subcategorization that it produces, for notice that, under the head analysis, a D must subcategorize for an NP, a QP, a DegP, or an AP, a Q must subcategorize for a DegP, an AP, or an NP, an A must subcategorize for a DegP, another AP or an NP, and, of course, verbs and prepositions must indistinctly subcategorize for DP's, QP's, DegP's, AP's, or NP's, etc. The various presumed functional categories on top of NP, in other words, are to all purposes transparent to subcategorization, just as if they were absent (or D, Q, A were modifiers of the noun, as will be assumed here). Obviously, that objection can be circumvented by saying that even when only a bare N appears, all the functional structure is there, although empty (i.e., with default values), but such an expedient is a conceptually suspicious way to save an otherwise counterintuitive analysis, for D's just do **not** select QP's at all, and, on the other hand, what the default value for D's, Q's or particularly the various types of pre-nominal A's could be is hopelessly unclear.⁷

The second objection arises from the previous difficulty as contemplated from a different angle, i.e., in the simplest case, what, according to Abney's head hypothesis, is an [_{AP} A+NP] construction like *old car* does **not** behave distributionally or semantically as expected, as it cannot occur where other AP's occur, e.g., not as the predicate in (8), and, of course, denotes a kind of car, rather than a kind of oldness. This fundamental mismatch seriously complicates the syntax-

⁶ There were variants of this view in the 90's, e.g., Bernstein (1993) interposed a 'Word Marker P' in between such heads and NP's (cf. Bernstein 2001), but they need not be discussed here.

⁷ Although Abney's initial formulation is chosen here for discussion as paradigmatic of the currently prevailing approach, subsequent modifications like Grimshaw's (1991), and of course recent proposals like Cinque's, are subject to exactly the same objections in this respect.

semantics interface unless the feature composition of nouns and adjectives is tinkered with, as Abney (1987: 352-354) finally had to do.

(8) *This is old car.

Finally, perhaps the most obvious property of nominal constructions is that, in morphologically rich languages (including earlier stages of English), A's, Q's, and D's agree with the noun, usually in number, gender and case. However, agreement, although universally typical of predicates and their subjects, is **not** expected of heads and their **complements**, so if D, Q, and A are indeed heads and NP (AP, QP) are their complements, the fact that they agree as they do is unexpected and calls for otherwise unnecessary assumptions.⁸

For such reasons, among others to be discussed below, the head theory of determiners and adjectives is less compelling than it initially seemed, and has nowadays largely been replaced by Cinque's specifier theory or mixed theories like Bernstein's (cf. overview in Bernstein 2001), or Giusti's (1997, 2002).⁹ Yet, that is by no means the only alternative, and, on the other hand, determiners, and particularly adjectives, do have head properties with respect to NP's that must be represented (e.g., they contract thematic relations with them). Within the theory of modification in Author (2004a), assumed here, D's, Q's, and A's remain heads, however temporary ones,¹⁰ and all the arguable advantages of the head theory are preserved, as shown in 2.2.

1.2. The specifier theory

Kayne's (1994), Cinque's (1995; 1996: 453-457; 1999: 139), and subsequent work like Giusti's (1997; 2002), Brugè's (2002) or Longobardi's (2001) specifier theory¹¹ can be taken as an

⁸ Essentially, agreement features must be duplicated in nouns and their functional heads and artificially reassembled/eliminated *via* movement and checking. That strategy props up the autonomy of the computational component (from the lexicon) and supplies crucial landing sites for movement needed to support N(P)-Raising analyses, but the risk of circularity is very high.

⁹ Although there seems to be no disagreement as to the head status of articles, as stated, demonstratives are heads for Bernstein and phrases for Giusti, quantifiers are heads if above, but specifiers if below D in Giusti (1997), etc. In the case of pre-nominal adjectives, the head and the specifier analyses are not the only theories to have been proposed in the recent literature, although they are the more influential ones. However, earlier adjunction analyses of modifiers in Bowers (1975), Jackendoff (1977), etc., have not really been definitely dismissed (e.g., Ernst's 2002 recent adjunction theory of verbal modifiers implies that he still maintains his own earlier work on NP-internal adjuncts). Of course, adjunction analyses are (trivially) alive if, as Kayne claims, what Language has is adjunct/specifiers, but non-trivially, too, if, as Duffield (1999) argues, adjectives are **alternatively** specifiers or adjuncts in different languages. On the other hand, there have also been various mixed approaches whose details cannot be discussed here. Sproat & Shi (1987) and Liberman & Sproat (1992), for example, took adnominal adjectives to be intermediate (i.e., A-bar) projections, and Emonds (1985), Dryer (1992), Bernstein (1993, 1995), Williams (1994), Bouchard (1995), etc., considered them a mixed A/AP class depending on their position, a rather implausible assumption very likely to be misguided if the explanation of the HFF effects in Author (2004a) is right. Some features of those alternative approaches, however, are valuable, and have been incorporated in the present proposal, but they will have to pass without further comment here.

¹⁰ In Author (2004a), modifiers are syntactic heads, but never survive as such after the operation that attaches their modifieds to them, because they get saturated by their 'subjects' (last arguments, under Predication Theory) and cannot remain active in subsequent computation, whereas their modifieds (NP's, in this case) may still need arguments (e.g., genitive subjects) or, anyway, carry features that need satisfaction (e.g., definiteness, Case) and must remain active and visible to the computational system.

¹¹ The specifier theory has generated an extensive bibliography during the last decade. Only the original proposals will be discussed here, though, as my purpose is to re-examine the reasons that justified the original analytical shift into the Kaynean-Cinquean programme. The pioneering ideas appear mostly in Cinque (1994; 1999), and Kayne (1994), but apart from pure specifier theories like Kayne (1994), there are mixed theories of demonstratives, adjectives in e.g., Bernstein (1995, 2001), and quantifiers (cf. Giusti 1997). An excellent textbook presentation of the issues is Haegeman & Guéron (1999: 422-460). Useful non-

extension of Abney's analysis that shares his DetP Hypothesis as to the role of D and the overall DP character of nominals while revising the syntactic status of demonstratives, quantifiers, and adjectives to make them phrasal again, thus 'dialectically' returning to the early X-bar view in Chomsky (1972), Jackendoff (1977), etc. that such elements are specifiers (or, more accurately, adjunct-specifiers, in view of the Kaynean roots shared by all such proposals), although no longer specifiers of the noun, but of functional extensions thereof which dominate the NP.¹²

In certain respects, though, the new specifier theory is **inferior** to the older one, for whereas the latter could easily explain why D, Poss, and Q, being specifiers **of the noun**, had to agree with it, Cinque's new theory does not, since specifiers (of F-heads above NP in this case) are not expected to agree with the **complements** of their heads (F-heads, here) any more than the heads themselves are.¹³ Otherwise, the two specifier theories face the same difficulties: both fail to explain why, being phrasal, pre-nominal ArtP, DemP, QP, and (under the new theory) AP specifiers disallow all forms of right-branching, whereas all *bona fide* specifiers (subjects, topics, foci, etc.) do allow it.

On the (arguably) positive side, granted Kayne's (1994) LCA and a stipulated hierarchical ordering of a still undetermined number of F-heads, the specifier theory can explain the following phenomena: a) why D's, Q's and A's precede (or in other languages follow) the noun at surface level, but precisely in that order on both sides of N (i.e., Greenberg's Universal 20), b) since specifiers are phrasal, the specifier theory predicts that they may optionally contain internal AdvP's, DegP's, and 'measure phrases' on their left periphery (which created trouble under Abney's analysis and forced him to assume that Degree words were heads taking AP's as their complements), and, perhaps its greatest achievement, c) granted the existence of overt/covert X(P)-raising (cf. Cinque 1995, 1996; Kayne 1994, 2000; Longobardi 1994, 2001; Giusti 1997, 2002; Bernstein 2001, Brugè 2002), appropriate triggering features, and a liberal supply of primary and derived functional heads (and specifiers!) to act as landing sites for moving XP's, it offers a *prima facie* attractive way to account for the alternative pre- and post-nominal surface position of determiners and adjectives in Germanic vs. Romance. Since a) and b) are fairly obvious, let us discuss just c) with respect to English and Romance.¹⁴

Indeed, what concerns the alternating surface order of adjectives (but also demonstratives, possessives, etc., cf. Brugè 2002, Giusti 2002) and N/NP's in e.g. Germanic vs. Romance, cf. e.g., English (9) vs. Spanish (10) etc., is precisely the area of grammar in which the specifier theory has been claimed to be neatly superior to both the head hypothesis and earlier adjunction analyses.

- (9) a. the black car
b. *the car black

- (10) a. el coche negro

technical overviews discussing significant alternatives or modifications of Cinque's theory are Giusti (1997), Bernstein (2001), Longobardi (2001), and Giusti (2002).

¹² Bernstein (1997) accounts for the post-nominal occurrence of demonstratives, possessives, etc., without abandoning Cinque's (1994) basic DP geometry, in terms of Focus-induced NP-Raising. Bernstein (2001) and Brugè contain useful summaries of subsequent research exploring that approach. Longobardi's more elaborate theory of the structure of DP in Longobardi (2001: 597) is also essentially Cinque's. Such differences will be ignored here except where they matter.

¹³ Obviously, under the Cinquean theory, what is claimed is that the specifiers agree with their respective F-head, but then the problem is that the F-heads must themselves mysteriously agree with their **complements**, an unorthodox situation. Significantly, Giusti (2002: 56) is forced to stipulate that the 'phi' features of all specifiers of an extended nominal projections must be **copies** of the 'phi' features of the noun.

¹⁴ I am an English grammarian rather than a 'general linguist' and my command of the typological facts discussed in Dryer (1992), Cinque (1999), Rijkhoff (2002) and others is unfortunately weak and second-hand, so my case will have to rest on well-known facts of Germanic and Romance that I am relatively knowledgeable about, but I do not think that invalidates the present argumentation. After all, the best UG theory will not be such if it does not **also** yield the best grammars for well-researched languages like English, and my claim is that the prevailing specifier theories are not yielding the simplest and most illuminating accounts of the syntax and semantics of English NP's.

b. *el negro coche

Assuming, for the sake of discussion, Cinque's (1995: 300; 1996: 453) or Longobardi's (2001: 597) initial structure for DP,¹⁵ the top-down distribution of elements is Art > Dem > Poss > Q/Num > A₁...A_n > Gen > NP, with interspersed (agreement?) F-heads (and other, derived, F-heads in between them), and specifier theories account for such alternations in terms of absence/presence of overt N/NP-raising (plus raising of demonstratives and possessives in approaches such as Brugè's 2002 or Giusti's 2002, cf. *infra*) through the head/specifier positions available in between Dem, Q, A, etc. (or rather, they do provided suitable triggers and restrictions are identified and justified, cf. *infra*).

The checking of strong agreement is the (more generally accepted) triggering factor for (common) N-Raising,¹⁶ and the explanation reads roughly as follows: agreement features, which are overtly marked in Romance (e.g., Spanish, above) and presumably 'strong', trigger overt N-raising, whereas in e.g. English, on the contrary, where such features are claimed to be 'weak', the common noun does not overtly raise above DemP's, AP's and higher elements, which c-command it throughout the derivation and, therefore, assuming Kayne's LCA, eventually precede it at the P interface. In such terms, the specifier theory can account for the alternations observed, but it is important not to forget how it achieves that result: Since it assumes the existence of functional heads in between any two visible NP constituents,¹⁷ it need only claim that the N/NP raises just as far up as whatever such higher heads or specifiers are appropriate, subject to parametrization, leaving demonstratives, possessives, or adjectives (again, as appropriate) below and (at P) behind. Whether the relevant structures and movement are motivated and consistent with minimalist Economy, of course, is a completely different matter. The question of what triggers raising, in particular, is crucial under minimalist Economy, so let us briefly examine the various cases involved.

Overt N-Raising has been claimed to be triggered by a) the need to check [+Ref] at D (Longobardi 1994, 2001 on proper nouns in Romance, but see Giusti 2002: 65), b) by the fact that D is a **clitic** and attracts N (cf. Giusti 1997: 100-102, on Rumanian), or some lower D-like head occupied by a definiteness marker attracts N (in Swedish and Norwegian, cf. Bernstein 2001, Longobardi 2001), c) by the need to check **agreement** features (all/part of?) the way up to D, or d) by ill-understood 'semantic' factors (e.g., apparently, N raises above restrictive modifiers but stands under appositive ones in Romance, if such a difference can stand scrutiny; cf. Bernstein 2001, Longobardi 2001: 579-580, 597). Thus, various possible triggers have been suggested, but, crucially for present purposes, it has so far **not** been possible to isolate a credible **single** factor. Under minimalist assumptions, more is less of an (or worse: no) explanation.¹⁸

¹⁵ Brugè (2002) alternatively proposes to merge demonstratives low, just above NP and below all adjectives, and raise them to check [+Ref] at D stranding their reinforcers, if present, in *situ*, but the critical argumentation here applies to her approach as well.

¹⁶ Proper nouns raise, according to Longobardi (1994) to check [+Ref] at D, although Giusti (2002) challenges this assumption, but we can ignore this case, as proper names are not in general accompanied by the adjectives, demonstratives, possessives, etc. that are the focus of discussion here.

¹⁷ How many, which, where and why remains unclear, as Bernstein (2001: 554) admits. Cinque's (1994, 1996) explanation turns on the creation of 'F' 'agreement' heads (and specifiers for NP to raise into) virtually on demand, just as his parallel theory of the distribution of adverbials in Cinque (1999) requires a free supply of heads and specifiers to lodge leftward-raising VPs in, but next to nothing is said about the actual feature composition (syntax and semantics!) of such heads. In both cases, furthermore, additional principles are required to stop the N from raising beyond the positions in which it can occur; see Bernstein (2001: 547-550), and detailed criticism of Cinque's theory in Ernst (2002: 191-205). *Mutatis mutandis*, the objections to Cinque's account of the distribution of adverbs in Author (2004a) apply seamlessly to our discussion of NP structure here and will not be repeated.

¹⁸ Obviously, predictions differ considerably depending on which trigger is assumed to be relevant, and certain presumed triggers plainly do not work as intended in depending which languages (see Bernstein 2001, Longobardi 2001, Brugè 2002, and Giusti 2002 for excellent general surveys). Furthermore, disagreements and inconsistencies abound even between closely collaborating researchers, and the overall picture remains rather messy. For example, whereas Brugè (2002) claims that the checking of [+Ref] at D is also what underlies the raising of possessives and demonstratives and their apparent complementary

As to overt NP-Raising (cf. Bernstein 1997), the triggers are even less clear, as Bernstein (2001: 554) grants, for, being optional, it cannot plausibly be induced by the checking of any robust grammatical feature.¹⁹ In Romance, a plausible candidate is said to be the need to raise NP's to leave demonstratives, possessives, etc. in Focus in (or near) DP-final position, and Bernstein (1997) claims that in Germanic, on the contrary, NP-Raising does not occur, as the same effect can be achieved through phonological means.²⁰ However, recent work by Brugè (2002) and Giusti (2002) suggests that, under their assumptions, NP-Raising must occur also in Germanic, as, in e.g. English, demonstratives and their reinforcers appear discontinuously, with the NP intervening, cf. (11).

- (11) a. this little engine here
b. *this here little engine

Under Bernstein's or Brugè's assumptions, DemP and PossP raising to Spec D are triggered by the need to check [+Ref] at D, as stated, but, of course, that motivation vanishes if, as Giusti (2002: 65) claims, [+Ref] is a feature of the noun, not related to D at all. If so, what motivates the raising of demonstratives and possessives and the stranding of their reinforcers remains unclear.

As to overt AP-Raising (from inside RC's, according to Kayne 1994: 97ff), which is supposed to account for pre-nominal adjectives (under Kayne's assumptions), no plausible trigger has been suggested. Actually, its landing site is also unclear in Kayne's analysis: unless derived F-heads and specifiers can be freely inserted, as in Cinque's (1999) theory of clauses, there is no head available to act as a host for the raising AP (or, if there is, it should be possible to merge the AP in its specifier in the first place, which would obviate subsequent movement). Observe, furthermore, that free insertion of intervening heads and specifiers à la Cinque (1999) destroys the tree structure (unless the insertion is categorially trivial, e.g., a new segment, as in cases of adjunction), constitutes a serious violation of the structure-preservation hypothesis, and is ultimately incompatible with minimalist Move, which creates new structure only at the root.

What **is** reasonably clear, in sum, is that the various cases (and triggers) of DP-internal X(P)-Raising will **not** be easily unifiable and certainly that no straightforward 'robust' trigger like strong/weak agreement will account for all cases of raising.

Economy problems aside, under the specifier analysis, there are quite a few empirical ripples, matters soon tend to become very complicated, and difficulties proliferate. The full details are intricate and cannot be reviewed here, but we may cite a few nearly random cases. For example, if we grant that agreement is 'weak' in English (ignoring overt number inflections on demonstratives, and, arguably, quantifiers and adjectives like *numerous*, etc.) and therefore N/NP is **not** expected to raise, any right-branching AP (and of course all PP's and CP', which, being deep specifiers, must be post-nominal at P) will create a problem, cf. (12).

- (12) a. a student keen on mathematics
b. *a keen on mathematics student

Secondly, why N does not raise beyond AP's in German, which has substantial agreement inflection (but does beyond genitive PP's, cf. Longobardi 2001: 597) is unexplained, cf. (13).

- (13) a. die neue Englische Studentin
b. *die Studentin neue Englische

distribution, Giusti (2002: 65) argues that [+Ref] is by no means carried by D. If that is correct, and [+Ref] resides in N (although it be copied elsewhere in the extended F-projection), the standard trigger for N-internal movement just vanishes.

¹⁹ Under Kayne's theory of relative clauses (cf. Kayne 1994: 87ff), there is a kind of NP-Raising that is strictly obligatory and lands the 'antecedent' NP in the specifier of the relative clause. We disregard it here, although, strictly speaking, why the NP must raise has never been properly explained in my view. See Borsley (1997) and Author (2003).

²⁰ Not that this disables Focus-induced syntactic structuring, cf. 2.2 *infra*.

Thirdly, why N/NP **need not** raise above (appositive?) adjectives in Spanish, cf. (14), where agreement is also rather robust by any standards, is a mystery unless what triggers it is the need to sometimes leave an AP in Focus (but then an obviously more economical alternative is to base-generate focused constituents post-nominally, as claimed here).

- (14) a. el libro (de actas) nuevo
b. el nuevo libro de (actas)

Similar difficulties can be multiplied. In Spanish, the raising N/NP cannot surface preceding articles, cf. (15), quantifiers, cf. (16),²¹ or quantifying adjectives, cf. (17), although it certainly can (but need not!) raise above possessives, cf. (18), demonstratives, cf. (19), and quality adjectives, cf. (20), and it **must** raise above all right-branching AP's, PP's and clauses, cf. (21).

- (15) a. *libro el/un
b. el/un libro

- (16) a. *libros dos/muchos.
b. dos/muchos libros

- (17) a. los numerosos accidentes
b. *los accidentes numerosos

- (18) a. el libro mío de sintaxis
b. el libro de sintaxis mío
c. mi libro de sintaxis

- (19) a. este amplificador de señal
b. el amplificador de señal éste

- (20) a. el nuevo traje de baño
b. el traje de baño nuevo

- (21) a. el Buda de madera con ojos de perla tallado a mano que vimos hoy
b. *el de madera (Buda) con ojos de perla (Buda) tallado a mano (Buda) que vimos hoy Buda

Case (15) is surely explicable if Art is the highest head in the DP and N cannot left-adjoin to it for whatever reason,²² and (16) perhaps follows if there is no intervening structure between D and the quantifier,²³ although that is dubious, cf. (22e), but (17), the optional raising above possessives and demonstratives in (18) and (19), and the obligatory raising above all right-branching XP's in (21) are not, and point to the need for elaborate restrictions on 'how high up' N (also NP, of course) can raise and where (and why!) it must stop raising.²⁴

²¹ Observe that there must exist a head/specifier slot between Poss at Spec D and Q which the N/NP should be able to raise into (cf. *mis únicos dos libros de cuentos*). That should allow the NP to raise into it unless proponents of the specifier theory can tell us why that specifier cannot be occupied by an NP.

²² But a reason there must be, e.g., that the Spanish article is proclitic instead of enclitic, for the UG option exists, e.g., in e.g. Romanian, or Scandinavian; see Cinque (1994), Giusti (1997) or Bernstein (2001).

²³ Well, not quite: if F-heads and specifiers can be created to lodge raising VPs in the structure of the clause, cf. Cinque (1999), there seems to be no reason why they should be unavailable in the structure of extended nominals. But if they are, something must prevent the NP from reaching such a new specifier.

²⁴ See Bernstein (2001: 547-550) on this problem across Romance, and, again, Longobardi (2001: 597), which contains an attempt to state what the facts are crosslinguistically (basically that each language activates one, and just one, landing site for N intermediate between the high D area and the NP one), but without attempting an explanation.

The problems multiply as soon as demonstratives, possessives, etc., coexist within the same extended NP. Observe that, if both Q and Poss co-occur pre-nominally, Poss must c-command Q (at least in derived structure, via raising to Spec D, cf. Bernstein 1997 and Brugé 2002), as in (22), but, if we claim that (22b) is bad because the possessive has not raised, (22c) is inexplicable (unless *mis* and *míos* differ in more aspects than assumed), and (22d) is just as inexplicable in view of the fact that the well-formedness of (22e) suggests that there is further empty structure between Spec D and the quantifier for N to raise into.

- (22) a. *mis dos libros (de cuentos)*
 b. **dos mis libros (de cuentos)*
 c. *dos libros (de cuentos) míos*
 d. **mis libros de cuentos dos*
 e. *mis únicos dos libros de cuentos*

In sum, the N(P)-raising hypothesis, although attractive as an obvious way to account for word-order alternations inside extended nominals, faces substantial empirical difficulties when applied in detail, and although it is easy to tinker with triggers to accommodate the facts by brute force, there usually is a tradeoff: in current specifier theories, the bottom line is a great deal of stipulation, and whether the mechanisms proposed are compatible with minimalist Economy is controversial at best. To be fair, alternative theories are likely to need their own stipulations in the same empirical domains (why can't English quantifiers occupy NP-last position?), but the point here is simply this: the presumed inherent superiority of insight of the specifier theory as such over modifier theories vanishes, and the respective status of the starting assumptions of the various competing approaches (e.g., are adnominal elements specifiers?) must be reassessed.²⁵ Q.E.D.

On the other hand, the specifier theory faces no less severe conceptual objections than the head theory above. The main one, perhaps, is that, within any structure-dependent theory of grammar, the conflation of virtually all semantically active elements as syntactic specifiers is an undesirable outcome unless there really is no syntactic-semantic difference among them. Specifier theories like Kayne's or Cinque's must allow arguments, modifiers and 'grammatical modifiers' (Dem, etc.) in specifier positions, for there are no other phrasal positions, and yet nobody has gone as far as to unify their semantic function. To that extent, the 'all-in-spec' hypothesis arguably violates structure-dependence and the desirable transparency of the syntax-semantics mapping in a severe way. Of course, one of the main claims here is that complements and modifiers differ semantically in radical ways, as traditionally assumed (cf. section 3), and must occupy neatly distinct structural slots.

Obviously, the required syntactic difference can be achieved in various ways. The issue at stake, then, is which is appropriate in a structure-dependent theory of syntax and semantics. In early X-bar theory, arguments occupied A-positions, i.e., complement or specifier, whereas predicates were heads and modifiers were adjuncts, and that solution has been questioned after Chomsky (1986) and especially in later work like Kayne (1994), but it is not necessary to return to adjunction theories, and face their real or imaginary shortcomings, to restore the structural difference between complements and modifiers. As shown in Author (2004a), it is possible to dispense with adjuncts, treat predicates as heads and arguments as complements or specifiers, and yet **not** adopt the specifier theory of Dem, Poss, Q, A, and modifiers, generally. The key is unifying all modifiers with predicates (i.e., structurally, heads, however ephemeral in actual derivations), which is semantically a plausible unification. On the contrary, the specifier theory dispenses with modifiers by unifying them with arguments, which is, we contend, a rather implausible unification. In section 3 we shall return to that fundamental issue, but the specifier theory faces further conceptual-technical difficulties which might as well be quickly reviewed here.

In particular, it crucially depends on an adequate justification of the existence, nature, and distribution of the functional heads and the specifiers they license, as well as of the properties of raising and the features that trigger it, that has so far not been given.

²⁵ Actually, Giusti (2002: 56) acknowledges that e.g., demonstratives behave as special modifiers.

Thus, first, the specifier theory must offer independent evidence for the existence of identifying, quantifying, and multiple modifying **functional heads** with appropriate features to be satisfied by the corresponding specifiers. Let us refer to them as F-Art (= D), F-Poss, F-Dem, F-Q, and F-A_{1-n}, since multiple adjectives may occur apparently stacked before the noun (cf. Sproat & Shi 1988, Crisma 1993, Valois 1991, Longobardi 2001: 578, 597, and, for English, especially Scott 2002, as well as reference grammars like Quirk et al. 1985, Huddleston & Pullum 2002, etc.). Some, like F-Art (= D), F-Poss, F-Dem, F-Q, and, perhaps, F-Num(ber), are generally accepted, although far from obvious, as they never surface under a visible guise if Dem's, Poss's, Q's and A's themselves are their specifiers;²⁶ others like Gender, Bernstein's W-Marker, and Case are controversial even if the general approach is accepted; and, worst of all, next to nothing is known about the 'agreement' F-heads F-A_{1-n} that Cinque (1995: 297-300) claims must host AP's,²⁷ and even less about the heads that must be added in the course of the derivation as mere landing sites for NP-raising, as Bernstein (2001: 554) admits.

Secondly, it must give grounds for the respective scope of such heads, i.e., why, assuming Cinque's or Bernstein's initial structure rather than Giusti's, F-Art must c-command F-Dem, F-Dem F-Q, F-Q F-An, F-A_n F-A_{n-1}, and so on down to N (although, to be fair, all currently available theories seem to be in the same boat in this respect).²⁸

Thirdly, it must clarify the syntactic-semantic role of their presumed complements and specifiers with respect to them (as arguments, modifiers, operators, or whatever), which remains indeterminate.

Next, it must justify the feature(s) that trigger, inhibit, or otherwise control the raising of N/NP, how far it raises, where and why it stops raising, and particularly where elements may and may not land (e.g., can a NP land in the specifier of a Q-like or A-like F-head?; which specifiers can a raising NP, DemP or PossP skip without violating Minimality?), an area in which, as Bernstein admits (2001: 554), little is known. That is no mean defect: it makes minimalist claims to Economy untestable.

As it stands, the specifier theory unnecessarily complicates the syntax-semantics interface no less than the head theory did. Note that whether Kaynean/Cinquean specifiers of Dem, Q, adjectival F-heads, etc. are arguments, predicates, modifiers, or operators has never been clarified. For that matter, what kind of semantic relation exists between each of the F-heads and its respective **complement**, has also never been explained. Is, e.g., an adjectival F-head a predicate taking the NP (or a lower F-AdjP, of course) as its argument? Is it merely 'glue' to add a new 'argument' to the NP? Such questions lead straight into the big underlying issue of the nature of modification, on which we have taken what may seem as an unorthodox stand in Author (2004a) and here, but there is no doubt that, under the specifier approach, the relation between the noun and its D, Q, A (and of course PP's and RC's, if they are also specifiers of F-heads, as they must be) is

²⁶ The exception (in the few European languages taken into consideration here) would be the clitic definiteness marker of Scandinavian, but it is worrying that there are no others. In practice, the only evidence for the existence of the intermediate heads is the fact itself that Ns land in them (if that is what they do). If an alternative explanation of the alternating N-A word-order can be given, no independent evidence will remain for the existence of such heads.

²⁷ Significantly, Longobardi himself (2001: 597) calls them just 'H1,...H4', and finally (2001: 602, fn. 22) contemplates the possibility that some of them are 'extensions of some features of the noun' rather than 'independent categories' like those above VP, which he considers much more robust. However, the F-heads above the VP are arguably just as flimsy, both syntactically and semantically, as those under discussion here, cf. Author (1998, 2004, in prep.).

²⁸ As to the problem of relative scope, the obvious way to proceed (and what has tacitly been done) is to manipulate the c-selection features of the different F-heads, e.g., say that F-Art c-selects F-Dem, F-Dem c-selects F-Q, etc., whereas F-Q does not c-select F-Art, or F-Dem, etc. However, to stipulate c/s-selection features is not to explain the problem, and, on the other hand, any selection or scopal properties attributed to the ghost F-heads can just as plausibly be attributed directly to the qualifying, quantifying and identifying elements themselves, i.e., it is just as reasonable to say that the Q predicate *two* c-selects NP's, that the D predicate *the* c-selects quantified NP arguments, etc. The real problem, of course, i.e., to explain why such selection asymmetries hold, is not thereby solved, but the point here is that the Cinquean strategy is just as stipulative, and, crucially, rather less economic, as completely *ad hoc* functional categories must be added which greatly complicate c-selection and semantic rules (cf. *infra*).

necessarily more indirect, and, as a consequence, achieving a compositional interpretation of the NP from those of its constituents will clearly require more complex and stipulative interface rules.

In sum, whereas the earlier specifier theory of Art, Dem, Poss, Q, etc. in Chomsky (1972), Jackendoff (1977), etc. shared the advantages of the adjunction theories of modification of the period (actually, it constituted a terminological variant thereof), modern 'all-in-spec' theories like Kayne's or Cinque's have lost such advantages and are fraught with technical-conceptual difficulties. Needless to say, all theories can be made to work if suitably amended, but the point is that the specifier theory, as currently developed, does not work as intended. That makes it legitimate, in my view, to explore an approach which combines the advantages of the head and the modifier analyses.

2. NP'S AS NP'S AND DETERMINERS, QUANTIFIERS AND ADJECTIVES AS NOUN MODIFIERS

2.1 Structure

In view of the preceding, let us reconsider, instead, the traditional hypothesis that a NP is simply a possible expansion of a noun, which is the core of the construction, ultimately allows it to name a specific class of hypostatized entities, and crucially determines its interpretation,²⁹ and that articles, possessives, demonstratives, quantifiers, and adjectives are not functional heads or specifiers thereof, but different, hierarchically organized, classes of modifiers (roughly, categorially adjectives³⁰ and, semantically, additional predicates) that may or may not be required by the noun depending on its nature and the way it is used in specific contexts.³¹

For the sake of concreteness, suppose that the structure of a term like (23a) is simply the set of sets (23b), which captures the binary branching, attachment order, and resulting hierarchical

²⁹ According to Baker (2003), the crucial semantic property of nouns that adjectives and verbs lack is that they presuppose identity conditions, i.e., it makes sense to specify whether a car is or is not the same car or count how many different tokens of a type are involved. In absolute terms, however, that argument is not overly persuasive, since *same* can refer to properties, adverbials like *again*, *often*, *twice*, etc., and features like number allow us to individuate and count events, etc. In an (arguably) broader sense, identity conditions are surely relevant to non-nominal categories, too.

³⁰ That is how they have been treated, if mostly on inflectional and semantic grounds, in traditional grammar ever since adjectives were recognized by mediaeval grammarians as a separate class of nouns, but that demonstratives and quantifiers are **lexical**, rather than functional, and, furthermore, essentially adjectival, is now commonly assumed even in minimalist theories, cf. e.g., Giusti (1997: 114-115; Giusti 2002: 56), so the discrepancy in this respect reduces to our claim that they are not specifiers but heads of their respective layers of structure, although, for independent reasons, they do not project. On the other hand, under the present theory, so-called 'articles' like English *the* demonstratives and quantifiers are heads, as Abney claimed, but I see no point in insisting on calling them 'functional' heads. On historical grounds among other, they are simply adjectives, however inflectionally degenerate and semantically specialized. Whether this is just a terminological issue is controversial, but almost certainly not, as demonstratives and quantifiers can function as predicates and must crucially assign theta roles to their arguments. See section 3.

³¹ The facts figure prominently in standard descriptive grammars of English like Quirk et al. (1985), or Huddleston & Pullum (2002) and need not be repeated here in full, but just a brief reference to the essentials of English usage in this area may be in order as a reminder. At one extreme, proper names inherently name individuals and exclude restrictive modification if used as such (cf. **The Bill finally married Sharon*, vs. non-restrictive *poor* in *Poor Bill finally married Sharon*), but cooccur with modifiers if used as common nouns (e.g., in *the Bill who married Sharon*, *my Bill married Sharon*, etc.), or when it is the full NP, rather than the noun by itself, that constitutes the proper name (cf. *the Holy Bible*, *the English Channel*, *the United Kingdom*). Common singular count nouns generally require a determiner in their referential uses (cf. *He needs *(the/a) house*), except in a few idiomatic cases like *at home*, *at school*, etc., and most require one in predicative ones, too (but cf. *He was (a) professor of music*). Finally, mass nouns and generic plurals accept, but do not require, determiners, quantifiers, or modifiers (cf. *We need (the) (new) (insurance) money*, *He illustrates (children's) books*, *This is (the) dynamite*, *The proprietors are (the) shareholders*, etc.). Studied across languages, this is a complex and interesting topic. See Carlson (1977), Chierchia (1998), and Longobardi (1994, 2001) for systematic discussion in a crosslinguistic perspective.

organization of an equivalent tree diagram. Sets arise from a combinatory operation, Match, roughly similar to Chomsky's Merge,³² which applies subject to Economy satisfying selection features of heads up to saturation. Only one of the participants of each match can be 'active' at a time, in the sense of containing the unsatisfied feature that triggers the operation,³³ and which counts as active (broadly: acting head) at the next computational stage is relevant to understand derivations, so it will be indicated here by a subscript adjacent to the left-side bracket. However, such 'labels' are used merely for the reader's convenience; they do not project new syntactic objects, and like Chomsky's labels (cf. Chomsky 1998, 2001, Collins 1999), play no role whatsoever in computation. According to that convention, the reader-friendly representation of (23a) is (23c).

- (23) a. the two little English girls
 b. {the {two {little {English, girls}}}}
 c. {_{girls}the {_{girls}two {_{girls}little {_{girls}English, girls}}}}

Granted the theory of modification in Author (2004a), an NP like (23) is trivially derived as follows. The noun *girls* expresses a possible argument (actually, a subject) of the monadic second-order predicate *English* (cf. Montague 1974: 211) and is attached to it, under Economy, because the match satisfies the adjective's c-selection feature and discharges the only argument it s-selects, but the adjective thereby becomes fully saturated and syntactically inactive, whereas the noun, which still requires its own internal thematic, identificational-referential, and case features to be licensed by appropriate heads³⁴ continues active in the derivation. The adjective *little*, in its turn, is another second-order one-place predicate, also c-selects a nominal as its argument (and subject, satisfied by (*English*) *girls* in our example), and becomes fully saturated and inactive when it is attached to it, so the noun *girls*, still pending satisfaction of its identification, thematic, and case features, again remains active in subsequent computation.³⁵ The numeral predicate *two*, in its turn, c-selects a plural nominal as its subject (*girls*, in our example), gets saturated, becomes inactive, and the nominal remains active. Finally, the article *the* is also a second-order one- (or two-) place predicate (cf. *infra*), requires a nominal as its subject, (*little English*) *girls* in our example, gets fully saturated by it, and the noun *girls* has its identificational feature satisfied, which structurally closes the NP, as Higginbotham (1983) claims, but N must continue active in the computation until an appropriate subject or case- and thematic licenser (a transitive verb, preposition, etc.) finally licenses its R argument or its case and thematic role features, as the case may be. At that point, the

³² There are substantial differences, though, which cannot be explained in detail here (but see Author 2004). Essentially, Match does not distinguish Chomsky's two types of Merge (Set vs. Pair Merge), is non-directional, is always feature-triggered (i.e., strictly 'economic'), and does not 'hide' participants from subsequent computation. This corresponds to the fact that modification reduces to complementation, modifiers are predicates, and modifieds are subjects. The idea that modification is also thematic saturation (predication), except that the saturated term is the modifier, is a standard assumption in Montagovian approaches. After writing Author (2004a), I saw Bierwisch (2003: 118, 150, *et passim*), which shares the idea that both complementation and modification are essentially thematic discharge (in opposite directions), but fails to offer any explanation of the crucial point, i.e., why in cases of 'complementation' it is the satisfied head, not the satisfying dependent, that projects, whereas in cases of 'modification' the opposite occurs. In Author (2004a), that fact follows from the properties of saturation.

³³ No 'free riders' under Match. If multiple (or reciprocal) satisfaction must occur, multiple matches will take place, although such cases do not arise in our discussion here.

³⁴ The N(P) may require an NP-internal thematic argument, e.g., a genitive 'subject' at the top of its projection, as in *John's sudden arrival*, or, in the case under discussion, have to be referentially constrained by a 'determiner', as Higginbotham (1983, 1985) claims. On the other hand, the NP must play a role as a predicate or as an argument of some other predicate. In the first case, it will require an external subject (cf. Williams 1980, 1981, 1983, 1984, 1989, 1994). In the second, its thematic role and case features will have to be licensed *via* attachment to an appropriate head. In either circumstance, such features require N to remain active.

³⁵ Only the simplest cases of adicity are considered here. Obviously, if the adjective is dyadic (e.g., *fond*, *keen*, etc.) types have to be adjusted in trivial ways, and the same applies if syncategorematic adjectives like *good*, *tall*, *big*, etc., have additional parameters, cf. section 3 *infra*.

noun will become syntactically inactive and the licensing head will start a new phrase. In sum: a fairly conventional derivation that surely any Montagovian or Categorical Grammarian would consider perfectly orthodox, or so we hope.

Of course, the scope-taking power, and consequently the order, of some such modifiers is far from free,³⁶ e.g., identifiers like *the* must have scope over quantifiers like *two*, quantifiers over qualifiers, and, among the latter, 'subjective' ('speaker-oriented', etc.) ones like *pretty* over objective ones like *little*, argumental adjectives (not in the example) must be lowest, etc. The details of scope are complex, and, to the extent they have been worked out,³⁷ they have not yet been fully explained in a principled way, but our present aim is **not** primarily to work them out or even less explain them, but simply to establish that **whatever scope-determining feature a Cinquean analysis may attribute to a functional head in order to account for its hierarchical position (and that of its specifier) with respect to other constituents may just as plausibly be attributed, under the present analysis, directly to the modifier involved**, i.e., the F-heads generating the specifiers in which demonstratives, quantifiers and adjectives are lodged in Cinque's analysis are superfluous in the derivations proposed here.³⁸

For the sake of further, if summary, illustration, PP post-modifiers of the noun, and participial or relative clauses, as in (24), are also *n*th-order one-place predicates of the nominal and get fully saturated and syntactically inactive after they are matched with it. For example, according to the best established view in the literature concerning restrictive post-modifiers (ultimately Partee's), the structure of NP's like (24a, b) is shown in (25a, b).

- (24) a. The girl by the sea.
 b. The girl playing badminton.
 c. The girl dressed in pink.
 d. The girl who is giggling.
- (25) a. {_{girl} the, {_{girl} girl, {_{by} by, {_{sea} the, sea}}}}.
 b. {_{girl} the, {_{girl} girl, {_{playing} playing, badminton}}}}

Incorporating that standard view of post-modifiers into the present theory is trivial. The only difference between PP's, RC's, reduced RC's, etc. and pre-modifiers like *little* or *English* is that, whereas the latter are headed by monadic second-order predicates whose first and only argument is the N(P) and appears as their complement following them, the post-modifiers of (24) are headed, respectively, by a two-place preposition *by*,³⁹ a two-place verb *playing*, a passive participle *dressed* accompanied by a PP modifier, and a relativizing *wh* element, which all already have a

³⁶ Longobardi (2001) contains a rather detailed description of scope and the order of elements inside his DP, including those of various types of adjectives. He, like Cinque, looks for, and finds, parallelisms between clausal and nominal modifiers, and, in essence, adopts Crisma's (1993) hierarchy, which predicts the distribution speaker/subject oriented adjective > (= higher than) manner adjective(s) > argumental adjective, as in *the possible hostile German reaction*, and N-raised Romance alternants like Sp. *la posible reacción hostil alemana*, plus higher Q-like adjectives (e.g., *numerous*), appositives, etc. All that is assumed here, except that the quantifying, modal, qualifying, or argument-like features of *numerous*, *possible*, *hostile*, *German*, etc. are taken to reside in the adjectives themselves, rather than in ghost F-heads.

³⁷ Rather inadequately, but see references to Cinque, Giusti, etc. above and, on adjectival order, Sproat & Shih (1988), Valois (1991), Crisma (1993), Longobardi (2001), Scott (2002), and, of course, descriptive grammars like Quirk et al. (1985: 437; 1338-1340), Huddleston & Pullum (2002: 452-455), etc.

³⁸ In the restricted domain of the present discussion, this rather radical simplification is mainly motivated by Occam's principle, but in a wider perspective there are deeper reasons to question the categorical split assumed in the literature between functional and lexical heads. The acquisition facts often invoked in support thereof do not in fact warrant a categorical distinction, just one between more intuitively prominent properties acquired earlier and more abstract ones that take longer, and neither do the conclusions to be legitimately derived from the study of impaired speech in Broca's aphasics, although discussing such evidence in detail is out of the question here.

³⁹ A consequence of the present approach is that P must be a predicate, i.e., a lexical category, as traditionally assumed in X-bar theory since Chomsky (1972) or Jackendoff (1977). For the opposite view that P is functional, though, see Emonds (1985) and now Baker (2003).

complement when they are attached to the NP and must convert the NP into their specifier and, in virtue of Kayne's LCA, follow it.

This analysis extends to right-branching AP's like *fond of children* in (26), etc., so Bernstein's (1993, 1995) *ad hoc* divide between pre-nominal A's being heads (thus blocking further N-Raising) and post-nominal ones being phrases (i.e., specifiers, allowing N-Raising through their F-heads) now shows as an unnecessary stipulation: post-nominal AP's are post-nominal because, since their complement is filled by their internal argument, *of children* in (26), their second argument (and subject) must occupy their specifier, and, granted LCA, a specifier will precede the head A and its complement (cf. *infra* on HFF effects).

(26) A bachelor fond of children.

Complex NP's containing both pre- and post-modifiers are often structurally ambiguous depending on the order in which the various modifiers are attached. For example, in principle, (27a) may be derived as in (27b, c), among other possibilities, depending on whether the PP and the RC are attached earlier or later than the adjective, respectively.

- (27) a. the little girls in tartans who are giggling
 b. {_{girls} the, {_{girls} little, {_{girls} {_{girls} girls, {_{in} in, tartans}}, {_{who} who are giggling}}}}}
 c. {_{girls} the, {_{girls} {_{girls} {_{girls} little, girls}, {_{in} in, tartans}}, {_{who} who are giggling}}}}

Observe that, in cases like (27), the order of attachment of the AP, PP and RC modifiers is not determined by c-selection, since all presumably select the same type of N(P)s,⁴⁰ but by their respective intended scope, which varies as a consequence of information structure in discourse. Thus, the subject of *in tartans* may be *girls* or *little girls*, as in (27b) and (27c), respectively, and the subject of the RC may be *girls in tartans* (27b), *little girls in tartans* (27c), or, arguably, even *the little girls in tartans*.⁴¹

There surely are plausible alternative views on the syntactic structure of post-modifiers, but they all can be accommodated within the theory without substantially changing the account already offered. For example, at least some restrictive post-modifiers might be attached to full NP's rather than intermediate projections (cf., e.g., Ross' NP+S analysis). In that case, the structure of NP's like (24a) or (24b) must be adjusted in trivial ways, i.e., instead of (25a, b) the structures will be (28a, b) and the semantic type of the modifiers will be <e, e> instead of <<e, t>, <e, t>> as assumed here, but otherwise the theory and the explanations it generates will not be affected in any essential way.

- (28) a. {_{girl} {_{girl} the, girl}, {_{by} by, {_{sea} the, sea}}}
 b. {_{girl} {_{girl} the, girl}, {_{playing} playing, badmington}}

More interestingly, according to a traditional analysis that emerged in the earliest TGG work (e.g., Smith 1964, Chomsky 1965) and has now been revived by Kayne (1994) under different assumptions, restrictive RC's (and equivalent restrictive AP's, PP's, participial VP's, and other 'reduced' RC's) could be the underlying complements of definite articles, although such ArtP's do

⁴⁰ Of course, modifiers may well select nominals with additional properties requiring previous attachment of adjectives, quantifiers, or even determiners, to their nouns. Indeed, certain ellipsis phenomena (cf. *The students here are better than those at LSE*), and the incompatibility between possessives and RC's (cf. **His book that we discussed*) suggest that some postmodifying PP's and RC's are attached to full NP's. Partee's objection to the NP+S analysis of RC's of Ross and Chomsky on account of the type-conflict/infinite-regress it induces is not unsurmountable, cf. Bach & Cooper (1978), but such issues have been discussed elsewhere, cf. Author (1995).

⁴¹ There are well-known constituency tests based on coordinability or the use of the stressed demonstratives *that/those* and the anaphoric pro-form *one* that allow us to decide on such structure-scope ambiguities in NP's as used in specific speech contexts (cf. the non-identical sets replaced by the proforms in *those who are giggling, the ones who are giggling, the little ones*, etc.).

not show on the surface, because, according to the traditional account, the complements of Art would be obligatorily ‘extraposed’, presumably to satisfy the HFF, as suggested in (29).

- (29) a. [_{ArtP} the + by the sea] girl > [_{ArtP} the t] girl [by the sea]
 b. [_{ArtP} the + who is by the sea] girl > [_{ArtP} the + t] girl [who is by the sea]

Alternatively, according to Kayne (1994), who excludes all rightward movement, the surface form would emerge from an underlying structure like (30a) (irrelevant details omitted) through raising of the N(P) into the Spec C of the RC, as shown in (30b).⁴²

- (30) a. the + [_{CP} ___ C [_{IP} the girl is by the sea]]
 b. the + [_{CP} the girl C [_{IP} t is by the sea]]

That view of restrictive modification is common in formal semantics (cf., e.g., Keenan & Stavi 1986), where determiners like *the* are quantifier-like ‘operators’ that need a ‘restrictor’, i.e., our (24a), for example, translates, under standard predicate logic conventions, into the formula (31).

- (31) (the only x) such that [Girl(x) & By (x, the sea)]⁴³

That hypothesis is far from implausible, at least for the highest restrictive modifier, and has been developed in Author (2003), but, again, even if it proved preferable to the conservative Partee-style analysis adopted above for expository purposes, only minor changes would be needed to incorporate it into the present account. The underlying structure of (24a) or (24d), for example, would then be not (32a, b), as assumed in Smith (1964), but, irrelevant details omitted, (33a, b), where *the* takes the PP or RC as its first complement and the NP *girl* as its ‘subject’.

- (32) a. {_{girl} {_{the} the, by the sea}, girl}
 b. {_{girl} {_{the} the, who is giggling}, girl}
 (33) a. {_{girl} girl, {_{the} the, by the sea}}
 b. {_{girl} girl, {_{the} the, who is giggling}}

Note that, under such an analysis, the underlying DP’s *the by the sea*, *the who is giggling* continue to play the role of **modifiers** of the noun *girl*, which is the second argument that *the* requires and becomes its specifier, preceding *the* and its complement. As generally assumed of modifiers in Author (2004a), the modifier gets saturated and what projects is the modified, i.e., the NP *girl*, in our example. Of course, what surfaces are not the NP’s in (34), but this follows from an independent factor, i.e., the head of the modifier, *the*, is an operator and must c-command its associated thematic domain in full, so it raises leaving the NP behind.

- (34) a. *girl the by the sea
 b. *girl the who is giggling

In Author (2003), which assumed Abney’s DP hypothesis as a matter of course, *the* raised into a functional head D starting a new DP shell. Of course, if NP’s are just NP’s, as claimed here, that assumption must be revised to let D become a non-projecting noun modifier in its landing site, which, of course, follows if there is **no** functional structure above NP, but that is about all that requires revision to make the analysis of RC’s in Author (2003) compatible with the present account if we should choose to adopt it instead of the conventional one initially defended by Partee.

⁴² That is a questionable solution, for reasons stated in Borsley (1997) and not adequately dismantled in Bianchi (2000), but the details need not concern us here; see Author (2003).

⁴³ In (10), the Russellian iota operator/its predicate logic expansion is just paraphrased for simplicity’s sake.

Obviously, a full treatment of nominal modification is out of place in a primarily conceptual and polemical paper like this, but I trust the previous quick overview suffices to indicate how all the main types of adnominal constituents can be accommodated within the present approach.

2.2. Descriptive and empirical advantages of the modifier analysis

Dispensing with all NP-internal F-heads (except ‘small n’, parallel to Chomsky’s ‘small v’, and of course needed to accommodate the argument structure of three-place head nouns), apart from being desirable from an Occamian/Minimalist perspective, has nice consequences at the levels of descriptive, empirical, and explanatory adequacy.

One is in the statement of selection features. Under Abney’s (or Grimshaw’s) theory, if a head c-selects a nominal complement (e.g., *like*), the nominal will typically be indistinctly a bare NP (*girls*), an AP (*English girls*), a QP (*two girls*) or a full DP (*the girls*), but only the noun really counts, so the various F-heads have to be considered irrelevant from the point of view of selection.⁴⁴ Of course, that is not satisfactory, because the *extra* structure is there, and, if it is, selection will no longer rest upon a **local** relation between a head and the sister it merges with. Properly, granted the nature of Merge and Abney’s, Grimshaw’s, or Cinque’s assumptions, in the derivation of an NP like (1), the noun *girls* will cease to be accessible to Merge after it merges with the lowest A to yield *English girls*, {English, girls} will in its turn cease to be accessible after it merges with *two*, etc. Thus, the way to explain the alternative c-selection properties of *like* is to introduce a disjunction (i.e., [C-selection (*like*) = NP/AP/QP/DP]) which is not only cumbersome, but inadequate, as *like* selects a certain kind of noun, but does **not** select adjectives, quantifiers, or determiners, at all. Granted present assumptions, on the contrary, only the noun remains active (i.e. accessible) in the syntactic computation as the NP is built, only the noun is selected, and the selection feature of *like* is simply [C-sel(*like*): N[Case: Acc]]. Nothing will stop the noun from being modified by the addition of further predicates of qualification, quantification, or identification, but, if such modifiers occur, they will immediately become saturated and invisible to further computation. In other words: the present theory shares the advantage that dependency grammars like Hudson’s (1990) have always had over constituency grammars in this respect.

Further drastic simplification is achieved (at no cost) in the area of agreement. Granted the standard analyses, the heads or specifiers Art, Poss, Dem, Q or A, or the F-heads that take them as their respective specifiers, must unexpectedly agree with their respective complements in number, and often gender and case, but in the core cases of complementation (e.g., verb/preposition-object) no head is forced to agree with its complement in that way, which makes such a stipulation suspicious. Under present assumptions, on the contrary, since *the*, *two*, *little*, and *English* are predicates of the noun *girls* and its successive expansions, they **are** expected to agree with their subjects in the features relevant to their mutual identification (e.g., number, gender, and case), within the limitations imposed by the inflectional morphology available.

Then, as shown in detail in Author (2004a), an important advantage of the reduction of modification to complementation is that the mysterious head-final effects of noun pre-modifiers, e.g. (35-40), usually attributed to Williams’ (1982) HFF, now follow without stipulation: whenever a modifier is right-branching, the modified NP is forced to occupy its specifier and, in virtue of Kayne’s LCA, c-commands it and eventually precedes it at the P interface.

- (35) a. a student [_{AP} keen [_{PP} on jazz]]
 b. *a [_{AP} keen [_{PP} on jazz]] student

- (36) a. Bill’s lecture [_{DP} this morning]
 b. *Bill’s [_{DP} this [_{NP} morning]] lecture

- (37) a. a residential area [_{PP} near Boston]

⁴⁴ Correspondingly, under a Cinque-style analysis, D selects FP1, F1 selects FP2, and so on down to the ‘lexical’ NP, but only the latter seems affected by selection.

- b. *a [_{PP} near [_{DP} Boston]] residential area
- (38) a. a briefcase [_{VP} containing documents]
 b. *a [_{VP} containing [_{DP} documents]] briefcase
- (39) a. a politician [_{VP} concerned with social welfare]
 b. *a [_{VP} concerned [_{PP} with social welfare]] politician
- (40) a. a book [_{CP} which I published in 1991]
 b. *a [_{CP} which [_{IP} I published in 1991]] book

Fourthly, the NP-internal ellipsis phenomena discussed in Lobeck (1991, 1993, 1995) and subsequent work, which apparently support the head status of Art, Dem, Q and (in some cases) possibly A, follow just as smoothly from the present theory. Lobeck's hypothesis was that elliptical categories are base-generated empty complements reconstructible under government by functional heads specified for certain overt inflectional features. According to Lobeck (1993: 779; 1995: 41), elliptical categories are subject to a principle of Licensing and Specification of Empty Pronominals (LSEP) derived from Chomsky's (1981) generalized ECP that requires an empty non-arbitrary pronominal to be governed by an X specified for strong agreement.⁴⁵ Under such assumptions and a DP theory of nominals similar to Abney's, Lobeck claims to be able to predict the facts of ellipsis in cases like (41-42):

- (41) a. Do you like those ties? I prefer these EC/ this EC / that EC /the *EC / a *EC.
 b. Do you like John's car? I prefer Bill's EC / mine EC / my *EC.
 c. I prefer this bed. Which EC do you prefer?
- (42) a. Do they have cars? Yes, they have many EC / several EC / three EC.
 b. Do students have PCs? Yes, all \emptyset / each \emptyset / every *EC have/has one EC or two EC.

EC's following interrogative *which*, Dem, Q, and Poss are, thus, straightforward, just as their non-occurrence after invariable *the*. Since Lobeck (1991: 90-91, 1993: 788) assumes that lexical heads cannot be specified for strong agreement and, contrary to Abney (1987), considers A as a lexical head, her theory also derives the (mostly correct) prediction that, in English, adjectives will not license ellipsis. However, what counts as being marked for strong agreement is somewhat indeterminate in Lobeck's theory, and the crucial hypothesis that lexical heads cannot be so marked is too parochially English and almost certainly wrong. Obviously, in e.g. German (French, Spanish, etc.), adjectives do carry overt agreement morphology and license ellipsis, cf. (43), but they can hardly be considered non-lexical (cf. Baker 2003).

- (43) Der alte Wagen war schneller als der neue EC.

Even in English, certain semantically plural, although overtly uninflected, adjectives do license ellipsis, cf. (44a), and singular adjectives are not too bad with omitted NP's, either, as in (44b), although the use of the pro-form *one* is certainly preferred.

- (44) a. The elderly teachers are less conservative than the young EC.
 b. The blue shirt is nice, but I still prefer the beige ?EC/one.

⁴⁵ A head is specified for strong agreement when it (or another head or specifier coindexed with it) carries overt agreement features, cf. Lobeck (1993: 784). In what concerns NP-internal ellipsis, such features, according to the final version of Lobeck's Ellipsis Licensing Principle (ELP) are at least [+Poss], [+Plural], [+Partitive], [+Agr], and interrogative [+Wh], cf. Lobeck (1993: 794), to which Lobeck (1995) adds [+Degree].

The behaviour of prepositions in this respect could also arguably contradict Lobeck's predictions, because many admit intransitive uses which might be analysed as cases of ellipsis, cf. (45), but fail to satisfy Lobeck's criterion of overt agreement morphology. If they are lexical, as traditionally assumed (e.g., by Chomsky 1972 and Jackendoff 1977), they should not license ellipsis, and, if they are functional, as Baker (2003) claims, since in English-like languages P's are not overtly marked for agreement, they do not satisfy Lobeck's conditions and should not license EC's either.

(45) She was coming down the stairs when I was going up EC.

Similarly, most nouns do not license ellipsis of their complements, which is consistent with Lobeck's hypothesis about lexical categories not licensing EC's, but some do, cf. (46a-b), and, nevertheless, the second of Lobeck's hypotheses, i.e., that nouns, being lexical, cannot be inflected for strong agreement, is harder to accept, even in English, and especially in languages with richer inflectional morphology.

(46) a. I liked the end of the play more than the beginning EC.
b. She was at the top of the hill when I was still at the bottom EC.

In sum, Lobeck's attempt to correlate functional status, strong agreement morphology, and ellipsis-licensing capacity does not succeed in full, and the empirical evidence does not entirely adjust to her predictions, although it cannot be pronounced inconsistent with an ECP-based account of NP-internal ellipsis, either. However, granted her formulation of the conditions under which a head is marked for strong agreement, the ellipsis facts do not unequivocally support the head status of Dem, Q, etc. Note that if Dem, Q, and A marked for strong agreement are specifiers, they obviously will not govern the EC, but will still agree and be co-indexed with F-heads that do, their respective F-heads will thereby also be marked for strong agreement, and will accordingly license EC's as their complements. The point, in short, is that, under Lobeck's assumptions, the evidence is equally compatible with the head theory, the specifier theory, and the modifier theory assumed here.

Crucially, the present version of the modifier theory does not question the head-status of adnominal Art, Poss, Dem, Q, or A. On the contrary, they are heads c-selecting nominals as their complements, and 'strong' Art, Dem, Q, and A, (but not 'weak' *the*, P, or *wh*, cf. *infra*) will properly govern the EC, so NP-internal ellipsis may well be an ECP phenomenon, as Lobeck claims, even if LSEP is wrong. What the present theory does is add a **second** (and rather robust) reason why EC's should be expected to occur following such elements, i.e., the omitted nominal is also their **subject**, and since predicates must generally agree with their subjects *modulo* available inflectional morphology, such subjects become identifiable (= recoverable in appropriate contexts) from the inflectional features and selection restrictions of their predicates, and can be elided. The difference between subjects of strong D, Q and partially A, which can be elided, and subjects of P, RC, or reduced RC's, which cannot, cf. (47), also derives from two facts, i.e., a) P's and clausal heads like *wh*, *-ing*, *-ed*, etc., of course, do not properly govern their specifiers, and b) P's and clausal heads or RC's do not have strong agreement morphology, either.

(47) a. *The report on my desk is not the EC on yours.
b. *The article you wrote is better that the EC he wrote.
c. *The box containing books is heavier than the EC containing CDs.
d. *The students taught by Ed performed better than the EC taught by Tom.

As (48) shows, if an inflectionally explicit determiner like *that* or *those* or a quantifier is selected instead of the uninflected *the*, ellipsis succeeds.⁴⁶

⁴⁶ Observe that a pronominal analysis of *those*, *two*, etc. not assuming the EC will not account for the interpretation of the second NP.

- (48) a. The boxes containing books are heavier than those EC containing CDs.
 b. The students taught by Ed did better than those EC taught by Tom.
 c. There were three boxes containing books and two EC containing CDs.
 d. There were many students taught by Ed and a few EC taught by Tom.

This shows that the structure of the subject NP's in cases like (48a), and the same applies to the other cases of (48), is (49a), i.e., Ross' NP+S, rather than (49b), (= Partee's N+RC analysis).

- (49) a. $\{_{\text{box}} \{_{\text{box}} \text{The, boxes} \} \{_{\text{containing}} \text{containing, books} \} \}$ are heavier than
 $\{ \{_{\text{EC}} \text{those, EC} \} \{_{\text{containing}} \text{containing, CDs} \} \}$
 b. $\{_{\text{box}} \text{The, } \{_{\text{box}} \text{boxes} \} \{_{\text{containing}} \text{containing, books} \} \}$ are heavier than
 $\{_{\text{box}} \text{those, } \{_{\text{EC}} \text{EC, } \{_{\text{containing}} \text{containing, CDs} \} \}$

The reason is that only structure (49a) allows the EC version of *boxes* to be the complement governed by *those*. In (49b), on the contrary, *boxes* (and the parallel EC) is the specifier of *containing*, but bears no complement relation to *those*. This makes the licensing of the EC impossible, for *containing* lacks overt agreement and cannot license the EC as its subject, whereas *those*, which does have overt agreement, cannot license it either as a subject or as a complement, since EC is buried inside the clause.

As to the domain of phenomena in which the specifier theory is claimed to be particularly revealing, the positional alternation between Germanic and Romance adjectives (and other presumed specifiers) on different sides of the N(P) discussed above in 1.2, as in English (50) vs. Spanish (51), in the present theory that alternation follows from the distribution of NP-Focus and the action of the Focus Last principle (cf. Bernstein's 1997 parallel view of the trigger of NP-Raising), rather than from checking *via* N-Raising, which, as shown in 1.2, does not explain why adjectives (etc.) may remain pre-nominal in Spanish, as in (51b), or why they must raise as far up as they do (but no higher) in various other languages (cf. Longobardi 2001, discussed above).

- (50) a. the new Audi
 b. *the Audi new

- (51) a. el Audi nuevo
 b. el nuevo Audi

Roughly, depending on the permanent/transitory (cf. Bolinger 1967) or individual/stage-level character (cf. Kratzer 1995) of the properties expressed by the adjective in the respective positions, the noun or the adjective is informationally more prominent and must be NP-final according to the Focus Last principle. In (51a) the adjective is stage-level, carries the more relevant information at NP level, is therefore NP-Focus, and must be in NP-final position, whereas in (51b) the adjective, apart from semantically different, cf. Abney (1987), Arnold & Sadler (1994), and Bouchard (1995: 327-329), certainly is not NP-Focus and cannot follow the noun.

Parallel reasoning applies to alternations involving demonstratives and possessives like (52) and (53), as the phonological prominence (and, in traditional Spanish orthography, stress) indicate (cf. Bernstein 1997): (53c) is bad because it has an unfocusable weak form *mis* in NP-Focus position instead of the required strong form *míos* that makes (53b) well-formed.

- (52) a. este chico
 b. el chico éste

- (53) a. mis dos libros
 b. (los) dos libros míos
 c. *(los) dos libros mis

Obviously, this is meant as a short suggestive sketch, the fine details must be filled in,⁴⁷ and it cannot be done here, but the key idea is that information-structure interacts with the selection and scope-taking properties of identifying, quantifying and qualifying modifiers to grant correct **base**-generation of D, Dem, Q and A's, in both Germanic and Romance, without the intervention of N(P)-Raising.

What crucially tips the scales at this juncture as between the N(P)-Raising theory and the present one is that, within the former, information structure has to be invoked to account for the exceptional properties of N(P)-Raising anyway, which questions the credibility of the standard checking approach. On the contrary, under the present view, such alternations are **not** exceptional, for information-structure and the associated phonological principles are assumed to interact with selection, satisfaction, and Match all along. All that is required⁴⁸ is that modifiers be directly base-generated preceding or following the noun depending on which must be in Focus, and there are at least two ways to implement this idea. One is to simply posit a feature [+Focus] and a Focus Last constraint capable of overriding the phrase structure principle that forces heads to take their first argument as a complement and precede it, but such a strategy, native to work on constituent order within Optimality Theory, does not quite fit in the rather more categorical framework presupposed here. Alternatively, Focus could be an underspecified lexical item and occupy the complement position of the focused head forcing any other complement of the latter to be a specifier and precede both, as assumed in Author (2004a).

Finally, contrary to what happened under Abney's theory (and, arguably, under specifier theories), if D, Q, A, and PP/RC constituents of NP's are syntactically sisters and semantically predicates taking the N(P) as their subject, the syntactic categories distribute as expected (i.e., *new car* is an NP, not an AP, etc.) and the rules of the syntax/semantics interface are straightforward. Under the Partee-like analysis above, granted Montagovian assumptions, common NP's are predicates of type $\langle e, t \rangle$ and modifying AP's, PP's, RC's etc. are additional predicates of type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$ successively predicated of the N or its expansions by 'function-composition', as Montague (1974) claimed (cf. also Williams 1994; Bierwisch 2003), the result being increasingly complex derived predicates of type $\langle e, t \rangle$ (or $\langle e, e \rangle$, where the alternative Ross-style attachment of post-modifiers discussed above is right). Predicates, of course, refer to sets, and, depending on the properties that modifiers add to the intension of the N(P), the latter's extension is appropriately constrained. As to quantifiers like *three*, *many*, *few*, etc., they further determine reference within sets restricted by specific cardinality, multality, paucality, etc. Finally, a modifier like *the*, *this*, *that*, etc. may introduce an identity condition that forces the hearer to pick up a unique referent (see section 3 *infra*). That is what some determiners do and allows NP's that have them to refer in a specific way, but that fact need not force on us the conclusion that an NP is a DP.

In sum, the traditional modifier analysis of D, Poss, Dem, Q, A, etc., and correspondingly that of NP's as **just** NP's, as refurbished according to the theory of modification in Author (2004a), does everything that the head theory or the specifier theory do, and does it more economically, since it dispenses with dubious functional heads and therapeutic movements, offers a clear picture of the basic syntactic and semantic relations among various constituents of the NP, keeps the syntax-semantics interface tidy, and yields for free an elegant explanation of the mysterious HF phenomena and of constituent order asymmetries like the impossibility of PP modifiers before their modifieds. As justifications of adequacy go, that should suffice to establish it as a legitimate competitor of the standard analyses, but there is more to be said for it, as shown in section 3.

⁴⁷ Some detail is added in Author (forthcoming), where part of the explanation of the acceptability of split AP's hinges on the informational status of the detached PP's or CP's.

⁴⁸ In general. Of course, just as in the NP-Raising theory, stipulations will be needed as to why, say, *libros* does not raise above a numeral in **los libros dos*, i.e., something will have to be said about why *dos* cannot carry NP Focus, etc.

3. HOW PLAUSIBLE IS THE MODIFIER ANALYSIS? FURTHER (MAINLY SEMANTIC) EVIDENCE

3.1. Introduction

The analysis above will be not only descriptively efficient, but adequate in a deeper sense, to the extent it is justifiable to treat adnominal D's, Q's, A's, PP's, RC's, etc. as additional **predicates**, rather than somewhat strange arguments of the noun's functional extensions. If the semantic function of such elements can be established on relatively theory-independent grounds, keeping assumptions about the power of the syntax-semantics interface constant (that is, close to Montagovian transparency), it should be possible to choose among the competing syntactic analyses and hopefully find further support for the present one.

As in traditional grammar and logic, under the approach in Author (2004a), only two basic semantic categories were assumed, i.e., predicates and arguments. The semantic category 'modifier' was unified with that of (nth-order) predicate and dispensed with.⁴⁹ Correspondingly, in syntax, the problematic category of 'adjuncts' was unified with that of 'heads' and also eliminated. The motivation was eminently syntactic, and attractive consequences followed to which must be added those above with respect to NP structure, but the issue here is whether, apart from the obvious descriptive and explanatory advantages of the modifier theory, there are deeper reasons to unify D's, Q's, A's, PP's, RC's, etc., with predicates, rather than with arguments, as specifier theories implicitly claim.

As a matter of fact, the linguistic and logical-philosophical literature on the structure and interpretation of nominals largely sanction such a move and constitute independent support for the modifier analysis. What follows is a selective review of the reasons that seem to me more robust and (relatively) theory-independent. Of course, nothing will be 'new', but this sort of basic evidence tends to be forgotten in the heat of theoretical polemics, and, since, after all, the present work is largely a reinstatement of a traditional view, it may not be inappropriate to summarize it, recall what any theory of NP structure should be responsive to, and tie up loose ends left in our presentation above.

3.2. Adjectives

A crucial first step to this enterprise, of course, is determining the semantic function of 'modifying' adjectives,⁵⁰ since the theory above leads to considering demonstratives, quantifiers, etc. as also essentially adjectival.

As grammarians have traditionally seen the matter, adjectives like *blue* are unlikely to be complements (i.e., arguments) of their neighbouring nouns, but settling the issue is tricky, as the usual diagnostics do not apply to AP's as they do to NP's or PP's. For example, the obligatoriness criterion, which clearly indicates argumenthood, is nearly always inapplicable within NP's, where most complements are optional anyway and cannot be distinguished on such grounds from equally optional modifiers. Selection of the preposition introducing PP's is another standard diagnostic,

⁴⁹ Of course that was hardly new. Paul (1880: 140) explicitly says that an adjunct is 'ein degradiertes Prädikat', and there are similar pronouncements in von der Gabelenz, Wundt, Husserl and others. In more recent times, it is assumed in Montague (1974) and broadly in the Montagovian tradition, cf. Bierwisch (2003), although its explanatory potential has not been exploited in full, in my view.

⁵⁰ Obviously, there are non-modifying A's, e.g., many denominal ones, which unquestionably behave as arguments. To my knowledge, this analysis has been proposed by Cinque (1995), Kayne (1994) and Longobardi (2001) for certain agentive adjectives like *German* in *the German invasion of Poland*, but can be extended to non-agentive adjectives like *economic*, *organic*, *academic*, *sentential*, etc. in *economic situation*, *organic disease*, *academic upheaval*, *sentential analysis*, etc. The present theory is absolutely compatible with, and in fact adopts, that view, i.e., *German* is the Agent of *invasion* in *the German invasion of Norway*, *economic* is the Theme of *situation* in *the economic situation*, etc., and such adjectives occupy the specifier internal to the respective NP's/NP-shells. Such cases are taken for granted and will not be further discussed here.

but, by definition, irrelevant to adnominal AP's, which are not introduced by prepositions. Case-selection is relevant to NP arguments (and by extension VP's, cf. Fabb 1984), but irrelevant to AP's, whose case-features (when visible) agree with, but are not obviously governed by, those of the N(P). There, thus, remain semantic criteria, e.g., thematic selection, and in this case, at least, terms like *blue* in *blue notebook* have never, to my knowledge, been claimed to receive theta roles from the noun (although even that is not out of the question, cf. *infra*). Rather, they project a thematic structure of their own into which the N(P) must fit with a fixed role (typically a Theme-like one), cf. Higginbotham (1985: 564). On the other hand, the fact that such adjectives have always⁵¹ been associated with relative clauses in which equivalent AP's are unquestionably the main predicates (i.e., *a young man* <> *a man who is young*, etc.), as well as their overt agreement with their head nouns, typical of predicates wrt their subjects, strongly argue in favour of this traditional analysis.

That intersective adjectives like *blue* in *blue notebook* are predicates is also the standard view in predicate logic textbooks and seminal works like e.g., Quine (1960), or Montague (1974). It must be noted, though, that the predicate analysis of adjectives comes in two different versions in the logical-philosophical literature (cf. Bierwisch 2003), which should have had consequences on the associated syntax (but apparently has not).⁵² According to the standard approach in first-order logic, adnominal modification resolves into predicate conjunction, i.e., e.g. a sentence like (54a) is translated by a formula like (54b).

- (54) a. Tom has a blue shirt.
 b. $\exists x$ [Shirt(x) & Blue (x) and Have (t, x)].

In extensional contexts like (54), the indefinite determiner is rendered, correctly, although, of course, non-compositionally, by the existential quantifier, and both the AP modifier *blue* and the modified NP *shirt* translate as first-order one-place predicates predicated of the individual represented by the variable *x*. That traditional approach is carefully developed and tailored to the needs of Chomskian linguistics in e.g., Higginbotham (1985: 562-565), which offers an explicit account of how such formulae relate to lexical argument structure, argument projection, and the syntax of the NP. Roughly, modifier (AP) and modified (NP) are first-order one-place predicates whose respective unsatisfied external arguments are first 'theta-identified' and then jointly 'discharged' by the determiner, which binds it, 'closing' the NP (cf. Higginbotham 1983: 416; 1985: 560; Bouchard 1995; Bierwisch 2003). Observe, however, that the predicate conjunction analysis **fails** to reflect the insertion of the NP as a subject in the thematic grid of the adjective,⁵³ is not, or at least not strongly, compositional, and **fails** to explain the morphological and phonological properties attending attributive constructions.

On the other hand, it has long been known that not all adjectives are like *blue*. First, NP's containing 'syncategorematic' adjectives like *good* in *a good pianist*, (similarly, *small* in *a small elephant*, etc.), do not really mean 'an *x* such that *x* is (a) pianist and *x* is good', but rather 'an *x* such that *x* is a pianist and *x* is good as a pianist'. That complication has been solved within predicate-conjunction approaches to modification simply by postulating a hidden argument, i.e., syncategorematic *good* is treated as an intersective, although dyadic, rather than monadic, first-order predicate, but otherwise the predicate conjunction approach is maintained (see Higginbotham 1985: 562-568; Parsons 1990: 43-44; Partee 1995, etc.).

⁵¹ The *locus classicus* is the Port Royal Grammar of 1660, but, restricting our attention to relatively modern times, this has been a standard association from the earliest work in TGG (e.g., in Chomsky 1955), through classical EST work like Bowers (1975) or Jackendoff (1977), to Kayne (1994), although, of course, none of those authors claim that all adjectives derive from RCs (or viceversa).

⁵² Somewhat paradoxically, the semantic hypothesis that adjectives are predicates does not seem to have imposed any constraints on the associated syntax, for it is just as happily invoked by scholars who treat them as heads (e.g., Abney 1987), adjuncts (Bowers 1975, Jackendoff 1977), or specifiers (Cinque 1995, etc.). Obviously, the structure-dependence principle has not been given its due in this case.

⁵³ Higginbotham's analysis, however, is neither purely conjunctive, nor purely first order, see *infra* on his concept of 'autonomous theta marking'.

However, as noted in Quine (1960), Montague (1974), Kamp (1975), Higginbotham (1985), Hamann (1991), Williams (1994), Partee (1995), Heim & Kratzer (1998), Bierwisch (2003), etc., adjectives like *mere*, or *false* in *a mere excuse*, *a false banknote* etc., cannot be translated in terms of predicate conjunction at all, or the wrong truth-conditions will be attributed to the sentences containing them. Those cases have largely motivated the alternative view that such modifiers (and possibly all, since intersective modifiers are the exception, rather than the norm, see Higginbotham 1985: 562, and Partee 1995) are best considered higher-order predicates, as Montague (1974: 211) claimed. For that reason, in Author (2004a) and 2.1 above, a predicate-composition view of modification is adopted which is well established in the Montagovian tradition and occasionally seems to be Chomsky's, too (cf. Chomsky 2001: 18). In other words, adjectives are assumed to be second-order predicates of type $\langle\langle e, t \rangle, \langle\langle e, t \rangle\rangle$ (in the simplest adicity case), which take nominal first-order predicates of type $\langle e, t \rangle$ and yield composite first-order predicates also of type $\langle e, t \rangle$. Observe that, under that analysis, or Higginbotham's (1985: 564) variant in terms of what he calls 'autonomous theta-marking', the NP predicate **is** properly inserted in the argument structure of the AP predicate as a subject, which explains agreement, ellipsis (e.g., in inflectionally rich languages like Spanish), and the impossibility of iterating adjectives of the same type.

Now, the point is: is there any reasonable alternative to the predicate analysis? Of course, considering adjectives like *blue* as additional arguments of the noun, although unconventional, is not literally out of the question.⁵⁴ In theories like Cinque's, the status of adjectives as specifiers of F-heads above the NP excludes that possibility, but the F-heads that license such specifiers might well have their own arguments.⁵⁵

Unfortunately, as argued in 1.2, next to nothing has been said, to my knowledge, on such F-heads and their syntactic-semantic relations with their complements and specifiers, so here only (hopefully charitable) speculation is possible. Under a charitable interpretation of the specifier theory, what the functional heads F-A, F-Q, F-Dem, and F-Art would presumably add to the NP would be predicates of quality ('Manner'), quantity/cardinality, or identity, which could perhaps take additional subjects (to be satisfied by the respective specifiers). Thus, in a DP like (55),

(55) the/those two little English girls

F-A[origin] or F-A[size] would convert the N(P) *girls* into a 'qualifiable' NP_i by adding features like [x = Origin (of i)] and [y = Size (of i)] to the head of the higher shell, whose variables x, y would be bound by appropriate specifiers (x = *English* and y = *little* in our example). Then, the head F-Q would convert such an extended NP into a 'quantifiable' one by adding a feature [z = Q-Cardinality (of i)] whose variable would be bound by the appropriate Q or Num (say, z = *two*, in our example), and F-Dem, F-Poss, or F-Art would turn a 'quantified' NP into a 'localizable' or 'identifiable' NP by adding a feature [w = Localization/Identity (of i)] whose variable would be bound by the corresponding determiner (w = *those* or *the*, in our example).⁵⁶

Something like that could perhaps be suggested by specifier-theory proponents by way of a reconciliation of their analysis with the basic principles of structure-dependence and optimization

⁵⁴ The treatment of modifiers as arguments of lexical heads is less established than the predicate analysis, but McConnell-Ginet (1982) and Larson (1988) did so treat adverbials. Also, in first-order predicate logic, adverbials must be translated as additional arguments of the verb or form a complex predicate with it (i.e., remain untranslated, with the corresponding breach of compositionality). By analogy, adnominal adjectives could be treated as further noun arguments, although I am not aware of proposals of this kind.

⁵⁵ Although, initially (e.g., in early work like Chomsky 1981, Stowell 1981, Abney 1987, Pollock 1989, etc.), functional heads were not supposed to have arguments at all, it is clear that nowadays they do. For example, in Hale & Keyser's (1993) theory of argument structure, adopted in Chomsky (1995), and updated in Hale & Keyser (2002), it is 'small v', not V, that licenses the Agent. Correspondingly, within an NP structure like Cinque's (1995) or Longobardi's (2001), it would be natural to assign the NP-internal Agent in the same way, i.e., by means of a 'small n' head.

⁵⁶ Under theories like Higginbotham's (1983: 416) or Rothstein (1985: 170), articles close the projection by binding any unsaturated variable, and it does not seem to matter whether they are heads or specifiers, but, of course, if they saturate arguments they should be specifiers. Such details are not really worked out in the original proposals and will be ignored here.

of the syntax-semantics interface, and Davidson's semantics, on which the specifier theory rests *via* analyses like Higginbotham's (1983, 1985), could be invoked as support for it. Thus, for example, Davidson's (1967) translation of (56a) would be (56b), where the various participants and circumstants are treated simply as subjects (i.e., arguments, as in first-order predicate logic) of different predicates (*battered* vs. *In*, *With* and *At*, the predicates of the four logical clauses into which his representation of such complex sentences resolves). Consequently, as the relevant parts of (56b) are paraphrased, it reads 'the bathroom is the (value of) *In* of e', 'a knife is the (value of) *With* of e', and 'midnight is the (value of) *At* of e'.

- (56) a. Jones battered the toast in the bathroom with a knife at midnight.
 b. $\exists e$ [*Battered* (Jones, the toast, e)
 & *In* (the bathroom, e) & *With* (a knife, e) & *At* (midnight, e)]

However, it is unclear whether such a view leads to substantive argument-like interpretations for *English* or *little* that may constitute a plausible alternative to the predicate view. Observe that the = symbol in an [attribute (of i) = value] feature is an identity predicate and its arguments can be reversed, i.e., in the case of [$x = \text{Origin (of i)}$], the same information could alternatively be expressed as [Origin (of i) = x] (the standard form of such propositions in theories that use the [A: v] format). If x is bound by *English*, as in our example, in the first case we read 'English is the (value of) Origin of i', where 'English' functions as a subject (i.e., an argument), whereas in the second we read 'the (value of) Origin of i is English', where 'English' is a predicate.

Such a move is attested within the Davidsonian tradition, incidentally. In Parsons's (1990) version, a sentence like (57a) is represented by a formula like (57b), where all participants, including the verb, are understood as predicates of the event (i.e., we read, as Parsons himself suggests, 'the *In*(=Loc) of e is the back', 'the *With* (= Instrument) of e is the knife', etc.). That reading is possible because Parsons treats the metalinguistic symbols Agent, Instrument, etc. (i.e., hypostatized Theta relations) as subjects of the propositions which paraphrase his formula (see Haegeman & Guéron 1999: 491-517 for an extended textbook application of Parsons' treatment of thematic relations).

- (57) a. Brutus stabbed Caesar in the back with a knife.
 b. $\exists e$ [*Stabbing* (e) & *Agent* (e, Brutus) & *Theme* (e, Caesar)
 & *In*(e, the back) & *With* (e, a knife)...]

If it really corresponded to something deep, Davidson's subject and Parsons' predicate interpretation of the circumstants should rightly have had different syntactic implications (e.g., the specifier vs. the adjunct/head theory of modifiers), but the difference, far from being deep, hinges on a trivial property, i.e., that equations are, by definition, reversible. The fact that one of their readings, Davidson's, could support the argument analysis of modifiers, therefore, can hardly be taken as evidence for the existence of a serious alternative to their well-established interpretation as predicates.

Of course, as Frege (1879) was already well aware, arguments and functions (read 'subjects' vs. 'predicates', and, of course, 'arguments' vs. 'modifiers' in the present context) are also relative, reversible concepts, so perhaps the semantic role of an expression underdetermines its syntactic function. In that case, semantic function will not be such a reliable criterion to choose between competing analyses, but, even if that is the case, it is clear that natural language syntax and inflection treat subjects and predicates very differently, and all the evidence points to the conclusion that adjectives are treated as predicates, with all the attending syntactic consequences.

Assuming that much, if F-heads exist, there still remains the possibility that adjectives are predicates of their respective F-heads, rather than of the N(P). That would not require changing the present theory and the resulting accounts very much, just relabelling terms in C/S-selection features and trivially adjusting types accordingly, but, if what has been said above is sound, such F-heads are an artifact of (a certain interpretation of) the autonomy of syntax hypothesis, there is no independent evidence of their separate existence, and Occam's principle recommends dispensing with them.

In sum, with the exclusion of certain denominal adjectives, not discussed here in any depth, which obviously function as arguments, there seems to be no reasonable alternative to treating adnominal adjectives as predicates of their NP's, as argued in 2 above.

3.3. Adnominal PP's

In the case of adnominal PP's, there is widespread agreement that some function as complements (= arguments) and others as adjuncts (= modifiers).⁵⁷ Of course, the present theory also claims that argument PP's are complements or specifiers of the noun or of higher NP-shells projected by N, if N is a three-place predicate, as in (58), whereas modifying PP's like *from Japan* in (59) are monadic predicates that take the N(P) as their specifier and follow it, as shown in 2 above. The specifier theory, on the other hand, ought to say that *from Japan* is structurally parallel to *Japanese* in (60), i.e., both specifiers of F-heads above NP, except that the N(P) must raise above the PP, but remain below the AP, for some unstated reason.⁵⁸

(58) the pilot's instructions to the crew to abandon the plane

(59) a student from Japan

(60) a Japanese student

Of course, only modifying PP's are of interest here, but it is necessary to recall that the argument/modifier distinction is notoriously difficult to draw,⁵⁹ and more in this case, for some of the key criteria used to establish it plainly do not apply to adnominal PP's. Thus, since N's rarely need overt complements anyway (Grimshaw's 1990 point), the obligatoriness criterion that

⁵⁷ Grimshaw (1990) claims that PP's are all modifiers or 'modifier-arguments', as nouns simply do not take real arguments in her view, but that is an unacceptable conclusion, as it destroys the possibility of capturing important regularities across the structures projected by verbs, nouns, and adjectives. The fact that nouns take arguments parallel to those of related VP's took some time to accept in both logic and syntax. In logic, it was noted early, at least as early as Reichenbach (1947), and it became a central tenet of X-bar theories, but recent research has yielded increasing evidence of an articulated argument structure inside NP's which is either completely parallel, or only slightly more 'compressed' (via neutralization of the two Case positions Subject/Object under Genitive) than that found inside VP's (cf. Longobardi 2001: 562-577). Of course, such a view is broadly accepted here and will not be further discussed.

⁵⁸ Certainly the trigger cannot be agreement-related, since PP's do not agree, nor Focus-related, since various PP's (plus CPs, etc.) can cooccur at the bottom of an NP (cf. *a brilliant student from Japan with excellent qualifications that we had last year ...*) of which only one can be in DP-Focus, and yet, unless the N raises above **all** PP's/CP's, the structure is bad (cf. **a brilliant from Japan student with excellent qualifications that we had last year*, **a brilliant from Japan with excellent qualifications student that we had last year*, etc.). The other reason that Cinque (1999) mentions as a trigger of VP-Raising, namely the need for XP to satisfy 'predication', does not really work either, for the N(P), in this case, never enters a proper subject-to-predicate configuration with the PP, and, on the other hand, if such a configuration calls for N(P) reaching a c-command position over the presumed predicate, i.e., the N(P) should raise above AP's like *brilliant* and *Japanese*, as well, which is not the case (cf. **a student brilliant Japanese with excellent qualifications ...*). In other words, specifier theories have so far identified no credible trigger for differential N(P)-Raising wrt PP's, CP's, and right-branching AP's. Williams' HFF could be invoked, perhaps by referring to a negative feature, but the theory in Author (2004a) eliminates the HFF and accounts for all such facts without adding a comma to its general principles and should be preferred.

⁵⁹ According to Dowty (2003: 54-57), who reexamines this issue, there could be a functional (psycholinguistic) reason for this. His idea is that speakers first proceed as if they were manipulating heads and fully compositional free adjuncts and that only later do they learn that some such head-adjunct relations are constrained, i.e., selected complements, and possibly non-compositional, or even idiomatic. That recalls the idea, common in 19th c. German philology (e.g., Paul 1880: 283), Jespersen (1924: 146), and dear to logicians (from Frege to Davidson, no wonder that a categorial grammarian should espouse it), and generative semanticists, that language essentially rests on the attachment of 'predicates' to 'subjects'. We sympathise, although, without detailed diachronic and psycholinguistic evidence, that theory is sheer speculation, but it should be pursued, for a change. Among its attractions, it makes modification 'core' and complementation 'periphery', reversing the priorities of decades of Chomskian linguistics.

establishes complement status in the case of ad-verbal PP's is generally inapplicable to adnominal ones. Another criterion frequently invoked instead depends on whether the preposition is selected by the head, suggesting complementhood, or free, indicating that the PP is a modifier. Thus, adnominal PP's like *to Oxford*, *from London*, *by Chomsky*, etc. in (61) are likely to be complements theta-marked by the noun (as Goal, Source, or Agent, respectively) and semantically arguments thereof, but that test leaves many cases undecided, e.g., whether *about jazz* in (62a) is an argument or a modifier has often been moot.

- (61) a. the trip to Oxford
 b. his return from London
 c. a remark by Chomsky
- (62) a. a book about jazz
 b. a treatise on harmony

As a third criterion, Jackendoff (1977) invoked the scope of the sense-anaphoric pro-N' *one* (so-called 'One-Pronominalization') to decide whether the PP's are arguments or modifiers in such cases, cf. (63), but, again, One-Pronominalization is not too reliable a test, either, for it leaves most PP's as adjuncts even if the preposition is obviously selected, cf. (64), unless the PP is headed by *of* (which might not be a real P) (see Stockwell et al. 1973, and now Partee & Borschev 2003).

- (63) *The king of Spain is taller than the one of Jordan.
- (64) The trip to Oxford and the one to Bath were memorable.

Fortunately, just as in the case of adnominal AP's already discussed, there is another somewhat more trustworthy traditional test which happens to be semantics-based and comes in handy in the present context, i.e., the possibility of paraphrasing the PP by a relative clause in which the PP figures precisely as the main predicate. As pointed out long ago (in Bowers 1975, Jackendoff 1977, etc.), that test fails for clear PP arguments, cf. (65), succeeds for clearly unselected PP modifiers, cf. (66), and resolves the uncertain status of the PP in cases like (62a) in a plausible way, for (67), although unnatural, is well-formed, suggesting that the PP is indeed a modifier, i.e., from the semantic point of view of interest to us here, a predicate.

- (65) a. a trip to Oxford
 b. *a trip which is to Oxford
- (66) a. a student from Japan
 b. a student who is from Japan
- (67) a book which is about jazz

Modifying PP's are, thus, very likely to be predicates on broader grounds. As, in fact, one of the properties that separate them from complement PP's is that the P is not selected by the head (V, A, or N, as in this case), the reanalysis of {X, PP} sets as 'restructured' {{X+P}, NP}s, where {X+P} is a complex lexical item like *rely on*, *part of*, *familiar with*, etc., however plausible for PP complements, is implausible for PP modifiers. The P heads of PP modifiers, therefore, are real predicates, i.e., lexical heads with their own thematic domain (pace Baker 2003), whereas P's introducing PP complements could well be spell-outs of 'features' of the V, A, or N heads and therefore reanalysable and capable of licensing extraction (cf. *picture* nouns), etc. (cf. Marantz 1984 and Zubizarreta 1987 on 'indirect' theta-marking). Correspondingly, there is no question that the NP internal to a modifying PP like *from Japan* in (66a) is an argument of the preposition, not an argument of N, nor of any ghost F-head on top thereof.

The remaining question, then, is whether modifying PP's can still plausibly be predicates of F-heads above NP's, as Cinque (1999) seems to believe of adverbial PP modifiers wrt F-heads

above VP. Again, as in the parallel case of AP's already discussed, that would require minimal adjustments in the present theory, but there is no reason to assume such F-heads in the first place, as any feature they might conceivably carry can just as well be attributed directly to the noun, so we will continue to claim that *from Japan*, etc. are nth-order one-place predicates of their respective N(P)'s.

3.4. Relative clauses

In the case of RC's,⁶⁰ the commonest view in traditional grammar, as in TGG (cf. Chomsky 1977, Jackendoff 1977, Williams 1980, etc.) is also that they are syntactic adjuncts, and predicates of the antecedent NP's. In fact, as mentioned in 3.2 above, such clauses are traditionally considered adjectival, and, to that extent, our argumentation above about adjectives applies to them, too, and will not be repeated here.

What needs consideration, then, is only whether an alternative analysis of RC's as syntactic arguments is plausible at all. To our knowledge, nobody has ever proposed considering RC's as type <e> arguments, but there have been analyses in the literature that treat them as syntactic complements, i.e., the early [_{ArtP} Art, RC] theory of Smith (1964), and, more recently, the [D, CP] theory of Kayne (1994), although both consider articles non-lexical categories, and as such unable to take real arguments (with theta roles, etc.).⁶¹ That restriction, nevertheless, is strongly dependent on the traditional view of arguments as entities of type <e>, i.e., exclusively individuals (or states of affairs transposed into individuals, i.e., CP's in which the complementizer *that* turns a type <t> expression into a type <e> one, etc.). Yet, under the richer ontology presupposed above and, in fact, universally in current analyses, properties, events, etc. need no longer be excluded as possible arguments (and theta role-bearers) of higher-order predicates, so D could indeed be such a higher-order predicate and RC could well be considered its argument.

As stated in 2.1, that kind of approach is explored in Author (2003), although only for the highest RC (in cases of multiple RC's), and can easily be incorporated here.⁶² Observe, though, that, even within such an analysis, the RC is syntactically a **complement**, as in Kayne's, **not** a specifier: the article-operator *the* is a dyadic predicate, takes RC as its complement and N(P) (possibly modified by other RC's in cases of stacking) as its specifier, and then raises driven by its need to function as an operator and c-command its thematic domain (NP, RC) in full, which yields the surface order. Thus, even if the relation between articles and (some) RC's should eventually

⁶⁰ The internal structure of RC's, and the role of the WH feature in their C have been analysed in some detail in Author (1995, 2003) and will only be very summarily described here. In essence, my assumption is that a RC is a saturated clause turned into a monadic nth-order predicate by the WH feature in its Comp. The WH feature is itself a dyadic predicate that takes a proposition as its first argument and yields a monadic predicate (first, or second-order, depending on whether RC is assumed to be attached to an unsaturated N, Partee's view, or to a full NP, Ross's, as briefly discussed above). What makes RC's different from other post-modifiers is that the NP cannot sit in Spec C, as the Wh-XP must raise into it overtly to check the strong WH feature in C. That movement must occur immediately, since strong features do not 'wait', but it does not saturate the second argument that WH requires. The CP shell is complete after WH-Movement, though, so a new C[Wh]-shell must be built on top of CP into whose specifier the NP 'antecedent' fits as a subject, c-commanding and preceding the RC. As to reduced RC's, e.g., participial clauses, they have no PRO's, their predicates take N(P)'s as their specifiers, with the modified N(P) projecting, and necessarily follow it, and their logical types are first or higher order depending on the level of attachment, see Author (1995, 2003, 2004).

⁶¹ This case is similar to that of C, Tense, Polarity, and the various F-heads filled by auxiliaries (modals, aspectual *have* and *be*, the voice auxiliary *be*, etc.) according to standard P&P/Minimalist analyses: they are subject to the X-bar principles, project syntactic complements, and let arguments land in their specifiers, but their A-positions are not thematic and do not contain real arguments (cf. e.g. Pollock 1989).

⁶² In other words, in Author (2003, 2004), contrary to the earlier analysis in Author (1995), a mixed theory of RC's is assumed. An RC may act as a complement of an article or as a predicate of an N(P), but of course not both simultaneously, and, in cases of stacking, both types of RC necessarily cooccur, for the RC complement that an article licenses cannot be iterated. It follows that all but the highest stacked RC's must be predicates of N(P).

have to be captured via treating RC's as arguments of sorts of Art heads, which we now doubt, it is very unlikely indeed that a specifier analysis be remotely plausible on conceptual grounds (see footnote 58 on the empirical difficulties of a possible Cinquean approach).

3.5. *Quantifiers*

In pre-generative grammar, adnominal quantifiers and numerals were considered special adjectives, and their inflections in morphologically rich languages like Latin, Spanish, German, or Old English certainly supported this view, for quantifiers agree with their nouns in gender, number and case (when case inflections survive, e.g., in German), and numerals, although lacking gender or case inflections (except the first or first few), still agree with their nouns in number, a typical property of predicates wrt their subjects. A traditional grammarian like Jespersen (1924, 1969), for example, confidently treated them all as 'secondaries', i.e., roughly, adjuncts, although he also observed (1924: 85; 1969: 118) that, contrary to ordinary adjectives, quantifiers are not paraphrasable as predicates, cf. (68).⁶³ In generative grammar, correspondingly, quantifiers have also traditionally been categorially distinguished from adjectives on both distributional and semantic grounds (as 'grammatical' or 'functional' categories contributing 'non-descriptive' content).

- (68) a. I saw many nice girls.
 b. I saw many girls who were nice.
 c. *I saw nice girls who were many.

There is no denying that the meaning of quantifiers in their most characteristic uses does not quite fit into either of the core categories ('predicate' vs. 'argument') that grammarians and logicians alike consider unquestionable and know how to deal with. In generative syntax, in particular, (unsaturated) predicates clearly correspond to heads, and arguments to complements and specifiers (or just specifiers in current 'all in spec' theories), but anything else (e.g., modifiers) does not quite fit, and that is why 'adjuncts' have eventually been reduced to specifiers. Thus, granted the reductive spirit of minimalist syntax, quantifiers (and determiners, cf. *infra*) were bound to be seen as more predicate- or more argument-like and assimilated to whatever syntactic functions were available in the respective theories. In EST and P&PT, they were seen as 'predicate-like' and analysed first as modifiers/specifiers of NP (e.g., Chomsky 1972) or N' (e.g., Jackendoff 1977), and then, when a more decided stand on the autonomy of syntax issue was adopted and the theory of functional categories was fully developed, as F-heads, (e.g., Abney 1987, Lobeck 1995, etc.), although, of course, the N-raising account of the word-order alternations in Germanic vs. Romance is incompatible with their analysis as F-heads, and the only alternative position available nowadays is to treat them as specifiers of such F-heads.

Observe, however, that the new specifiers, like the earlier ones, lodge **both** arguments and modifiers, so the current specifier analysis does not really imply a change of perspective on the 'more predicate than argument-like' nature of quantifiers issue. Even if the specifier theory were adopted, the question would still be whether specifiers of F-heads like Q or Num can reasonably be interpreted as argument-like, instead of predicate-like, and the answer is almost certainly 'no'. Of course, our 'charitable' interpretation of adjectival F-heads and their arguments above could be trivially extended to quantifiers (i.e., F-Q or F-Num could introduce a feature like [x = Number/Cardinality (of i)], where x would be bound by a Q or Num, etc.) but, for reasons already stated, that would be a gratuitous move, as there is no independent evidence for the existence of such F-heads.

On the whole, then, the predicate interpretation of quantifiers is the reasonable one, and that is how they have been analysed by logicians ever since Frege's *Begriffsschrift* first tackled the problem (see Frege 1879: 16-20). To Frege, a general judgment like *All x P(x)* means 'x P is a

⁶³ This is broadly right, but not exceptionless. In certain cases, quantifiers do function as predicates, cf. (Waitress:) *How many are you?* (Customer:) *We are seven/ too many to sit at this table.*

fact/true for all values of (the argument) x ', where 'is a fact' (λ - in Frege's notation) is the 'common predicate of all judgments' (1879: 4), and 'for all values of x ' is what we would nowadays call a 'sentence adverbial', in Rizzi's (1997) or Cinque's (1999) terms,⁶⁴ and semantically a 'predicate' in ours, although a predicate of the function, rather than a predicate of an argument of the function. Thus Jespersen's observation that quantifiers differ from adjectives as to non-occurrence in predicate position, to the extent it holds, simply follows from the type of subjects they respectively select, but their semantic function is still predication in both cases. Obviously, natural language syntax imposes a highly constrained geometry that causes well-known mismatches (cf. the scope of tense or negation), and the attachment of quantifiers as N(P) (instead of sentence) modifiers is simply one of them.

3.6. Articles and demonstratives

Demonstratives were also traditionally analysed as essentially adjectival, a well motivated view on inflectional and syntactic grounds, since, like quantifiers, in morphologically rich languages, they agree with their nouns exactly as predicates agree with their subjects. Of course, they also differ from core qualifying adjectives, so late traditional grammarians like Jespersen or Curme called them 'limiting adjectives', and generative syntacticians have distinguished them positionally and categorially from adjectives, called them 'determiners', and underlined their 'functional' nature (e.g., Radford 1997: 66 still calls them 'functional adjectives'), but such details need not obscure the essential fact that their relation towards nouns is similar to that of adjectives. Unsurprisingly, their syntactic status has also developed similarly to that of adjectives and quantifiers, i.e., they were high specifiers in early X-bar theory (e.g., Chomsky 1972, Jackendoff 1977), became F-heads under Abney's DetP Hypothesis, and only in current Cinquean theories a split has developed, with articles asymmetrically treated as the highest F-head of DP, whereas demonstratives are specifiers (of a lower F-head, as above, cf. Brugè 2002).

As to their semantic contribution, it is by no means radically different from that of other modifiers.⁶⁵ Excluding weak *the*, for obvious reasons (cf. *infra*), demonstratives may even appear post-nominally in the position of restrictive modifiers and in such cases attract phonological prominence and focus just as ordinary modifiers do, cf. Spanish (69) (see Bernstein 1997 and Brugè 2002 on post-nominal demonstratives).

(69) El chico ése/éste es un desastre.

Significantly, demonstratives have been analysed by logicians as equivalent to combinations of articles and relative clauses (cf. *this/that* $x =$ 'the x that is hereby/thereby') or even as adjectives of spatial location with respect to the speaker which are themselves related to 'reduced' RC's.⁶⁶ Since, as shown in Author (2003) and above, Art+RC functions as a predicate of the noun, treating demonstratives as arguments under our charitably speculative interpretation of the specifier theory is just as implausible as treating adjectives and quantifiers as arguments. On the contrary, for the reasons stated, meaning and syntax fit quite nicely to make the 'predicate' view of demonstratives rather more plausible, and, in that case, the specifier theory is completely unmotivated.

As regards 'articles', in English and other IE languages, definite articles⁶⁷ developed late from weak forms of demonstratives in order to compensate for inflectional losses in the nominal

⁶⁴ Observe that, just as quantifiers are prefixed to propositional formulae in standard predicate logic, the PP is preposable, cf. e.g., *For all values of the argument x , $P(x)$ is true/a fact.*

⁶⁵ Actually, they are not even too bad as predicates: e.g., *Tom wrote this song for me* is paraphrasable as *Tom wrote a song for me and the song is this (one)* roughly with the same level of awkwardness speakers sense if e.g. *Tom wrote a good song for me* is paraphrased as *Tom wrote a song for me and the song is good.*

⁶⁶ Quine (1960: 163), for example, notes the parallelism between the meaning of pronominal *this* and *that* and the distributed realization of definiteness and spatial localization in the German equivalents *der hiesige* EC and *der dortige* EC.

⁶⁷ The indefinite article *a*, in its turn, is a weak form of the numeral *one* and it is assumed to roughly have the properties of numerals, but the details need not detain us here.

system and thus share the basic syntactic and semantic properties of their ancestors except in what follows from their phonological ‘weakness’ and/or clitic status, i.e., they do not license NP-internal ellipsis, and, of particular relevance here, cannot occupy the focus position of post-nominal restrictive modifiers at surface level. For that reason, treating them directly as predicates is *prima facie* harder than in the case of demonstratives. However, if the analysis above is on the right line, definite articles are not monadic predicates, but dyadic ones taking first a restrictive modifier as their complement and then the N(P) as its specifier in the underlying representation, although the article, being an operator, subsequently raises to c-command its domain in full and eventually surfaces preceding the NP. Thus, it is not the article on its own, but the underlying Art + Modifier phrase that is a predicate, and it does initially follow the NP as all right-branching predicates do even if the raising of the head disguises this fact.⁶⁸

3.7. Genitives and possessives

Finally, something must be said about the controversial predicate/argument status of ‘genitives’, ‘possessives’, and *of*-phrases. Partee & Borschev (2003: 102) observe that the distinction is not intrinsically sharp in terms of what is being expressed and contemplate the possibility that ‘all or many genitives play both roles at once’ (2003: 68), but of course conclude, as their evidence suggests, that it is necessary to allow them to alternatively act as either, which is our claim here.

In generative grammars of English, genitives (*Bill’s*, *the girl’s*), being a) phrasal, b) nearly perfect alternants of definite determiners like *the*, and c) often interpreted as Agent, Experiencer, Theme, etc. of relational nouns, cf. (70), and as Possessor-Controller, in the broadest sense, of non-relational ones, cf. (71),⁶⁹ have always been generated as deep structure specifiers and understood to be arguments, rather than predicates.⁷⁰

- (70) a. my decision
b. your fear of spiders
c. Bill’s death

- (71) Ann’s room/car/paper, etc.

Of course, under the present approach, too, that genitives interpreted as arguments are in complement or specifier of N or its higher shells, is not in dispute. The only difference is that under ‘all-in-spec’ theories, as stated, A-positions reduce to specifiers, whereas our view here is that complement of N is also an A-position. Among the obvious candidates to complement of N status are the PP’s introduced by *of* in English (and by *de*, *di*, *von*, *van*, etc., in other languages), traditionally considered ‘analytic’ alternants of inflectional genitives. Observe that although *Of*-genitives are known to favour the less ‘subjective’ thematic roles (Theme, Source, rather than

⁶⁸ That analysis is essentially equivalent to what logicians from Russell (1905) onwards have established, which is broadly assumed here: roughly, articles behave as ‘operators’ that bind restrictive modifiers (typically RC’s, but also restrictive PP’s, etc., i.e., predicates), although the latter can often be presupposed and in that case remain unexpressed (e.g., *the girl* = [iota x] [Girl (x) & (speaker-hearer agree that) x is relevant in the speech act under way]). However, if the determiners are ‘expanded’, some kind of restrictive modification (i.e., a predicate) immediately surfaces.

⁶⁹ Whether a genitive accompanying a non-relational noun like *room* is its argument or not, is a delicate point. Possessors are the more predicate-like of genitives, as shown below, cf. Partee & Borschev (2003).

⁷⁰ Traditionally, arguments of the noun, although under theories of argument projection like Hale & Keyser (2002), it surely would be coherent to analyse them as arguments of a nominal equivalent of ‘small *v*’. Of course, in analyses that adopted the XP-Internal Subject Hypothesis (e.g., Abney’s), genitives, like all subjects, were assumed to subsequently raise into a higher specifier, in this case Spec D, which nicely accounted for the definiteness of NP’s with such ‘determiner genitives’ in opposition to NP’s containing non-determiner genitives like *a friend of Bill’s*, *a house of her father’s*, etc., in which the possible definiteness of the post-nominal genitive does not make the higher NP definite.

Agent or Experiencer), they still are fully compatible with Agent or Experiencer interpretations, cf. (72), and, thus, on the whole, broadly equivalent to pre-nominal determiner genitives.⁷¹

- (72) a. the decision of the judge
b. the envy of his colleagues

Thus, assuming that both ‘determiner genitives’ and ‘*of* genitives’ are arguments when accompanying relational nouns,⁷² the question arises of whether they can also be predicates in **other** syntactic circumstances.

Leaving aside, for the moment, so-called ‘descriptive genitives’, e.g., those in idiosyncratic lexical units like (73), ‘measure genitives’ like (74), and ‘adverbial’ cases like (75), which indeed are very likely to be predicates (cf. *infra*), genitives seem to occur as predicates particularly when they express possession-control (see Partee & Borschev 2003: 101), e.g., in cases like (76), which, significantly, can easily be paraphrased by RC’s in which the genitive appears as the only possible predicate, cf. (77).

- (73) a. a bachelor’s flat
b. an all girls’ school

- (74) a two hours’ delay

- (75) today’s paper

- (76) a. That idea was Bill’s.
b. This house is Tom’s.

- (77) a. An idea which was Bill’s.
b. A house which is Tom’s.

Of course, NP-internal ellipsis cannot be discarded even in (76), and, if there are EC’s after such genitives, they may still be arguments of the elided N(P)’s, but the fact that such paraphrases are unavailable for cases like (78), cf. (79), in which the genitives **must** be arguments, suggests that the genitives of (76) are indeed functioning as predicates.

- (78) a. Bill’s death
b. Bill’s arrival

- (79) *the death/arrival which was Bill’s

When genitives have Possessor interpretations, *of*-constructions yield significantly worse results, cf. (80a), unless they are ‘heavy’, cf. (80b), but in that case they succeed as predicates of RC’s, cf. (80c). Still, the key point for present purposes is just that *of* genitives **can** surely be

⁷¹ Except that pre-nominal genitives ‘fuse’ with a definite article, a non-problematic consequence if they raise into spec D, as Abney (1987) claimed. Otherwise, of course, the equivalence is only approximate, as there are nouns that appear as pre-nominal genitives, but not as post-nominal ones, and viceversa, but such details are irrelevant here, cf. Quirk et al. (1985: 1275-1284), Huddleston & Pullum (2002: 467-482), and work like Hawkins (1981), Anderson (1984), Lyons (1986), Taylor (1989), Barker (1995), and Heine (1997).

⁷² On this, Partee & Borschev (2003: 101) are categorical, although they also assume that **every** genitive triggers a relation, intrinsic (i.e., argumental) or extrinsic (broadly: modifier). For some native speakers, e.g., Dowty (2003: 57) *of*-genitives accompanying non-relational nouns are always bad (cf. **the book of Mary*, **the room of Mary*). Yet e.g. Quirk et al. (1985: 1276ff) hesitate. To them, *the funnel of the ship* is acceptable, *?*the car of the lady* rather not, and ?*the car of the family* dubious. One of the factors at play is ‘weight’, for if the NP after *of* is itself postmodified, e.g., *the car of the lady in front of him*, Quirk et al. (1985: 1277) find it acceptable.

predicates (cf. Partee & Borschev 2003: 72), and that, under Cinque's all-in-spec theory, they must sit in specifier positions just as if they were arguments.

- (80) a. ?*the car of the Chinese couple
 b. the car of the Chinese couple who live upstairs
 c. the car which is of the Chinese couple who live upstairs

Contrary to nominal genitives, 'possessive adjectives' (*my, your, our, their*), not being obviously phrasal,⁷³ were in the earliest TGG work treated as heads similar to determiners, but were assimilated to genitive NP's on distributional and semantic grounds already in early X-bar accounts like Chomsky (1972), and, when XPISH became popular in the late 1980's, they were also treated as deep structure N specifiers and assumed to raise into Spec D at surface level. That analysis, of course, gained support as soon as cross-linguistic evidence e.g., from Italian, Spanish, etc., cf. (81), was taken into account, for it made it obvious that the 'determiner genitive' is just an accident of Modern English and that possessives must occupy slots different from those of articles' in the structure of NP's.

- (81) a. un suo amico
 b. un amigo suyo

Of course, in traditional grammars (of Latin, Spanish, etc., including English), although mainly on inflectional grounds, 'possessives' were treated simply as a subclass of 'adjectives' (typical predicates) and neatly distinguished from nominal genitives (typical arguments). Of course, possessives also have argument-like properties when they cooccur with relational nouns, as in (82), but that was hardly a source of analytic tension for traditional grammarians, who were perfectly aware of the fact that even adjectives have argument-like interpretations, as we saw.

- (82) a. his death
 b. my arrival
 c. their decision

The two constructions ('genitive noun' vs. 'possessive adjective') were clearly different, but if they ever had initially corresponded to argument vs. predicate interpretations, respectively, that distinction had already been neutralized in early Indo-European well before English emerged,⁷⁴ presumably because 'possessives' also imply a relation with a prominent participant in a state of affairs and are easily reinterpreted as arguments (see Partee & Borschev 2003). Furthermore, 'possessive' is a misnomer, as 'possession' is just one of the 'extrinsic' relations (see Barker 1995; Partee & Borschev 2003) that such adjectives may establish with their nouns. A more accurate name would be 'personal adjectives', which would immediately assimilate possessives to the broader class of denominal adjectives, cf. (83), and explain why they can be arguments with theta roles like Agent, or Theme, cf. (82), as well as Possessor/Controller.

- (83) a. Chomskian analysis
 b. American invasion
 c. Galilean formulation
 d. Newtonian solution

What is very clear from cases like (84), however, and questions their predicative status is that possessive 'adjectives' do not succeed as predicates of main or relative clauses.

- (84) a. *The house is my.

⁷³ Of course, in retrospect, they are phrasal too, since they can discharge arguments, cf. *my arrival*, or be coordinated with genitive NP's, cf. *You must ask for my and your mother's consent*, etc.

⁷⁴ On the history of English genitives, Jespersen (1918) still offers an in my view unsurpassed perspective.

- b. *a house which is my
- c. *an idea which was her

Instead, what we do find as predicates in such contexts are the ‘pronominal’ (‘strong’) forms of possessives, cf. (85).

- (85) a. This house is mine.
b. a house which is mine

However, the problem seems to be due to phonological weakness in *my*, etc. In such cases, *mine*, etc. seem to be strong adjectival forms occurring when possessives must be in Focus, i.e., when they are syntactic predicates, cf. the contrast in English (86) and Spanish (87).

- (86) a. Keep off my/*mine car!
b. That car is *my/mine.

- (87) a. Ese es mi/*mío coche.
b. Ese coche es *mi/mío.

Being predicates, the strong English forms *mine*, cf. (88), and particularly Spanish *el mío*, cf. (89), do suffice to identify the elided subject under agreement, as explained above.

- (88) a. That car is not mine.
b. That car is better than mine.

- (89) a. Ese coche no es el mío.
b. Ese coche es mejor que el mío.

However, the strong forms *mine*, *hers*, etc., **need not always** be predicates. When they accompany relational nouns, as in (90), they **must** be arguments. In such cases, strong forms like *mine*, etc. occur, not only because they are in Focus, but in order to enable the possessive to license ellipsis and thereby avoid the redundancy in (91).

- (90) a. Lizzy’s arrival was grander than mine.
b. Her husband’s death surely caused hers.

- (91) ?Lizzy’s arrival was grander than my arrival.

There remains the issue of the semantic status of *mine*, *yours*, etc. as well as genitives like *John’s*, *my father’s* within of PP’s, as in (92).

- (92) a. an idea of mine
b. a relative of mine
c. a sailing boat of my father’s
d. an old flame of Bill’s

Although Barker (1995) defends a partitive reading for such cases, as already Jackendoff (1977) had observed, the ellipsis/partitive theory is not plausible, if only because in many cases restoring the presumably elided NP easily produces a very different output, cf. (93).⁷⁵

- (93) a. an idea of mine ≠ an idea of my ideas

⁷⁵ Of course examples that lead to an undesired interpretation have been deliberately chosen, but even in *a car of Bill’s*, restoring the elided element yields the unambiguous, but also ungrammatical, **a car of Bill’s cars*.

- b. a friend of mine ≠ a friend of my friends

If no EC is involved, of course, *mine*, etc. are not specifiers nor modifiers of other NP's and cannot be arguments (nor predicates) of an NP domain inside the *of*-PP. However, *mine*, *my father's*, *Bill's*, etc. can still be arguments (or predicates) of the **higher** N depending on the relational/non-relational character of the latter and the contextually primed relation between it and the *of*-PP. In (92a, c) above, the relation was broadly 'possessor' (author,...), the less argument-like of the thematic roles, and placing *my father's* or *mine* as main predicates and paraphrasing them *via* a RC both succeed, cf. (94-95), which suggests that the *Of*-genitives/strong possessives are indeed acting as predicates in such cases.

- (94) a. That sailing boat is my father's.
b. a sailing boat which is my father's

- (95) a. That idea was mine.
b. an idea that was mine

On the contrary, in (92b, d), placing the genitive/possessive as a main or RC predicate leads to ungrammatical expressions, cf. (96-97), which suggests that the genitives/possessives are arguments of the relational nouns *flame* and *relative*.

- (96) a. *That old flame is Bill's.
b. *That distant relative is mine.

- (97) a. *An old flame that was Bill's.
b. *A distant relative which is mine.

By parity of reasoning, since placing the *of*-PP's of (92) in predicate positions does not succeed either, cf. (98), the obvious conclusion is that they are arguments, too, and, if so, they must be arguments of the higher N with Possessor readings. It follows that *of* cannot be an autonomous semantic head, i.e., it must be an inert (case?) indicator (cf. Partee & Borschev 2003: 74).

- (98) a. *That idea was of mine.
b. *an idea that was of mine
c. *that sailing boat is of my father's
d. *That relative was of mine.
e. *a relative that was of mine. Etc.

Apparently, the semantic relation between the two N's in (92) requires inherent genitive, rather than the default objective case, in the subordinate noun, cf. (99), but genitive cannot be licensed in genuine post-nominal position (i.e., where no EC follows), cf. (100), so a case-marker *of* is inserted and *my father's* is structurally licensed with objective case, although its thematic relation with the higher noun inherently requires genitive.

- (99) a. *an idea my father
b. *a boat my father

- (100) a. *an idea my father's
b. *a boat my father's

Observe that this need not cause violation of the Case Filter, as the coexistence of an inherent lexically determined oblique case and a structural one is a well attested phenomenon. For example, in German, the complements of *begleiten* and *folgen* are accusative and dative, respectively (cf. *Begleite mich!*, *folge mir!*), but the structural position of the respective NP's is the same. Obviously, the lexically determined dative overrides the default accusative, as happens

whenever a head licenses inherent case in a complement that is its sister (cf. Latin *taedet animam meam vitae meae*).

In sum, although a high degree of compression/neutralization (see Longobardi 2001, Partee & Borschev 2003) characterizes ad-nominal dependents wrt ad-verbal ones, and consequently a biunique relation between semantic function and syntactic form (if it ever existed) no longer exists, 'genitives', 'of-genitives', and 'possessives' clearly act as arguments of relational nouns, and in that case occur as specifiers/complements of various NP shells. In this respect, with reservations as to the NP-internal F-heads, something like Longobardi's (2001) NP geometry is broadly assumed here to be correct. On the other hand, 'attributive', 'measure', 'time', 'alienable possession' genitives, and *of*-PP's containing genitives with other 'extrinsic' relations to the noun (cf. Dowty 2003: 55-56) are certainly interpreted as 'predicates' (cf. Partee & Borschev 2003: 69) and should not, under present assumptions, occur in complement/specifier positions, but as heads predicating properties of the N(P) projections that saturate them.

The remaining question, then, is: when genitives and possessives are interpreted as **predicates** and do not occur in N-complement or specifier positions, which is their structural realization under the present approach? According to the theory above, predicates are modifiers, i.e., structurally heads or heads with an internal complement, and no problem arises. Thus, a) genitives that occur as clausal predicates (e.g., *mine*, *Bill's*, in *that car is mine/Bill's*) are indeed 'phrases' (under XPISH: 'small clauses'), although their subjects have been extracted; b) 'possessives' like *my* in *my house* are adjectival heads that take the NP as their **complement** and immediately get saturated, with *house* projecting, as described in 2.1.

However, 'descriptive' genitives like *bachelor's* or *men's* in *bachelor's flat*, *men's room*, etc., do pose a syntactic problem, for their 'subjects' *flat*, *room*, etc. follow them, whereas what looks like the other argument of the genitival relation and should hence be a structural complement and follow it (e.g., *bachelor*, cf. *the house of a bachelor*) actually **precedes** the genitive head 's. Of course such expressions seem to be lexical formations (i.e., compounds), rather than syntactic constructions, and in such circumstances we expect the underlying abstract case head and its object to both raise above the subject, which makes the case head surface as a suffix, cf. Author (2004b) for details on the structure of compounds. As to semantics, the 's affix turns a nominal predicate of type <e, t> *bachelor* into a higher-order intensional predicate *bachelor's* of type <<e,t>, <e,t>>, which takes *flat* as its subject and immediately gets saturated.

The remaining cases in need of consideration are non-argument 'Saxon' genitives bearing relations of 'possession', e.g., *my father's house*, 'measure', e.g., *two hours' delay*, 'time', as in *last week's meeting*, and other 'extrinsic' relations. In such constructions, the 's affix obviously attaches to full syntactic phrases, rather than stems. Hence, broadly speaking, what is needed is an analysis that makes *house*, *delay*, *meeting*, etc. 'subjects' of the predicate phrase headed by the 's affix, since from a semantic viewpoint it is natural to take 's, like *of* in *a delay of two hours*, as a predicate-creating functor of type <e, <<e, t>, e>> that turns NP's like *my father*, *two hours*, *last week*, etc., presumably of type <e>, into second-order monadic predicates like *my father's*, which take an NP like *house*, *delay*, *meeting* (type <e, t>) and convert it into a full referential NP of type <e>. Since *my father*, *last week*, etc. are referential expressions, they make the NP's definite, just as if they contained a deictic predicate *this*, *that*, or an article.

The snag is that, if the case indicator 's is the head, apparently *house* is its complement, and *my father* is its specifier, and, granted our theory of modification, *my father* rather than *house* (etc.) should project, whereas, of course, it is *house* that projects its label and semantic type (i.e., *my father's house* denotes a house, not a human individual). However, the movement mechanism that accounts for the surface form of compounds will reconcile the structure with the semantics in this case, too, as our theory of modification predicts: simply, *my father's house*, *two hours delay*, *last week's meeting* etc. are derived from underlying *(the) house (of) my father*, *a delay (of) two hours*, *(the) meeting of last week*, etc., where the PP's are modifiers of the noun (i.e., predicates), via raising of the Predicate/Case head and the underlying complement. The suffix 's is just the spell out of the underlying predicate head otherwise visible as a preposition (*of*, in the examples under discussion), but such a head is saturated *in situ* and becomes inactive, letting its subject project.

Thus, the only difference between Saxon genitives acting as predicates, as in *two hours' delay*, and those acting as arguments, as in *my father's death*, or *my father's decision*, is that in the former the underlying head yielding the preposition or suffix corresponds to a proper predicate theta marking the two NP's, whereas in the latter the theta-marking head is the noun *death*, *decision*, and the preposition/suffix is just a case mark required by Case theory (see Author 2004b for details).

In sum: there are good reasons to accept the view that genitives and possessives behave as arguments in some contexts, and then they occupy complement or specifier positions, and as predicates in others, and they are structural heads in such cases, and in spite of *prima facie* difficulties, with very modest additional assumptions concerning the derived nature of Case suffixes stated in Author (2004b), structures and interpretations follow nicely from the present theory.

4. CONCLUSION

In sum, although AP's, PP's, and 'genitives' do have argument interpretations, and in those cases must be attached as complements or specifiers of their respective N heads in one or more NP-shells, there is robust syntactic and semantic evidence, and widespread implicit consensus among linguists and logicians alike, that modifying AP's, PP's, RC's, articles, demonstratives, quantifiers, possessives, and other 'genitives' are **predicates** of their N(P)'s, i.e., within the present theory, heads that get saturated and immediately become inactive, whereas their nominal subject does not and projects its syntactic category and semantic type.

On the other hand, there are cogent empirical, descriptive, and conceptual reasons to dispense with **most** F-heads in NP's except those directly required by the projection of argument structure. Assuming strict locality of thematic satisfaction, a head can only have two A-positions, complement and specifier, as in traditional X-bar syntax. The satisfaction of N's of higher adicity, or just dyadic N's with complex event-structures, will therefore require N raising and more or less elaborate NP-internal shell structure. In that case, the landing site of N arguably has the properties of an F-head comparable to Hale & Keyser's 'small v', but such nominal heads, contrary to those postulated in current specifier theories of modification, **do** have substantial semantic content. The problem with most F-heads above NP is that they lack any plausible semantic content, that their syntactic relations with their complements and specifiers remain undetermined, and that they are not doing the work they are supposed to do within the minimalist framework.

On the contrary, the analysis of NP's as 'just NP's' proposed in section 2 is not only a descriptively elegant, empirically attractive, and conceptually coherent 'minimalist' proposal with substantial advantages over its main competitors across the board (cf. section 2.2), but also a semantically reasonable one, since it rests comfortably on robust theory-neutral semantic generalizations about which linguists and logicians alike have reached a rather stable consensus for decades.

Many technical syntactic and semantic details, of course, remain to be worked out, and broader empirical and typological coverage is obviously needed, but, on the basis of the restricted evidence taken into account in this paper, the present approach yields a smooth and elegant account of a great deal of NP structure and thereby offers strong support to the theory of modification as complementation presented in Author (2004a). If, as we expect to prove in work now reaching completion (cf. Author in prep.), a similarly parsimonious modifier account can be offered of auxiliaries, negation, and other F-heads in the verbal domain, much of the ghost machinery that has proliferated in P&P-minimalist grammar in the last two decades may well prove redundant, negative pronouncements like Chomsky's (1995: 382, fn. 22) '...we still have no good phrase structure theory for such simple matters as attributive adjectives, relative clauses, and adjuncts of many different types', or Ernst's 'Nobody seems to know exactly what to do with adverbs' (2002: 1) may no longer be necessary, and a much tidier picture of syntax, semantics, and their interface may well re-emerge.

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