

A Study of Alternation of Word Order in Noun Phrases

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名詞句内の語順交替の研究

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Abstract

There are differences in constituent ordering within the determiner phrase (DP) between English and Romance language though they are head-initial languages. The noun (N) is in the right edge within the DP projection in English, while it is unmarkedly followed by the adjective that modifies it in Romance languages. Longobardi (1994) and Cinque (1995) argue that the difference of the surface ordering comes from the possibility of overt N-raising. The raising is permitted in Romance languages, while it is not available in English. This article proposes, within the framework of Chomsky (1995), the Minimalist Program (MP), and the DP-analysis of Abney (1987), that English also has overt N-raising and indicates the motivation of it. In the MP, movement is required only for checking strong features. The DP-analysis suggests that the head of noun phrases (NP) is a determiner and that it takes an NP as its complement. Further, I argue for Scott (2002) who claims that attributive adjectives occur in the specifier of some functional projection (FP). It is common knowledge that adjectives which can be in both prenominal and postnominal position have different meaning. Postnominal adjectives are temporarily affected, while prenominal adjectives carry the inherent feature. The word orders with prenominal/postnominal adjectives have different syntactical structures because they yield different meanings. There seem to be a great possibility of N-raising in English Noun Phrase. I propose that an interpretable feature plays an important role in movements. A semantic-functional head, which is between a determiner and a noun, causes N-raising in English.

Key words

DP, overt N-raising, semantic-functional feature, prenominal, postnominal

I . Introduction

There are differences in constituent ordering within the NP between English and Romance languages. The noun is in the right edge within the NP projection in English, while it is unmarkedly followed by the adjective that modifies it in Spanish. See (1) and (2).

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|-----|---|-----|
| (1) | [_{NP} the microscopic analysis] | A-N |
| (2) | [_{NP} <i>una [flor] hermosa</i>] | N-A |
| | a flower beautiful | |

Both English and Spanish (and other Romance languages) are head-initial languages. Some serious problems arise if we assume that the noun takes the adjective as its complement. Apparently, the linear order in (1) does not conform to the head-complement parameter. This problem can be evaded by Abney (1987), who proposes that a noun phrase is a projection of Determiner, DP, with a projection of a noun, NP, as its complement. In his analysis, the adjective is not located in the complement position of N, but in the specifier of N.

Another question related to constituent ordering within the NP is about stacked adjectives. For example, two or three adjectives can appear prenominaly in English. See (3).

- (3) a. a tall dark handsome man
 b. *a dark tall handsome man
 c. *a handsome dark tall man

To all appearances, the word order of adjectives does not indicate free order. Scott (2002) provides a solution to this problem. He argues that X-bar theory, in which adjectives are adjoined iteratively to the head noun, is unable to account for the fact that adjectives display clear ordering restrictions. He assumes that stacked adjectives are in the specifier of distinct functional projections.

One question remains unsolved: what yields the different order of an adjective (A) and an N between English and Spanish? Longobardi (1994) and Cinque (1995) argue that the difference of the surface ordering comes from the possibility of overt N-raising over an adjective phrase (AP) to a higher functional head (D or another head). The raising is permitted in Romance languages, so that an N precedes an A(P). On the other hand, an N follows an AP

since the operation is not available in English. Nevertheless, there is an alternation of word order within NP in English as in (4). I propose that English also permits overt N-raising.

- (4) a. the visible stars
b. the stars visible

The aim of this paper is to analyze alternation of the word order in an NP. I will propose the following points in this paper: (1) the head of NP is a determiner, (2) attributive adjectives occur in the specifier of distinct functional projections, (3) English also has overt N-raising, and (4) a semantic-functional head is in the position between a determiner and a noun. It also causes N-raising in English. (5) an interpretable feature plays an important role in movements.

II . The Structure of Noun Phrases

The traditional X-bar theory has stated that the head of NP is an N, a determiner occupies the specifier of NP and the complement of NP is for a prepositional phrase or a clause, as in (5).

- (5) a. [_{NP} the [_{N'} [_{AP} microscopic] analysis]]
b. [_{NP} [_D the] [_{N'} [_N destruction] [_{PP} of the city]]]

In the following section I will examine the DP-analysis of Abney (1987).

II . 1. The DP-analysis of Abney

In Abney (1987), a noun phrase is a projection of determiner with a projection of a noun as its complement and consists of two layers whose head is occupied by a functional category called D.

- (6) a. [_{DP} [_D the] [_{NP} book]]
b. [_{DP} Mike's [_{D'} [_D Agr][_{NP} book]]]

According to his analysis, the D^0 node hosts articles (e.g., *the*, *a*), demonstratives (e.g., *that*, *those*), quantifiers (e.g., *many*, *some*, *every*), as in (6a) and agreement property (Agr^1), as in (6b).²⁾ The Agr is almost identical to the one in IP. As the Agr in the DP assigns genitive Case to *Mike* in the specifier position, so the Agr in an IP assigns nominative Case to an NP in the

specifier position of an IP. The definite article represented in (6a) cannot assign Case to its specifier position. So genitive NPs cannot occur in the specifier position in the DP. According to the X-bar theory of Chomsky (1981, 1986a), the specifier position is allocated only for maximal projections. For reasons mentioned above, the following traditional structure in (7) cannot meet the requirement that the specifier of an XP has a maximal projection.

- (7) [_{NP} the [_{N'} [_N book]]]

II .2. The parallelism of a CP and a DP

So far, a considerable number of studies have been made on the parallelism of a complementizer phrase (CP) and a DP. First of all, it has been suggested that an NP contains an INFL-like node (Szabolcsi (1983), (1987), (1990), Ritter (1988), (1991), Abney (1987)). Comparative studies on the structure of NPs reveal that an NP contains a functional head of Agr in many languages. Consider the following Hungarian data.

- (8) *az en kalap-om*
 the I- NOM hat-1 sg
 "my hat" (Abney 1987: 16)

en, in the specifier position of the DP ([Spec, DP]), agrees with Agr, which assigns a nominative Case to it. There is *en* in the specifier position of the DP. The Agr is adjoined to a noun and *kalap-* becomes *kalap-om*.

Next, there is a complement-like position in NPs (Szabolcsi (op.cit.), Tellier(1988), and Stowell (1989)). The head-complement relationship in an NP bears a close parallel to one in a verb phrase (VP).

- (9) a. the terror group destroys the city.
 b. the terror group's destruction of the city

In (9a), *destroy* and *the city* are linked to a verb and its object, respectively. In (9b), *destruction* and *of the city* are in a head-complement relationship.

Furthermore, the conjunction *that* belongs to a complementizer and the demonstrative adjective *that* is a determiner. They have a similar spelling and sound. There is historical

evidence to show that they are derived from the determiner of Old English, (*se* (masculine), *seo* (feminine), *þæt* (neuter)).

II .3. The Extended DP-analysis

Taking into account the parallelism between a CP and a DP, I propose that NPs should have a multi layered structure because sentences have three-layers like $[_{CP} [_{IP} [_{VP}]]]$.

I call this configuration "the extended DP-analysis". In (10), I provide a tentative structure of the DP.³⁾ [Spec, DP] is for *even* and [Spec, FP] for the genitive subject. It is the common property that the subject of a sentence and an NP is in the specifier of a functional category.

(10) The Extended DP-analysis

$[_{DP} \text{ even } [_{D'} D [_{FP} [_{F'} F [_{NP} N]]]]]]$

III . Attributive Adjective

Adjectives describe a quality of a noun. In this chapter I would like to focus on attributive adjectives.

III .1. The Relative Order of Nouns and Adjectives

It is common to put a simple adjective before a noun.

- (11) a. a [proud] man
b. *a man [proud]

Adjectives follow nouns in the case where they form a word group with other items, or two or more adjectives appear.

- (12) a. She is a woman, [sweet, simple and home-loving].
b. She had a large basket [full of flowers].

III .2. Adjunction or Substitution

It has been assumed in X-bar theory that attributive adjectives are adjoined to an NP. They are a typical example of modifiers, and then the adjectives are optional and iterable. X-bar theory takes modifiers to be a maximal projection adjoined to another maximal projection.

Given the DP-analysis, the reasonable idea is that attributive adjectives are adjoined to an NP⁴⁾. In this paper, however, I argue for Scott (2002) who claims that attributive adjectives occur in the specifier of some functional projection. Both prenominal and postnominal adjectives are iteratively adjoined to an NP in traditional analyses.

(13) a [tall] [dark] [handsome] stranger

(14) We must choose the best person [available][suitable for the post]

The analysis in which adjectives are iteratively adjoined to the head noun is unable to account for the fact that adjectives demonstrate clear ordering restrictions. Prenominal adjectives, however, obey strict ordering restrictions which are universal. The adjectival sequence can be summarized as in (15).

(15)	Evaluating	Size	Color
a. English	beautiful	big	red ball
b. German	<i>schoener</i>	<i>grosser</i>	<i>oter Ball</i>
c. French	<i>joli</i>	<i>gros</i>	<i>(ballon) rouge</i>
d. Italian	<i>bella</i>	<i>grande</i>	<i>(palla)rossa</i>

(Cinque (1994))

Examples (15) show the strict order of adjectives in cross-linguistic circumstances. It is hard to realize how an adjunction analysis can regulate the order of adjectives. Judging from the above, I propose that APs occupy [Spec, FP]. I make use of the following Scott's universal hierarchy of adjectival ordering restrictions.

(16) A universal hierarchy of adjectival ordering restrictions⁵⁾

DETERMINER > ORDINAL NUMBER > CARDINAL NUMBER > SUBJECTIVE
 COMMENT > ? EVIDENTIAL > SIZE > LENGTH > HEIGHT > SPEED >
 ?DEPTH > WIDTH > WEIGHT > TEMPERATURE > ? WETNESS > AGE >
 SHAPE > COLOR > NATIONALITY/ORIGIN > MATERIAL >
 COMPOUND ELEMENT > NP

(Scott (2002: 114))

The grammaticality of (17) and (18) can be accounted for with his universal hierarchy of adjectival ordering restriction.

- (17) a. a beautiful long hot summer
 b. *a beautiful hot long summer (ibid.)

- (18) a. *ein schnelles altes Pferd* (German)
 a fast old horse
 b. **ein altes schnelles Pfer*
 an old fast horse (ibid.)

For example, *long* belongs to WIDTH which is ranked higher than TEMPERATURE. (17b) is ungrammatical because *hot*, which belongs to TEMPERATURE, dominates WIDTH. In (18), *schnelles* belongs to the category of SPEED, while *altes* belongs to be category of AGE. (18b) is ungrammatical in that Scott's hierarchy expect to be SPEED > AGE.

Therefore, I propose an extended DP-analysis, which has richer functional projections between a determiner and a noun, as shown in (19).

- (19) $[_{DP} [_{D'} D [_{FP} [_{F'} F [_{FP...} [_{FP...} [_{NP} [_{N'} N]]]]]]]]]]$

IV . N-raising

In this chapter, I will make it clear that the diversity of linear order within the NP with attributive adjectives is reduced to the raising of N to a functional head intermediately between an N and a D.

IV .1. Overt N-raising

Adjective phrases (APs) are base-generated in the same position within an NP in both Germanic and Romance languages. The difference in their surface position is associated with whether a given language permits an overt N-raising to a functional head.

- (20) a. $[_{DP} [_{D'} [_{D} \text{the}] [_{FP} \text{first}] [_{F'} [_{F}]] [_{NP} \text{Italian}] [_{N'} [_{N} \text{invasion}]] \text{of Albania}]]]]]$
 b. $[_{DP} [_{D'} [_{D} \text{la}] [_{FP} \text{prima}] [_{F_{AgrP}} [_{F_{Agr'}} [_{F_{Agr}} \text{invasione}_i]]] [_{NP} \text{italiana}]] [_{N'} [_{N} t_i] \text{dell'Albania}]]]]]]]$ (Italian)
 "the first invasion Italian of Albania"

The presence or absence of overt N-raising in English can be examined by the surface position of simple attributive adjectives such as *proud* and *cold*, which is allowed to appear only to the left of the N.

- (21) a. *a man [proud]
 b. *rooms [cold]

These examples show that overt N-raising is absent in English. However, it would be wrong to assume that nouns cannot precede the attributive adjective. We have seen adjectives which can be in both a prenominal and postnominal position.

- (22) a. the visible [stars]
 b. the [stars] visible (Quirk *et al.*(1985))

- (23) a. the present [members]
 b. the [members] present (Swan (1980))

- (24) a. the stolen [jewels]
 b. the [jewels] stolen (Celce-Murcia (1983))

Note that they have different meanings. While prenominal adjectives show the inherent feature, postnominal adjectives are temporarily affected. It is reasonable to assume that the examples (22)-(24) have a different syntactical structure because they yield different meanings. This alternation of word order leads us to claim that English permits overt N-raising in some case. In (22b) *stars* moves from the base N position to the head F. I do not make clear here the label of the functional projection to which nouns move. DPs such as (22) are replaced by structures such as (25) with the extended DP-analysis.

- (25) a. $[_{DP} \text{the} [_{FP2} F [_{FP1} \text{visible} [_{NP} \text{stars}]]]]]$

- b. [_{DP} the [_{FP2} stars_i [_{FP1} visible [_{NP} t_i]]]]

V . Discussion

In this section, I discuss the motivation of N-raising. The DPs with the prenominal adjective reflect constant states, while the DPs with the postnominal adjective express temporary states. For example, in (23), *the present members* refers to those who are members now, on the other hand *the members present* mentions to those who are/were at the meeting. Consequently, I propose that some (weak) semantic features have an influence on the syntactic structure and they occur in F_{Agg}. Semantic features are interpretable features because they are associated with semantic interpretation. They pose a question, however. Within the Minimalist Program supported by Chomsky (1995), uninterpretable features must be eliminated by feature checking, while interpretable features cannot. Presence of uninterpretable features at the end of a derivation yields an illegitimate logical form (LF) representation, causing the derivation to crash. Interpretable features, on the other hand, must not be eliminated, since they contribute to interpretation. Since movement operations are driven by the need to check morphological features, economy considerations lead us to expect that interpretable features never undergo movement. One proposal is that some semantic features are also relevant to movement. They must be checked off before Spell-Out even though semantic features are interpretable features. I attribute the motivation of English N-raising to a semantic feature. In DPs, English nouns obligatorily move from the base-position to F_{Agg}, although traditional grammar explains that the alternation of word order such as (22)-(24) is optional.

There are other examples to show that semantic features are relevant to syntactic movement. In Nakamura *et al.* (2001), there is a piece of evidence to show that sentences contain semantic features. Their view is closely identical with my idea. They discuss the question of a topicalization.

- (26) a. I believe that you should read this book.
 b. This book_i, I believe that you should read t_i.

(Nakamura *et al.* (2001))

The element moved to the beginning of a sentence expresses a general topic and the rest of sentence represents comment on the topic. The operation adjoins the topical factor to tense

phrase (TP). The structure on (26b) is given in (27).

(27) $[_{TP} \text{ this book}_i [_{TP} \text{ I think } [_{\text{you should read } t_i}]]]$. (ibid.)

The additional movement in (27) is not motivated by any feature checking. The position adjoined to a maximal projection is not checked by the head. This movement lacks motivation of feature checking and violates the Last Resort. However, they propose a functional feature attracting the topical factor to evade the Last Resort violation. A functional projection occurs between a CP and a TP. Both the topicalized *this book* and F have the semantic feature, and they need to be checked off before Spell-Out. The functional projection with the feature attracts the topicalized element in [Spec, FP]. This derives the representation (28).

(28) I believe $[_{CP} \text{ that } [_{FP} \text{ this book}_i \text{ F } [_{TP} \text{ you should read } t_i]]]$ (ibid.)

Traditional linguists have regarded the operation like a topicalization as optional movement. I deny the optional movement and think that their syntactic constituents must be moved from the base-position to [Spec, FP] for feature checking. Moreover, I propose that an interpretable feature is relevant to movement, although the MP only accepts uninterpretable features as a trigger for movement.

Conclusion

This paper has dealt with the alternation of word order in NPs. The English noun phrases (A-N) do not obey the head-complement parameter because the head of NP is a noun. I provided a solution with the DP-analysis of Abney (1987) that the head of NP is a D, and that it takes an NP as its complement. I proposed the extended DP-analysis from the parallelism between a CP and a DP. The extended DP-analysis contains several functional projections. Then, adopting Scott (2002), I submitted that the adjectives occur in the specifier of a distinct functional projection. I pointed out that English also has an overt N-raising and the operation is brought about by an interpretable feature of a functional projection. I concluded that an interpretable feature is related to movement, although the MP accepts only an uninterpretable feature as motivation for movement. Semantic features are available to any instance, if they affect syntactic constructions. Topicalization is an example of existence of semantic features. The constituent is obligatorily moved from the base-position to [Spec, FP] for feature checking.

Notes

- 1) Agr in D does not co-occur with lexical determiners.
- 2) I go on the assumption that nouns are not base-generated with their inflectional ending in this section.
- 3) In this paper, I adopt this structure concerning the DP structure.
- 4) Post modifiers like PPs and relative clauses are assumed to be right-adjoined.
- 5) Scott's hierarchy is based on Kingsbury and Wellman's cline (1986) of categories.
Kingsbury and Wellman's hierarchy:
DETERMINER > SUBJECTIVE COMMENT > SIZE > AGE > SHAPE > COLOR >
NATIONALITY / ORIGIN > MATERIAL > COMPOUND ELEMENT > NOUN

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