Introduction

1 The study of Noun Phrases

The unifying goal of the four chapters contained in this book is that of clarifying how Noun Phrases are internally structured. From a descriptive point of view, we provide an analysis of the structure of Noun Phrases in Romance, especially Italian, and compare the results so obtained to corresponding aspects of nominal structure in the Germanic languages. From a more theoretical point of view, on the other hand, the works assembled here contribute to investigating the notions of c-command and government and the theories of word order and of empty categories adequate to meet the empirical challenges emerging from the study of NPs, therefore providing suggestions of relevance also to the theory of Universal Grammar in general.

Looking back at the history of the formal study of NPs, it seems clear that after Chomsky's (1970) 'Remarks on nominalizations' the topic had not greatly progressed for almost ten years. Actually, no specific work on the internal structure of NPs had appeared, until M. Anderson's (1979) doctoral dissertation 'Noun Phrase Structure'; the year after, G. Cinque, relying also on work on French which later appeared in Milner (1982), opened the way to the investigation of Italian nominal structures, publishing 'On Extraction from NPs in Italian'. Only more recently have other scholars, whose contributions will often be mentioned in these chapters, concentrated their efforts on this topic. It may seem surprising that the subject had not been considered for such a long time, but it is not difficult to find a reason for this: Chomsky, in his 1970 article, made the natural assumption that the structure related to a Verb is the same as that related to the corresponding Noun. There are in fact several obvious selectional similarities which can hardly be captured in any other way. Chomsky, therefore, proposed that lexical heads like V and N belonged to an underspecified category, unifying in a radical way the lexical and, to

some extent, syntactic properties of these two categories. This view, however, though very natural, could not be immediately pursued further, since Verbs and Nouns present in the structure they project a number of differences which could not easily fit into the theory at the time and were difficult to reconcile with their similarities. However, as the theory of syntax progressed towards more general principles and developed such notions as Case, government and parameter, the structure of NPs became once again available for theoretical investigation. Both Anderson (1979) and Cinque (1980) developed Chomsky's (1970) original idea that Nouns and Verbs, or more precisely, Noun Phrases and clauses, have many properties in common: in particular their work has suggested that the various 'diatheses' of NPs were related via movement, as is assumed to be the case in sentences, and that the role of 'possessive' elements in NPs closely parallels that of subjects of clauses (I-subjects in Borer's 1986 terms):

(1) a. The barbarians destroyed the city
b. The city was destroyed by the barbarians
(2) a. The barbarians' destruction of the city
b. The city's destruction by the barbarians

Under this approach (2)a and (2)b are transformationally related in the same sense in which (1)a and (1)b are and the possessive phrases of (2) have the same prominence as the surface subjects of (1); these views are central to our work and are actually generalized into what we may refer to as the 'Configurational Hypothesis', consisting of two clauses:

A. It is possible to identify, within NPs, definite θ- (and non-θ-) positions at various levels of hierarchical attachment: whenever an element of the N frame appears in a position arguably different from the one where it should be projected at D-structure, its displacement must, then, be governed by the general conditions holding on antecedent–trace relationships created by 'Move α'; moreover the binding of anaphors and pronouns in NPs obeys the same constraints observed in clauses.

B. The θ-structure of Ns (their θ-grid and the condition on θ-assignment) strictly parallels that of Vs, so that the differences appearing on the surface must be due to the intervention of other modules of grammar which determine some systematic variation.

Among such independently motivated differences, the following three

emerge clearly throughout the chapters of this book as the most relevant ones:

(i) The maximal projection of N can be an argument, unlike that of V; hence it need not be licensed by predication, i.e. by externalizing a subject argument. Consequently, the subject of NP is not the predication subject of an Xmax and, as such, is not obligatorily required by Rothstein's (1983) Predication Principle.

(ii) Nouns, unlike Verbs, are non-structural governors and Case-markers (cf. Kayne 1981b; Chomsky 1986a).

(iii) Nouns do not display a special morphology for the passive diathesis; in particular, they present no morpheme analogous to the so-called EN morpheme studied in Roberts (1987).

As a consequence of the assumptions forming the Configurational Hypothesis, it follows that the phrases in (1) and (2) are considered related and, in particular, we will speak of 'passive' NPs, as in (2)b, derived via movement from 'active' ones, like (2)a; in the same spirit, in chapter 1 Giorgi will also introduce and empirically substantiate the concept of 'ergative Nouns', i.e. Nouns derived from ergative Verbs, in the sense of Burzio (1981/1986) and Perlmutter (1978), as in the following case:

(3) a. Tu parti per Parigi
You are leaving for Paris
b. La tua partenza per Parigi
Your departure for Paris

For a variety of empirical reasons, discussed in the text, we believe that the assumptions A and B are correct. However, a conceptual point needs to be stressed as well: the Configurational Hypothesis here adopted should be regarded *a priori* as the null hypothesis, since it does not imply any special stipulation, about the syntax of NPs, which is not independently required in the rest of the grammar. Yet, such a hypothesis has been challenged to various extents in several important contributions to the recent literature: e.g. the valuable and highly detailed study by Zubizarreta (1986) explicitly rejects aspects of the conclusions under point A of the Configurational Hypothesis. Actually, the whole recent debate on Noun Phrases is split into two major tendencies; some researchers following Anderson, Cinque and Milner, have essentially adopted versions of this 'configurational' line of reasoning, most notably Torrego (1984, 1986); others have accepted the burden of proof, arguing that NPs are radically different from clauses and VPs: they have claimed that θ-

positions cannot be identified once and for all and indeed that some arguments of NPs are not assigned θ-roles, but are simply interpreted according to some adjunct-like semantic rule.

This second approach aims to capture the fact that the semantic functions which a Noun is able to assign to its arguments seem much more varied and mutually dependent than the ones assigned by a Verb. Along such guidelines, the domain of relevant observations and generalizations concerning the form and meaning of NPs has been significantly enlarged. Among the most important works, developing variants of this line of research, are the ones by Zubizarreta (1986), Safir (1987) and Grimshaw (1986): they provide arguments and empirical observations that cannot be ignored in any analysis of NPs. We concentrate, however, on certain aspects of NP structure which suggest that the 'Configurational Hypothesis' (essentially the null hypothesis, as we have remarked) is worth maintaining, not only on conceptual and heuristic grounds, but also on empirical ones. In fact, throughout the chapters of this book it will be shown, first, that the structural assumptions following from the 'Configurational Hypothesis' are able to explain a whole variety of phenomena concerning binding, word order and semantic interpretation, and, second, that a substantial portion of these phenomena (especially in chs. 1 and 3) cannot be easily accounted for in a theory not including those assumptions. In particular, the arguments provided in chapter 3 appear to suggest that probably even descriptive adequacy would fail to be attained by a theory of syntax dispensing with empty categories like trace and PRO. Also the structural attachment of arguments and modifiers of Nouns hypothesized in this volume in agreement with the 'Configurational Hypothesis', receives strong support from the data analysed: it must be stressed, in fact, that virtually every assumption made on this topic is independently suggested by more than just one piece of empirical evidence. In conclusion, if the analyses motivated in the chapters which follow prove to be tenable, they will represent indirect but strong proof of the main hypothesis assumed and of the current theory of grammar in general.

Needless to say, our work has been greatly inspired by Cinque's (1980, 1981a), since the empirical generalizations he identifies constitute our starting point, even if we then update and extend his analysis, still maintaining the general approach to the problem.

In the first chapter of this book, Giorgi considers the internal argument structure of NPs, adopting binding phenomena as her major testing

ground; from this she draws some conclusions concerning the essentially configurational character of NPs, the definitions of command and locality relevant for the binding principles, and the extension of the ergativity phenomenon across lexical categories.

In the second chapter, Longobardi analyses extraction from NPs, on the basis of the generalizations first proposed by Cinque (1980), and provides the most direct empirical evidence for the idea that any movement out of NP in Romance must be mediated by phrase-internal raising to the Specifier position. In the light of an original suggestion by Kayne (1981b, 1983), it is argued that this peculiar condition on movement can be predicted by an analysis of the nature of N as a governor. In the course of the discussion evidence is suggested in favour of the splitting conjunctive interpretation of the two requirements of head and antecedent government for traces, and a more general constraint on lexical X′ structures, the Consistency Principle, is also proposed.

The third chapter, written jointly by the authors, addresses the question of how to deal, in the framework of a formal theory of syntax, with the problem of crosslinguistic word order variation: it tries to complement the abstract approach and the learnability considerations of generative grammar with insights provided by typological investigation; a methodological attempt also invoked in Hawkins (1985) and made possible especially by R. Kayne's work on comparative syntax of English and Romance in the past fifteen years. In fact, we identify a single parameter of variation between the Romance and Germanic languages, whose consequences affect the shape of NPs in a wide number of more or less directly visible aspects. Some of these phenomena seem to cluster together across languages and to fall very naturally under a parametric theory, even though in a purely logical theory of language acquisition they could easily be regarded as learnable from primary data independently of each other, so as to predict a more random typological variation than the one observed. It is in this sense that a more extensive reliance on empirically founded typologies may prove quite useful to reduce the class of attainable grammars beyond the limits already suggested, abstractly, by learnability considerations. The phenomena we consider in this chapter provide very strong evidence in favour of the leading idea illustrated under points A and B above; in particular they clarify the crucial role played by NP-internally moved phrases and their traces in interaction with empty pronominals, for whose occurrence very strong new evidence is provided.

In the fourth chapter, the two authors try to characterize more formally

the nature and the distribution of such empty pronominals, whose existence was strongly suggested by the phenomena analysed in the previous chapter. Special attention is devoted to the subject empty category, about which undeveloped assumptions can often be found throughout the literature, but whose occurrence and properties have never been subjected to the detailed investigation that such a topic deserves. Also the results achieved in this chapter reinforce the general hypothesis that the kinds of structures and the empty categories found in NPs are essentially the same as those identifiable in clauses. Finally, more recent developments of the theory concerning the projections of the Determiner will be briefly discussed.

2 Theoretical background

Before starting the analysis of NP structure, we will briefly provide some theoretical background concerning the Government and Binding framework which will be adopted in the subsequent discussion. Let us first introduce the notion of Universal Grammar (henceforth UG), which is at the core of the theory in question.

Language is viewed as an innate biological faculty, i.e. humans are considered to be endowed from birth with a system of principles predisposed to the acquisition of a grammar under the exposure to linguistic experience; this can be naturally hypothesized just on the basis of the underdetermination and uniformity of the language-learning process (see e.g. Chomsky 1975). Now, such a biological system must also be universal, since no human being displays any particular predisposition to acquire one language rather than another.

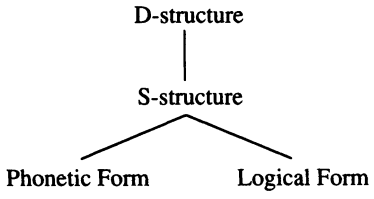
However, the most trivial and superficial observation shows that languages differ from each other, i.e. that a particular grammar has different properties from another one: for instance, Italian differs from Chinese. The conceptual problem which arises is then the following: how is it possible that these two opposed challenges can be met by a consistent theory of language acquisition and of language variation? The answer relies to a large extent on the so-called theory of parameters. In the recent past it has been discovered that a cluster of differential properties distinguishing two or more natural languages can often be reduced by an accurate grammatical analysis to a single, more abstract difference, referred to as a parameter of UG. As a consequence, it can be plausibly hypothesized that the superficial differences among languages, apart from

the semiotically arbitrary variation in the phonological encoding of concepts in the lexicon, are less numerous than the real ones. The view of the learning process turns out to be much simplified by this discovery: in most cases it can be reduced to the setting of the value of an open parameter, resulting in very substantial surface variation, just on the grounds of exposure to a very restricted sample of sentences; it is only necessary that the latter exemplify clearly at least one consequence of the correct setting of the parameter in question. UG can, thus, be considered to consist of certain fixed principles and several open parameters to be set by the particular linguistic experience of the learner: it gives rise to the various linguistic systems through the choice of the values for the parameters. By means of exposure to a limited *corpus* of data, a child is then able to determine the whole structure of his or her language; for more detailed discussion, see Chomsky (1981: ch. 1).

Several principles of grammar cooperate to define for each language which structures are possible and which are not. The various subparts of the theory of grammar are called 'modules', in that they can operate on the same configuration independently of each other. In the following pages, we will introduce in more detail the most important among them.

A grammar is also modular in the sense that it consists of various levels of representation for each expression that it generates; there is much debate in the actual elaboration of the theory about the empirical content and definition of levels. Traditionally, a grammar is seen as a mapping between the following levels:

(4)



Technically speaking, D-structure is said to be a pure representation of thematic relations, i.e. of the referential roles (such as agent, experiencer, patient and others) which lexical items, conceived of essentially as n-ary logical predicates, assign to their arguments (e.g. a Verb to its subject and object). Such thematic assignment is local, taking place basically under adjacency and, whenever an argument appears away from its normal thematic position (e.g. a direct object not occurring adjacent to its Verb), it is said to have been displaced by a movement rule, leaving behind an

empty category or 'trace' in the original position; the mapping to the following level is precisely through the application of this rule of Move α. S-structure, whose linear arrangement of words is most often the one encoded in the phonetic realization, is viewed as an 'annotated' structure, where the history of movement is explicitly recorded by means of traces. The mapping to Logical Form (LF) is essentially performed by the rule of Quantifier Raising (QR). Phonological rules basically intervene in the mapping to the Phonetic Form (PF). In the following chapters, we will never consider PF and we will restrict our attention mainly to D- and S-structure, occasionally referring to certain phenomena which are often claimed to find their origin at LF (e.g. weak crossover effects, quantificational scope). Whether the various levels are really motivated, or are just a notational variant of other ways of expressing the same empirical content by means of just one level is a potentially open question which will not be addressed in this work.

X-bar theory

The first module of grammar to be introduced is the X-bar (X′) theory, originally elaborated by Jackendoff (1977; see also Stowell 1981).

As is standard in any syntactic approach, we will admit that words fall into a restricted number of distributionally defined categories. The fundamental categorial types are the following: Noun (N), Verb (V), Adjective (A) and Preposition/Postposition (P). These are called 'lexical categories'; there is also a certain number of non-lexical categories: Inflection (I), which essentially includes verbal auxiliaries and affixes; Complementizer (C), like English *that* or Italian *che*; Determiner (D), i.e. the category of articles and other elements which introduce nominal expressions. A sentence, however, cannot be taken to be simply a concatenation of linearly arranged categories, since adjacent words are grouped together in a systematic way to form larger constituents, or phrases. The resulting structure is often represented by means of tree diagrams, in which each category or phrase corresponds to a so-called 'node', where higher nodes (i.e. larger constituents) are said to dominate (contain) lower ones (smaller constituents). Technically speaking, we will say that every word is a head and every head projects higher constituents of a corresponding categorial type: the highest will be called maximal projection. Thus, among such maximal projections are: Noun Phrase (NP), Verb Phrase (VP), Adjective Phrase (AP), Prepositional Phrase (PP), Inflection Phrase (IP), Complementizer Phrase (CP) (see Chomsky

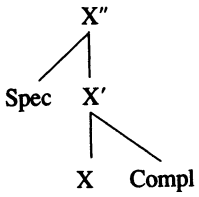
1986a, 1986b; Radford 1988), and probably Determiner Phrase (DP), on whose precise status see chapter 4 below.

The X-bar approach to constituent structure identifies some invariants in the possible hierarchical configurations. Most importantly, Chomsky (1970) and Jackendoff (1977) observed that, independently of the lexical category which is involved in a particular structure, the way in which a head defines its projections obeys some general constraints. Chomsky (1986b) has extended such an approach to include also the structure projected by non-lexical heads, in particular I and C, which are considered to project clausal constituents, i.e. sentences. X-bar theory establishes that whenever there is a head X, there will also be a maximal projection, referred to as XP or Xmax, and at least one intermediate projection, call it X′. Moreover, X-bar theory defines the levels where the arguments of the head must be attached; the intermediate projection X′ is said to consist of X and its 'Complement'; the following projection of X′, X″ (generally Xmax, in the sense that usually only two projections are hypothesized) is instead said to consist of X′ and its Specifier. Notice, however, that the term 'Specifier', no less than 'Complement', does not identify a category, but only a position which will be alternatively and also simultaneously, in certain cases, filled by different items of various categorial types.

X-bar theory, in other words, defines a skeleton for phrase structure; this, however, is not sufficient, since the branching direction has not yet been specified. In fact, we have only established that a head projects up to a maximal projection, but Complement and Specifier can in principle appear either on the right or on the left of the head. Branching directions are, in fact, parametrized, i.e. they are selected by each language. English, for instance, is a so-called VO language, according to the traditional typological terminology; in the terms of X-bar theory, we can say that the branching direction of V′, containing the complements of V, is to the right. The subject of a sentence, on the contrary, appears in Spec of IP on the left of I, therefore we will say that IP branches to the left. Notice that it is not *a priori* established that all the categories will be consistent, i.e. it could very well happen that in the same language, a given category projects its complements on the left, whereas another one projects them on the right; this option, however, would be a marked case. The actual way in which phrases are linearly ordered with respect to the head of the Xmax immediately containing them could be constrained not by X-bar theory directly, but by the direction of assignment of certain formal and interpretative features, like Case and θ-role, which will be introduced

below. Some advantages of this principled treatment of word order, with respect to a more traditional approach to phrase structure have been pointed out by Koopman (1984) and Travis (1984) and will be made clearer in the following analysis, especially in chapter 3. Going back to English, we can reasonably hypothesize that the minimal X-bar skeleton structurally available for each phrase looks as follows, with a very high degree of crosscategorial consistency:

(5)

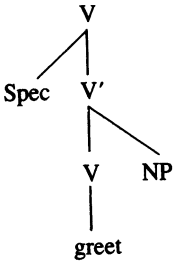


where Spec represents the position of the Specifier, and Compl the position of possible complements of the head.

Thematic theory

Once the structural relations have been established, i.e. the options of X-bar theory have been set, we have not yet provided all the information necessary to project an actual phrase. In fact, to decide how many and which categories can occupy the positions abstractly termed 'Complement', or 'Specifier', we must know something more about the semantic properties of the head. Each lexical head assigns a semantic, i.e. thematic, interpretation to its complements and, for some heads, also to its Spec position.[1] Consider a Verb like *greet*: it projects a VP (= V″), it has an intermediate projection V′ which also dominates an object NP:

(6)



Certain adverbials can appear in preverbal Spec position, for instance *always*, *often* and so on. The NP is interpreted with reference to the thematic grid of the verb: *greet* takes a theme as complement, and requires that it be realized as an NP; we will say, therefore, that the Verb assigns