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NOUN PHRASES AND NOMINALIZATIONS

The Syntax of DPs

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TABLE OF CONTENTS

PREFACE

As is clear from its title, this book deals with two main topics. First, it explores various aspects of the syntax of noun phrases. Second, it suggests a systematic investigation of the categorial nature and syntactic characteristics of nominalizations, which can be formed prior to lexical insertion or in the syntactic component.

The syntactic nature of structures showing a categorially ambiguous behavior is not always easy to determine, as the distinction between syntactic phenomena that merely echo lexical information and those that result from an actual syntactic operation is sometimes blurred due to miscellaneous factors. In fact, the tension between the lexicon and the syntactic component is natural under any approach assuming a separate lexical component. This tension, which, of course, is fed by theoretical developments and empirical discoveries, is methodologically healthy as it encourages the theory to reexamine the division of labor between its components. The present study sheds some light on this issue as it arises in the domain of nominalizations.

The book concentrates mainly on empirical data taken from (Modern) Hebrew. The nominal system (in the broad sense) that characterizes Semitic languages in general and Hebrew in particular is rich and intriguing. It shows rather unique properties, whose investigation has significant consequences for universal issues such as the characteristics of syntactic nominalization or the relationship between functional and lexical categories. It is thus not a mere coincidence that led me, a native speaker of Hebrew, to explore the wonders of nominal expressions. As is by now a common practice in syntactic research – which aims to deepen our understanding of what is a possible variation between related grammars and between language families, and what remains constant across languages – this study adopts a comparative methodology. The book often compares characteristics of Hebrew grammar to properties shown by other grammars, Semitic or non-Semitic, drawing conclusions of theoretical interest.

As its subtitle indicates, the book adopts the claim that syntactic nominalizations share with noun phrases (whether simple nouns or outputs of lexical nominalization) the same external layer, the functional

projection DP. It argues that the discrepancies between noun phrases (in particular, event nominals) and syntactic nominalizations follow from the fact that noun phrases have an internal nominal structure, while syntactic nominalizations entail a verbal projection that is allowed to be dominated by the functional projection DP because it lacks temporal specifications. If my proposals are on the right track, then the nominal properties of syntactic nominalizations never stem from a syntactically present NP.

The first part of the book is devoted to noun phrases. It examines different sorts of genitival constructions, analyzes their structure and justifies a lexicalist approach to deverbal event nominals. The second part of the book examines instances of syntactic nominalization, defines the context required for propositions to be nominalized in syntax and discusses some (a)symmetries between nominalized propositions and their sentential counterparts.

The book has grown out of my doctoral dissertation completed at the University of Geneva in March 1994. While working on the material in the book, I have had fruitful discussions and exchanges with many linguists and colleagues. It would hardly be possible to acknowledge all those who have contributed to my work in one way or another. I would nonetheless like to thank again the many people acknowledged in my dissertation, in particular, Luigi Rizzi and Hagit Borer, who have been of central influence from the beginning, both through their comments and suggestions, and through the example set by their own research. Among those who have read earlier versions of the manuscript or various components thereof and extensively commented are Adriana Belletti, Guglielmo Cinque, Marc-Ariel Friedemann, Liliane Haegeman, Tanya Reinhart, Ur Shlonsky, and an anonymous SNLLT Reviewer. The material in the book has benefitted from presentations at the University of Leiden, the Hebrew University of Jerusalem, MIT, CUNY, Ben Gurion University of the Negev, the University of Nice, Bar-Ilan University and the University of Geneva. Audiences at these places made helpful suggestions. Those attending my classes at Tel Aviv University also provided valuable discussions of much of the material in the book. Finally, I would like to thank all those who supplied data, judgments, observations regarding Hebrew, French and other languages, and in particular Aminadav Dykman and Marc-Ariel Friedemann for their endless patience.

Tal Siloni
Tel Aviv

CHAPTER 1

THEORETICAL ISSUES

1.0. PRELIMINARIES

The ultimate goal of linguistic inquiry in the particular tradition known as generative grammar is to understand the nature of the language faculty. The central assumption is that humans are endowed from birth with a system predisposed to the acquisition of a natural language (e.g. Chomsky 1965, 1975). This assumption suggests a way to account for the rapidity and apparent ease with which children acquire the remarkable complexities of languages, without systematic instruction, on the basis of incomplete data, and with no negative evidence.

The innate component of the human mind yields a particular language through interaction with a particular linguistic experience. The idealized model of language acquisition takes the initial state of the language faculty to be a function mapping linguistic experience into a natural language. The theory of the initial state of the language faculty, prior to any exposure to linguistic data, is called *universal grammar* (UG). UG determines the class of possible languages. The theory of the steady state, that is the state of the language faculty of a person who knows a particular language, is often called *grammar*.

UG must reconcile two seemingly conflicting requirements: it must be predetermined enough to explain the process of native language acquisition, and at the same time sufficiently flexible to allow the diversity of natural languages. In the beginning of the eighties, certain ideas regarding UG crystallized into the *principles and parameters* approach (e.g. Chomsky 1981). Under this approach, UG consists of certain invariable principles that hold of any natural language, and finitely valued parameters to be set through the particular linguistic experience of the learner. UG supplies a format of principles and parameters; a particular instantiation of this format constitutes a specific language. The parameters provide UG with flexibility and account for the diversity of languages, apart from Saussurean arbitrariness (the phonological encoding of concepts in the lexicon). Often, clusters of different properties distinguishing two or more languages can be reduced to a single difference, to a distinct setting of one single parameter (for instance, see Rizzi 1982, 1986a for discussion of the

Null Subject parameter and related characteristics). Linguistic variation is constrained by the principles and parameters of UG, which suggests a way to explain the considerable rapidity and ease of native language acquisition. The parametric range may be restricted to functional elements and general properties of the lexicon (Borer 1984, Chomsky 1991, 1993).

Many specific variants of the approach have been developed and explored in recent years. The current diversity of notions within the generative approach necessitates a short introduction of the specific path adopted here (section 1.2). Prior to this introduction, however, I briefly discuss the goals of the research (section 1.1).

1.1. NOMINALIZATIONS AND DPs

1.1.1. *Background*

1.1.1.1. *Nominalizations*. It is well known that verbs and their corresponding deverbal nouns appear to share some basic semantic properties. Thus, for example, the noun *examination* in (1a) appears to bear the same semantic relation to the noun phrases *Dan* and *the papers*, as the verb *examined* does in (1b). However, while the appearance of those noun phrases is optional with *examination* (2a), it is obligatory with *examined* (2b):

(1) a. Dan's examination of the papers

b. Dan examined the papers.

(2) a. the examination

b. *Examined.

The issue of the relationship between verbs and their corresponding deverbal nouns already enjoyed an important position among inquiries in the earliest works in generative grammar. Lees (1960) had deverbal nouns generated as clauses and mapped onto a noun phrase structure by a series of nominalization transformations. This derived the fact that the contexts in which a verb and its derived noun appear are closely related. The differences between the two categories were accounted for by ordering certain rules after the nominalization transformations.

Within the framework of the theory available at that time, there was,

in fact, no alternative way to express the similar properties of verbs and their related nouns. Chomsky's *Syntactic Structures* (1957) lacked a lexical component in the current sense, and could not formulate the affinities between verbs and nouns in lexical terms. These affinities had to be handled by the syntactic-transformational component. With the introduction of a separate lexicon (Chomsky 1965), it became possible to express the relationship between verbs and deverbal nouns via lexical representations, without assuming that deverbal nouns entail a syntactic transformation of the source verb. The restricted productivity that characterizes the formation of deverbal nouns, certain idiosyncrasies they show, their nominal behavior, among other things, led Chomsky (1970) to take a *lexicalist* position with respect to deverbal nouns. In rough terms, this means that entries like verbs and deverbal nouns share their lexical representations as far as their thematic properties are concerned.

During the eighties, variants of the lexicalist approach to deverbal nouns have been dominant. Linguists have generally agreed that deverbal nouns are inserted in the syntactic component as nouns, and have been concerned with the extent and character of similarities and differences nouns and verbs show with respect to argument structure and θ-theory (Cinque 1980, 1981, Milner 1982, Anderson 1983-84, Kayne 1984, Safir 1987, Zubizarreta 1987, among others). It has often been asserted that nouns, contrary to verbs, take arguments only optionally (see, for example, Higginbotham 1983, Dowty 1989).

In a consequential study of the nominal system, Grimshaw (1990) has established clear diagnostics to distinguish between two types of nouns that are often homophonous: *event* nouns, which express an event (or a process), and *result* nouns, which name the output of the event or an entity related to it. This disambiguation enables Grimshaw to show that event nouns obligatorily have an argument structure as part of their lexical representation; they assign specific θ-roles, just like verbs. The lexical representation of result nominals, which do not express an event, does not specify an argument structure; result nouns do not take real arguments, which bear specific θ-roles, but rather a kind of semantic participants that are more loosely associated with them.

For example, Grimshaw shows that certain modifiers, like *frequent*, can modify a (singular) noun only when it expresses an event. They can thus serve to diagnose eventhood. Once a noun is disambiguated, it becomes clear that a noun without arguments cannot have an event interpretation. In (3a) the referent of *Dan* is somehow associated with the referent of *construction*, which is a concrete entity. Dan can be the owner, the caretaker, the admirer, or the creator of this entity. Thus,

Dan is not a real argument of *construction* as it does not bear a specific θ-role; rather it has some claim of possession over the concrete entity. When the modifier *frequent* is added, *construction* is forced to have an event interpretation, and consequently it assigns specific θ-roles (3b), just like its corresponding verb (3c). Hence, *Dan* must be interpreted as the agent of *construction*, and the appearance of the constructed element becomes obligatory:

(3) a. Dan's construction impressed us.

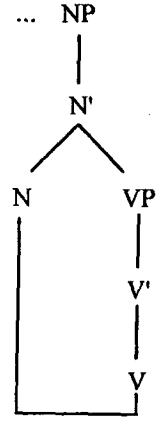
b. Dan's frequent construction *(of sailing boats) impressed us.

c. Dan constructs *(sailing boats).

In short, lexical entries that denote an event (whether verbs or nouns) have an argument structure. The clear split between event and result nominals undoubtedly highlights the common properties verbs and event nouns share. Certain important asymmetries between verbs and deverbal nouns are in fact to be associated only with result nominals. This has paved the way for the revival of the syntactic approach to event nominals.

The modern syntactic approach takes the presence of an event reading and an argument structure to be a lexical property of verbs, not nouns (e.g. Borer in progress). It inserts deverbal nouns as verbs that raise to incorporate with a nominal head in the course of the syntactic derivation, as schematized in (4). Event nouns thus have an event reading and an argument structure because they contain a verbal projection in syntax:

(4)



A priori, the syntactic approach simplifies the lexicon, dispensing with the need to lexically represent the nominal ambiguity (event/result). It does so at the cost of greater complexity of the syntactic component, which must allow structures of the type in (4). The lexicalist approach, in contrast, simplifies the syntactic component at the price of a richer lexicon. As noted by Chomsky (1970), there do not seem to be general considerations that settle the matter; deciding between the two approaches is mainly an empirical problem.

Alongside event nominals, languages also exhibit gerundive forms such as the English gerund given in (5). On a par with event nominals, English gerunds of the type in (5) have the distribution of noun phrases and take a genitive subject (5a). Unlike event nominals, however, they are formed fairly freely, their semantic interpretation is straightforward with regard to the source verb, and their internal structure is not nominal (e.g. they cannot be modified by adjectives, nor realize their article (5b-c)), but rather verbal (e.g., they can take an accusative argument (5a)):

(5) a. John's constructing sailing boats impressed us.

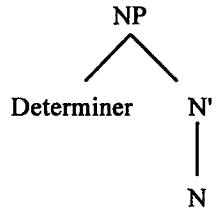
b. *John's rapid constructing sailing boats impressed us.

c. *The constructing sailing boats impressed us.

Any study of nominalizations has to take up the challenge of accounting for the discrepancies and similarities between event nominals and their gerundive counterparts. If there are good empirical reasons to believe that both event nominals and gerunds are derived from the base verb in the syntactic component, the more verbal nature of gerunds is a priori unexpected and requires an explanation. In contrast, if it can be shown that event nominals are the output of a process of lexical nominalization and gerunds are the product of syntactic nominalization (as suggested in Chomsky's *Remarks on Nominalization* 1970), the discrepancies between the two nominalizations follow rather straightforwardly.

1.1.1.2. *Functional structure.* A more recent issue in the investigation of noun phrases concerns the functional structure they entail. Traditionally, noun phrases were naturally taken to be the maximal projections of N, as depicted below (Jackendoff 1977, among others):

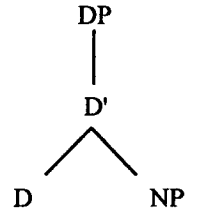
(6)



The theoretical developments in the eighties alongside the growing interest in the nominal system have called this structure into question. More specifically, the extension of the X-bar schema to the sentential functional elements (Chomsky 1986b) and the increasing understanding of the workings of head movement (Chomsky 1986b, Baker 1988) have led linguists to elaborate a more articulated syntactic representation for the noun phrase.

Arguing that the functional nominal material, too, should fit into the X-bar schema, Abney (1987) has hypothesized that noun phrases, like clauses, are headed by a functional element. He has proposed that noun phrases are the maximal projections of D, the base position of articles (see also Szabolcsi 1983-84, Fukui and Speas 1986):

(7)



This proposal has received strong empirical support by a series of studies arguing that the head noun overtly raises to D in Semitic (Ritter 1987, 1988, Mohammad 1988, Ouhalla 1988, Fassi Fehri 1989, Hazout 1990, Siloni 1990b, 1991a) and Scandinavian languages (Delsing 1988, Taraldsen 1990). Longobardi (1994) has shown that instances of noun raising to D are also likely to occur overtly in Romance and covertly in English and German. Subsequent studies of Semitic, Romance and Germanic languages have suggested that the structure of noun phrases is even more articulated and includes additional inflectional structure between DP and NP (Ritter 1991, Valois 1991, Cinque 1993, Bernstein 1993, Fassi Fehri 1993, Penner and Schönenberger 1993, among others).

Alongside the accumulating empirical evidence, several studies have developed a principled explanation of why the nominal expression is the

maximal projection of D (Szabolcsi 1987 ,1989, Stowell 1989, 1991, Longobardi 1994). Somewhat simplified, their insight is that D is the element that converts the nominal expression into a referential phrase, which consequently is able to serve as an argument. In this respect, it can be argued that D parallels the complementizer of sentential complements: each turns its complement (NP and IP, respectively) into an expression that is able to appear in an argument position, that is, to bear a θ-role (Szabolcsi 1987 ,1989).

While the discussion of nominalizations is particularly concerned with their categorial structure, recent investigations of the structure of noun phrases are interested in defining their functional structure and its workings. These related issues, which I informally phrase below, form the grounds for this research on noun phrases and nominalizations, which concentrates on a variety of constructions in (Modern) Hebrew, often comparing them to parallel constructions in Semitic and non-Semitic languages:

A. The categorial syntactic structure of event nominals and other nominalizations.

B. The functional structure of DPs and the different facets of D.

In the subsequent section I outline the main claims advanced in this work.

1.1.2. *Outline*

The first part of this work (chapters 2-3) has two major goals: examining the functional structure of noun phrases, and justifying a lexicalist approach to event nominals. I supply empirical evidence that event nominals are purely nominal and do not contain a syntactically projected VP. Yet they share with the corresponding verbs their argument structure (Grimshaw 1990), which they equally map onto a hierarchical syntactic structure (Giorgi and Longobardi 1991). I present the empirical arguments Hebrew offers in favor of viewing noun phrases as maximal projections of D. Further, I motivate the projection of an agreement phrase between NP and DP in noun phrases involving the so-called *construct state*. This allows a straightforward account of the distinct syntactic behavior of three types of genitival constructions in Hebrew: the construct state, the *free state*, and the *clitic doubling* construction.

The second part (chapters 4-5) is devoted to cases of "mixed" structures, DPs containing a verbal projection (the structures show typical verbal characteristics). The question immediately arises as to what it is that enables D to take a verbal complement instead of its standard nominal complement. Observing that verbal projections embedded under D are non-tensed propositions, I suggest that their untensed nature is the crucial factor that makes them legitimate complements of D. This is what they share with NPs and this is what renders them compatible with D. According to my proposal, embedding by D of a verbal projection is what syntactic nominalization is in essence. Syntactic nominalization does not involve a syntactic transformation incorporating a verb into a noun. Rather, it entails a DP dominating a verbal projection that does not contain tense specifications. Thus, English gerunds, Hebrew gerunds, or Italian nominalized infinitives may all be cases of syntactic nominalization. I suggest a detailed analysis of Hebrew gerunds along these lines.

Inspired by the analogy between articles and complementizers outlined by Szabolcsi (1987, 1989), I characterize D as the equivalent of C with regard to non-tensed phrases. Both C and D turn the expression they head into a referential argument, which is consequently able to bear a θ-role. But while C heads tensed propositions, D introduces non-tensed phrases. Following Stowell (1982), I assume that the CP level is obligatory in tensed clauses (whether finite clauses or infinitivals). Stowell entertains the idea that the tense operator has to raise to C (COMP) at LF to take scope over its clausal operand (see Enç 1987 for a detailed discussion of the Anchoring Conditions, which link tense to C). Now, if C must be associated with a tense operator, whereas D cannot do so, it becomes clear why C must introduce tensed clauses, while D is the "complementizer" of non-tensed expressions, whether noun phrases or gerund clauses.

The investigation of participial relatives strongly reinforces this functional parallelism between CP and DP. In Hebrew (or Standard Arabic), these non-tensed relative clauses surface headed by D. In other languages (e.g. French), they do not manifest any overt element of this type. Various considerations, however, suggest that they do contain a covert D. This strengthens the claim that verbal projections can be embedded under D only if they are not tensed. To the extent that syntactic nominalization means the occurrence of a verbal constituent as a component of DP (say, *DP-zation* of a VP), participial relatives constitute an additional instance of this syntactic phenomenon. Moreover, the occurrence of D as the head of participial relatives suggests that D can not only introduce non-tensed argumental phrases,

but also non-tensed modifying phrases. This brings to light a novel facet of D and extends the functional analogy between complementizers and articles: C as well as D can head arguments as well as modifiers.

Let me summarize the main arguments of the following chapters in rough lines.

(a) Event nouns basically share the same argument structure with the corresponding verbs (see Grimshaw 1990), and map it, like verbs, onto hierarchical syntactic structures (Giorgi and Longobardi 1991) (chapter 2).

(b) Given the hierarchical structure of noun phrases and the order of constituents they exhibit, it must be concluded that overt noun raising is obligatory in Hebrew. I suggest that D is the landing site of the raised noun, thus supplying support for the claim that noun phrases are the maximal projections of D (Abney 1987) (chapter 2).

(c) Genitival relations in Hebrew can be expressed via the construct state, the free state, or a clitic doubling construction. The construct state avails itself of structural Case, the free state involves inherent Case assigned via the Case marker *šel* ('of'), and the clitic doubling configuration has recourse to both Case assignment mechanisms. If structural Case is always the realization of Spec-Agr^0 relation (Chomsky 1991, 1993), construct states and clitic doubling configurations entail an agreement projection. The syntactic properties of all three genitival constructions fall out (chapter 2).

(d) Hebrew event nominals show some arguably verbal properties: they can take accusative arguments and be modified by adverbs. This seems to justify a syntactic approach to event nominals (Hazout 1990, 1995, Borer in progress). I show that the verbal properties of Hebrew event nominals are only apparent: the accusative Case of event nominals is an inherent Case assigned by a Case marker, and the adverbs that can modify them are all adverbial PPs and not genuine adverbs. There are no empirical reasons to believe that Hebrew event nominals in particular, and event nominals in general, contain a verbal projection. On the contrary, a lexicalist approach can better handle the data. I suggest that syntactic incorporation of V into N is not a process allowed by UG (chapter 3).

(e) There is a functional analogy between articles and complementizers. D is the equivalent of C in non-tensed phrases. D, just like C, renders its complement a referential expression, which is able to bear a θ-role (Szabolcsi 1987, 1989). Moreover, D, on a par with C, can introduce modifying phrases. While C heads tensed sentential structures, D heads nominal expressions as well as non-tensed verbal projections such as participial relative clauses. I offer a detailed analysis of participial relatives in Hebrew (where D is overt) and French (where I suggest it is covert) along the above lines (chapter 4).

(f) Syntactic nominalization always entails a DP (not an NP) dominating a verbal projection that lacks tense specifications. Analyzed along these lines, the particular behavior of Hebrew gerunds receives a straightforward account, as do the similarities and distinctions between them and event nominals (chapter 5).

Before turning to the study itself, I briefly set the theoretical framework. The current diversity of approaches with respect to central notions in generative grammar necessitates a short introduction of the specific path adopted in this work. The presentation does not intend to offer a comprehensive discussion, but rather to draw the basic theoretical assumptions. For detailed discussions, the reader is referred to the references cited throughout the presentation. Notions directly relevant to the study will be explained in the pertinent chapters.

1.2. SOME BASIC THEORETICAL ASSUMPTIONS

This study adopts a minimalist approach to linguistic theory and is embedded in the *minimalist program*, as put forward in Chomsky (1993, 1995:chapter 3). As its title suggests, the minimalist program is a research design (not a worked-out theory), which assumes minimalism, or simplicity, as a central criterion. Continuing the theoretical trend in generative grammar to move from specific grammatical rules to simple general principles that interact to produce linguistic expressions, the program suggests a severe tightening of the linguistic apparatus developed in recent years. Like earlier versions of generative grammar, the approach assumes that there is a component of the human brain dedicated to language, and that the language faculty has a cognitive system that interacts with the performance systems by means of levels of representations. Additional assumptions are subject to critical

scrutiny.

The notion of simplicity is essential to the program not only as a forceful working hypothesis but also as a theory internal notion. Like any rational inquiry, generative grammar has always adopted simplicity as a theoretical criterion, a natural procedure to reach explanatory adequacy. And, indeed, over the years it has been repeatedly shown that overlapping principles were simply wrong formulations. As a theory internal notion, simplicity is argued to be an essential characteristic of the computational system of the language faculty. It is instantiated in the form of economy principles selecting among derivations.

Ongoing research in the minimalist program has already gone through somewhat distinct stages. The newly developed linguistic mechanisms are constantly subject to investigation and reconsideration (see, in particular, Chomsky 1995:chapter 4). As will become clear in what follows, this book adopts the original minimalist design (Chomsky 1993, 1995:chapter 3) as a working framework.

1.2.1. *Levels of representation*

In descendants of the *extended standard theory* (EST, as developed by Chomsky 1973, 1975, 1976), each linguistic expression has been taken to be a sequence of representations at several levels: D-structure, S-structure, Phonetic Form (PF), and Logical Form (LF) (Chomsky and Lasnik 1977, Chomsky 1981). These levels constitute the computational system of the language, which is fed by a separate lexicon. D-structure is said to be a pure representation of thematic relations; the linking level between the lexicon and the computational system, formed by an "all-at-once" insertion of lexical items. Mapping to the following level, S-structure, takes place through the application of a general rule, Move-α, which displaces an element leaving a trace in the original position. S-structure branches to LF and PF independently. LF is the interface level with the conceptual-intentional faculties of the brain. PF is the interface level with the articulatory-perceptual faculties. S-structure is related to each of the three other levels simultaneously. The properties of each level and the conditions it has to satisfy are specified (or parametrized) by UG.

While LF and PF are conceptually necessary interface levels, D-structure and S-structure have only theory internal motivation. It is a subtle question whether or not they are indispensable (see, for instance, Baker 1988, Chomsky 1991). A minimalist approach would take the interface levels to be the only levels of representation, trying to account

for the considerable empirical consequences of the additional levels in some other way. This is the position taken by Chomsky's *Minimalist Program for Linguistic Theory* (1993). I adopt this particularly simple approach, showing that at least the empirical issues discussed in this book do not necessitate having recourse to conditions that apply at the additional levels of representation.

The minimalist model is derivational and works as follows (for detailed discussion, see Chomsky 1993). The lexicon specifies a set of items with their phonetic, semantic and syntactic idiosyncratic properties. The computational system, which is constrained by economy principles (see below), uses these items to derive linguistic expressions. A derivation *converges* at PF if its PF representation is legitimate, and *crashes* if it is not. Likewise, a derivation converges at LF if its LF representation is legitimate, and crashes if it is not. The computational system selects elements from the lexicon and projects them in parallel into X-bar structures. Two types of operations are possible: a binary operation, which forms a single phrase marker from two distinct phrase markers, and a singulary operation, Move-α, which applies within one phrase marker, leaving a trace in the original position. There are no radically empty positions; positions are created only to be filled. At any point, the operation of *spell-out* can apply, switching to PF. By then the derivation must have been merged into one phrase marker, or else the derivation crashes at PF. After spell-out, (covert) computation may continue until an LF representation is generated, but there is no more access to the lexicon.

1.2.2. *The economy guideline and the checking technique*

As already mentioned, notions of economy are fundamental to the minimalist model. Derivations and representations are forced to be economical in a sense to be discussed shortly.

Entries have inflectional features in the lexicon as an intrinsic property. A lexical item is inserted with its inflectional features (Case, agreement, tense or others), which must be *checked* against the features of the corresponding inflectional head by LF. A derivation containing unchecked features will crash at LF.

The minimalist program suggests deriving overt movement by means of the checking technique (Chomsky 1993). The features on the inflectional head disappear once checking has taken place. Initially they can be *strong* or *weak*. Strong features must be checked prior to spell-out as they are not legitimate objects at PF. Movement executed in order to check weak features cannot take place before LF, due to *Procrastinate*, an economy principle that states that movements should be delayed as long as possible. Thus, for example, the difference between English and French concerning verb raising is due to the distinct force of the features to be checked on the relevant inflectional head. In French, they are strong and consequently movement is overt. In English, in contrast, they are weak, which forces covert movement.

Once an element has checked all its features, it can no more move because movement, according to the economy guideline, is a *Last Resort* operation (Chomsky 1986a, 1991, 1993). An element can move only to check its features; a legitimate element cannot move further.

The checking technique dispenses the theory with the need to assume in English-type languages (where the inflected verb does not overtly raise) an unusual process of (inflectional) affix-lowering. The verb has its inflectional features from the outset, and their checking takes place at LF. The theory need not assume lowering.

Derivations must contain the shortest possible links (*Shortest Movement* Condition), in essence, a derivational reformulation of the basic insight of the system proposed in Rizzi's *Relativized Minimality* (1990). At the same time, they must also have the smallest number of steps. To reconcile these two apparently contradictory requirements, Chomsky (1993) defines the operation forming a chain (for example, an A-chain, whose tail is a θ-position and whose head is a Case position) as one single step. In terms of chains, derivations can have the fewest steps and the shortest links.

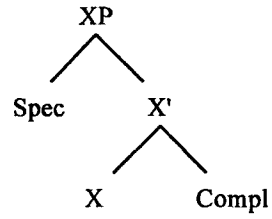
Full Interpretation, which requires that every element receive an appropriate interpretation at the interface levels, may be the only economy principle applying to representations (Chomsky 1986a, 1993). Note that some version of θ-theory must be assumed at LF (for example, the principles of θ-discharge suggested by Higginbotham 1985). The system itself rules out raising to θ-positions (Chomsky 1993), thereby deriving the major consequences of the θ-criterion, which requires a biuniqueness relation between an argument (or an A-chain) and a Case position (Chomsky 1981).

1.2.3. *Clause structure and Case*

The computational system projects structures constrained by X-bar theory (Jackendoff 1977). For the purposes of this work, it is not really important whether the principles constructing X-bar structures are primitives, or can be derived from more basic principles (see Chomsky

1994 and Kayne 1994 for specific suggestions). An X-bar structure consists of projections of heads. These projections are configurationally uniform across categories, lexical as well as functional (Chomsky 1986b). The basic X-bar structure assumed here is a two-level configuration restricted by binary branching (Kayne 1984) and composed of a maximal projection (XP) containing a specifier and an intermediate projection (X'). X' contains the head of the projection (X^0), whose sister is the complement. The linear order may be subject to parametric variation (e.g. Rizzi 1987) or universal (as argued by Kayne 1994):

(8)



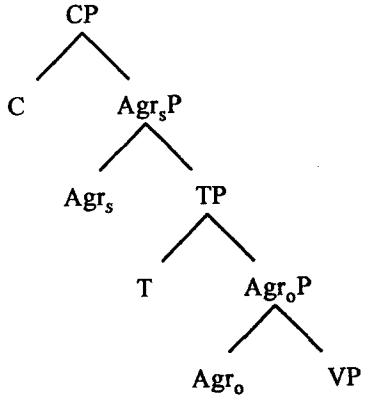
The head-complement relation is typically associated with thematic relations. The head-head relation (resulting from head adjunction) and the Spec-head relation (resulting from XP-substitution, which creates the specifier position) are the core configurations for checking of inflectional morphology.

Two types of features characterize inflectional heads: X^0-features and XP-features. Thus, in the clausal system, an inflectional head bears V-features, which are checked in a head-head relation with the raised verb, and DP-features (Case features and agreement features), which are checked in a Spec-head relation after raising of the appropriate DP. DP-positions in a local relation with lexical heads or with heads checking lexical features (say V-features) are the traditional A-positions.

Chomsky (1986a) draws a distinction between *structural* Case and *inherent* Case. Inherent Case is assigned by α to DP only if α θ-marks DP, while structural Case imposes no such thematic requirement. This means that accusative and nominative are structural Cases as they are not thematically related. Oblique Case assigned by prepositions or dative are inherent Cases, as their assigners also θ-mark the assignee. Inherent Case is assigned in situ under sisterhood, while structural Case has often been argued to be available either under government or in a Spec-head configuration (Koopman and Sportiche 1991, Roberts 1993). As will become clear presently, this disjunctive formulation may be dispensed with.

Elaborating proposals by Pollock (1989) and Belletti (1990), Chomsky (1991, 1993) proposes the following basic sentential structure, which splits the inflectional structure into subject agreement phrase (Agr_sP), tense phrase (TP), and object agreement phrase (Agr_oP):

(9)



He further suggests unifying the conditions necessary for structural Case assignment (or checking) to take place. Structural Case can be conceived as the manifestation of a Spec-Agr^0 relation. The basic assumption is that there is a symmetry between the subject and the object inflectional systems. The object raises to $SpecAgr_oP$ and checks accusative Case with the complex head $[_{Agr}$ V+Agr]. And the subject raises to $SpecAgr_sP$ and checks nominative Case with the complex head $[_{Agr}$ T+Agr].

Agr_oP, where structural accusative Case is checked, has commonly been identified with the participle agreement projection (see Belletti 1990, Chomsky 1991, Kayne 1993, among others). A participle agreement projection was first proposed by Kayne (1985, 1989a) in order to account for participle agreement with the (overtly) raised direct object in French or Italian.

Friedemann and Siloni (1993) provide considerable evidence against this identification. First, they point out the fact that in French (and Italian) participle agreement is obligatory in passive sentences and with unaccusative verbs, although there is no accusative argument in the sentence:

(10) a. Cette porte sera ouvert-*(e) par Johnny.
this door(FMSG) will+be opened-FMSG by Johnny

b. Cornelia est arrivé-*(e).
Cornelia is arrived-FMSG

(French)

In addition, they mention cases where participle agreement is triggered with a non-accusative element, although an accusative argument appears in the sentence:

(11) Maria si è comprat-a un libro.
Maria to+herself is bought-FMSG a book(MSSG)

(Italian)

Moreover, they observe that in Hebrew, participles always agree with the nominative argument, whether an accusative argument is present or not in the sentence:

(12) a. hem hayu kotv-im 'agadot ba-yad.
they(MSPL) were writing-MSPL legends(FMPL) in+the-hand
'They were writing legends by hand'

b. hem hayu magi'-im ba-zman.
they(MSPL) were coming-MSPL in+the-time
'They were coming on time'

As accusative Case checking does not coincide with participle agreement, the two phenomena are not likely to take place within the same projection. If so, there are two distinct agreement projections: Agr_oP, where accusative Case is checked, and Agr_pP, where participle agreement takes place. This raises the question as to their relative positioning. Friedemann and Siloni (1993) show that in complex tenses Agr_oP is generated in distinct locations in French-type languages and Hebrew-type languages. While in French Agr_oP is associated with the VP of the auxiliary (the highest auxiliary) (13a), in Hebrew it must immediately dominate the participial VP (13b):

(13) a. $[_{AgrsP}\ [_{TP}\ [_{AgroP}\ [_{VPaux}\ V\ [_{AgrpP}\ [_{VPp}\ DP_s\ [_{V'}\ V_p\ DP_o\ ]]]]]]]$

b. $[_{AgrsP}\ [_{TP}\ [_{VPaux}\ V\ [_{AgrpP}\ [_{AgroP}\ [_{VPp}\ DP_s\ [_{V'}\ V_p\ DP_o\ ]]]]]]]$

This structural difference results from two factors. First, participles appearing in complex tenses in the two types of languages are of distinct nature. While the Hebrew form can assign accusative Case by itself (see Siloni 1995), the French form cannot do so (see Hoekstra 1984, Belletti 1990). In structural terms, this means that in Hebrew (but not in French) the participial VP licenses Agr_oP. Second, French, but not Hebrew, has a *have*-type auxiliary, which is the auxiliary that restores the accusative Case capacity of an otherwise passive participle, like *mangé* ('eaten') (Hoekstra 1984). In structural terms, this means that in French (but not in Hebrew), the VP of the auxiliary can license Agr_oP.

As Friedemann and Siloni (1993) show, this proposal allows a straightforward explanation of participle agreement phenomena in the two languages. Moreover, it correctly predicts the possible main constituent ordering the two languages show and them only. The discussion of impoverished (non-tensed) clausal structures embedded under D, participial clauses (chapter 4) and Hebrew gerund clauses (chapter 5) supplies further support in favor of the sentential structures in (13).

Before concluding, a word on the status of AgrPs is in order. The function of AgrPs is to provide a structural configuration in which features are checked. Overt movements of the subject and/or the object (depending on the language) are taken to show that feature checking takes place outside the base positions, arguably in the corresponding AgrP. In his recent work, Chomsky (1995:chapter 4) suggests moving from an Agr-based system to a system with no AgrPs, in which checking takes place in additional specifiers. This move means that the features of the different Agr^0s should be added to the relevant heads (say T or V). Thus, for example, in the revised system the object would check its Case with V, in an (additional) outer specifier of VP and not in $SpecAgr_oP$, and the subject would check its Case with T, in a specifier of TP and not in $SpecAgr_sP$. This move is natural in a minimalist model, because AgrPs, whose motivation is theory internal, are not indispensable. In the present study, I employ an Agr-based system to draw detailed structures more as an expository device than for theoretical reasons. I do not think that this choice of working hypothesis has any crucial consequences; much of the discussion can be easily reconstructed with structures containing multiple specifiers.

In sum, the minimalist design is simple and restrictive. The empirical burden is consequently rather considerable. Many empirical domains demand a thorough examination. In this study I try to shed some light on the domain of noun phrases and nominalizations.

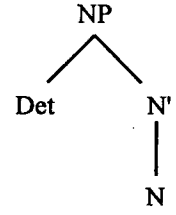
CHAPTER 2

NOUN RAISING AND GENITIVAL RELATIONS

2.0. BACKGROUND

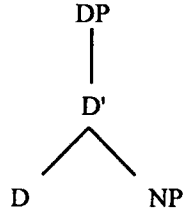
Traditionally the noun phrase has been structurally represented as an NP, the maximal projection of N, with the determiner in its specifier position (Jackendoff 1977, among others):

(1)



The extension of the X-bar schema to functional elements (Chomsky 1986b) and the accumulating evidence for head movement (Baker 1988, among others) have called this representation into question. On the basis of various empirical considerations, linguists have proposed that the noun overtly raises in Semitic (Ritter 1987, 1988, Mohammad 1988, Ouhalla 1988, Fassi Fehri 1989, Hazout 1990, Siloni 1990b, 1991a, Cohen 1992) and Scandinavian languages (Delsing 1988, Taraldsen 1990). The syntactic behavior of articles in both families of languages has led scholars to identify the landing site of the raised noun as D, the base position of articles. This has supplied strong support in favor of Abney's (1987) claim that noun phrases are the maximal projections of D:

(2)



Alongside the empirical motivation, several studies have developed a principled explanation of why the nominal expression is the maximal projection of D (Szabolcsi 1987, 1989, Stowell 1989, 1991, Longobardi 1994). Somewhat simplified, their insight is that D is the element that provides the nominal expression with reference, which is necessary in order for the noun phrase to be able to function as an argument. Szabolcsi (1987, 1989) notes that in this respect, D parallels the complementizer of sentential complements, as both render their complement (NP and IP, respectively) an expression that is able to bear a θ-role. Siloni (1990a, 1995) further advances the functional analogy between CP and DP, thereby arguing that D should head the noun phrase in the same way that C heads the clause (see chapter 4 for discussion).

This chapter reviews the basic empirical evidence offered by Hebrew in favor of noun raising, hence in favor of the structure depicted in (2). Relying specifically on Siloni (1990b, 1991a), I elaborate a somewhat different generalized noun raising analysis of two distinct genitival constructions known as the construct state and the free state.

First, I show that Hebrew noun phrases have a hierarchical internal structure. I then argue that given their hierarchical structure on the one hand, and the order of constituents they exhibit on the other hand, it must be concluded that in Hebrew overt noun raising always applies. If so, there must exist an appropriate landing site to host the raised noun. I argue that this host is the head position D, thus supplying support for the structure given in (2).

Second, I present evidence that the Case of the construct state and that of the free state are of different nature and merit a distinct structural treatment. As the Case of the construct state behaves like structural Case, I assume it is checked in an agreement projection occurring between DP and NP whenever a construct state is involved.

The first section of this chapter presents the free state and the construct state and discusses some structural distinctions between the two. In the second section I analyze the internal structure of free states, arguing on the basis of binding phenomena that they must have a hierarchical structure. This leads me to conclude that overt noun raising must apply. The third section is devoted to the analysis of construct states. First I argue that noun raising must be generalized. I then throw light upon the Case of the construct state and analyze the peculiar properties the construction shows. Section four examines noun phrases involving a clitic doubling configuration, arguing that they involve both the Case assignment mechanism of the construct state and that utilized in the free state.

2.1. CONSTRUCT STATES VERSUS FREE STATES

In Hebrew, arguments of the noun (as well as adjuncts) can never appear prenominally. A genitival relation between a head noun and a noun phrase can be indicated in two distinct ways, as illustrated below. While in (3a) genitive Case is realized via *šel* ('of'), in (3b) *šel* does not appear and (abstract) genitive Case seems to be assigned by the head noun itself:[1]

(3) a. ha-bayit šel ha-'iš
the-house of the-man
'the man's house'

b. beyt ha-'iš
house the-man
'The man's house'

The second construction (3b) is known in the literature of Semitic languages as the construct state. When the head noun is in the construct state, it loses stress (the main stress always falls on the genitive member of the construct state) and it is therefore subject to phonological rules which operate in non-stressed environments. Hence the alternation between *bayit* in (3a) (henceforth the free state) and *beyt* in the construct state (3b).[2]

The genitive complement of a head in the free state must surface in a *šel* ('of') phrase (4a), whereas its construct state equivalent cannot do so (4b):[3]

(4) a. ha-bayit *(šel) ha-'iš
the-house (of) the-man
'the man's house'

b. beyt (*šel) ha-'iš
house (of) the-man
'the man's house'

Deverbal nouns also appear in the two constructions: the free state (5a) and the construct state (5b):

(5) a. ha-hofa'a šel ha-saxkan
the-appearance of the-actor
'the actor's appearance'

b. hofa'at ha-saxkan
appearance the-actor
'the actor's appearance'

There have been different attempts to define a systematic semantic difference between the two constructions. Thus, regarding concrete (non-deverbal) nouns, Rosén (1957), adapted by Doron (1989), claims that the complement is connected to the head of the construct state with some kind of inalienable possession, while its free state counterpart is not in such a relation with the head noun. Berman (1978), on the other hand, reports that this observation does not seem to accord with the intuitions of the native informants she interrogated. As my intuitions do not reflect any such systematic difference either, the two constructions will be treated here as essentially synonymous.[4]

There are, however, some important syntactic distinctions between free states and construct states, which are worthy of discussion. The distinctions concern the article, the position of modifying adjectives, and the obligatoriness/optionality of a genitive complement.[5]

2.1.1. *The article constraint*

Hebrew exhibits only a definite article, which is a prefix and does not inflect *(ha-)*. Its indefinite counterpart is arguably phonetically null. Note that the head noun of say (3b) is interpreted as definite, just like the head noun of (3a), as is clear from the glosses, although the definite article does not accompany its head. In fact, the article can never be attached to the head of a construct state; it results in ungrammaticality (6).

The [±definite] value of the head of the construct state is determined by that of its complement. A definite complement renders the head definite and an indefinite complement renders it indefinite, as shown, for instance, by the behavior of the accusative marker *'et*. This marker appears exclusively with definite objects, as illustrated in (7a-b). It can therefore serve as a reliable test distinguishing between definites and indefinites. Thus, when the head of the construct state receives accusative Case, it is obligatorily accompanied by *'et* (hence definite), if its complement is definite (7c). If the complement is definite, *'et*

cannot appear (that is, the head noun is indefinite) (7d):

(6) (*ha-)sifrey ha-mešorerim
(the-)books the-poets
'the poets' books'

(7) a. hu kone 'et ha-sfarim bezol.
he buys ACC the-books cheaply
'He buys the books cheaply'

b. hu kone (*'et) sfarim bezol.
he buys (ACC) books cheaply
'He buys books cheaply'

c. hu kone 'et sifrey ha-mešorerim ha-ce'irim.
he buys ACC books the-poets the-young
'He buys the young poets' books'

d. hu kone (*'et) sifrey mešorerim ce'irim.
he buys (ACC) books poets young
'He buys young poets' books'

Moreover, if the complement of a construct state becomes the head of another construct state, its article can no more appear. In a string of two (or more) construct states, only the right most noun can carry the article (8). The definiteness of the others depends on that of this last constituent:

(8) gag (*ha-)beyt ha-'iš
roof (the-)house the-man
'the roof of the house of the man'

2.1.2. *The position of modifying adjectives*

Adjectives in Hebrew follow the noun they modify and agree with it in number, gender and definiteness, as illustrated in (9a-b):