ON THE SYNTAX OF DERIVED NOMINALS IN ENGLISH AND GREEK

Student: **Dimitrios Papadakis**
Student Number: **204519601**

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Supervisor: **Prof. Jochen Zeller**

University of KwaZulu-Natal, Durban, South Africa.

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DECLARATION

Submitted in partial fulfilment of the requirements for the degree of Master of Arts, in the Graduate Programme in Linguistics,
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Durban, South Africa.

I declare that this dissertation is my own unaided work. All citations, references and borrowed ideas have been duly acknowledged. It is being submitted for the degree of Master of Arts in the Faculty of Humanities, Development and Social Sciences, University of KwaZulu-Natal, Durban, South Africa. None of the present work has been submitted previously for any degree or examination in any other University.

Dimitrios Papadakis

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Abstract

This study examines different approaches to analysing the syntactic derivation of nouns from verbs within the theoretical framework of Principles and Parameters (P&P). The aim of the study is to explain how argument structure is licensed in noun phrases by presenting a contrastive study of English and Greek derived nominal expressions. The thesis discusses the well-known distinction between *result nominals* and *process nominals*, and it demonstrates that, in contrast to result nominals, process nominals license argument structure obligatorily and can be modified by aspectual adverbials. It is shown that the role of functional categories is crucial for an explanation of the differences between these two noun classes of derived nominals. In particular, it is suggested, following a proposal by Alexiadou (2001), that the verbal functional categories vP and AspectP are projected with process nominals, but not with result nominals. This analysis also accounts for the derivation of Greek nouns from ergative/unaccusative verbs, but it also explains the projection of the patient/theme as the internal argument of a result nominal and the aspectual modification of passive nominals.

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Chapter 1

Introduction

The science of general linguistics is primarily concerned with the structures and principles which all languages have in common. Moreover, linguistic research considers the systems of individual natural languages. In Webelhuth (1992: 6) it is maintained that a cross-linguistic study reveals two apparently opposing features of different languages. On the one hand, they are diverse, but on the other hand, they are similar. I quote from Webelhuth (1992:7):

> A nearly complete comparative linguistic theory would study the different manners of realising grammar and its form in the individual grammatical constructions …, then in every individual language within the context of all its structures. Finally, this twofold work should be used to design a survey of human language considered as something general, its limits, the necessity of its principles and postulates, and the boundaries of its variation.

Along these lines of research, Noam Chomsky set his framework of *Generative Grammar* in the second half of the 20th century. Sharing his view of language with cognitive psychology, Chomsky (1982a: 32) asks the following fundamental questions:

- What constitutes knowledge of a language?
- How does such knowledge develop?
- How is such knowledge put to use?

His answer to these questions lies in the assumption that there must be a genetic predisposition for language, which helps every human being recognise certain universal principles existing in all natural languages. This leading idea renders learning all linguistic rules for a particular language unnecessary. The set of universal principles, traditionally called *Universal Grammar (UG)*, operates as a selection mechanism, which generates different results in different natural languages.

In Ouhalla (1999), it is argued that the term 'grammar' may refer to both the knowledge that native speakers of a language have as a component of their mind or brain and the theory of this particular language that the linguists construct, attempting to understand, describe and explain that knowledge. If grammar, as the theory of a particular language, provides a correct description of the rules pertaining to this language, this grammar is descriptively adequate. If grammar, as the principles of UG, provides a correct description of the principles bearing on all human languages, this grammar is explanatorily adequate.

In my study I will look at the work done by a number of researchers, with a view to pointing out which syntactic theories most adequately describe and explain both English and Greek nominal constructions with nominals which are morphologically derived from verbs. I will adopt those ideas and assumptions which lead to the most comprehensive proposal. Therefore, I will be carrying out a contrastive study in two ways. On the one hand, I will compare different views of the structure of sentences and noun phrases. On the other hand, I will investigate the similarities and differences between English and Greek.

The scope of this study focuses on:

a. English derived nominals, e.g. *destruction, examination, development, payment,* which are derived from transitive verbs, i.e. *destroy, examine, develop, pay,*
b. Greek derived nominals, e.g. *katastrofí* 'destruction', *eksétasi* 'examination', *anáptiksi* 'development', *pliromí* 'payment', which are derived from transitive verbs, i.e. *katastréfo* 'destroy', *eksetázo* 'examine', *anaptíso* 'develop', *pliróno* 'pay', and
c. Greek derived nominals, e.g. *ljósimo* 'melting', *omilía* 'talk(ing)', which are respectively derived from ergative/unaccusative verbs, i.e. *ljóno* 'melt', and unergative verbs, i.e. *(o)miló* 'talk'.

Notice that a Greek affix, e.g. *-í(a),* may correspond to more than one English affixes, e.g. *-(a)tion, -ment, or -ing,* or even to no affix at all. As I will particularly explore the syntactic derivation of nouns, I will not deal with:

d. English gerunds, e.g. *reading, writing, speaking, listening,* which are derived from transitive or intransitive verbs, i.e. *read, write, speak, listen,* and
e. a group of English nouns, e.g. *claim, fall, work,* which appear to be the same as their corresponding verbs, i.e. *claim, fall, work.*

This study is organised as follows. In chapter 2, I will present the theoretical framework of *Principles and Parameters (P&P)* with an emphasis on *Government-Binding Theory (GB).* I will first discuss in detail how the principles of GB apply to lexical as well as functional categories and how these principles interact with one another in clauses and noun phrases. Then I will give a brief overview of an alternative background in an attempt to outline the transition from the earliest versions of P&P to later versions.

In chapter 3, I will review the theories which have been developed with respect to derived nominals. I will first present the problems of accounting for the syntactic derivation of nouns, and some of the diagnostic criteria on the basis of which derived nominals are divided into two classes. Then I will discuss three major analyses of these two types of derived nominals examining each one of them and comparing them with one another.

In chapter 4, I will further review the theories of derived nominals comparing some more Greek researchers' proposals to Alexiadou's (2001). In particular, I will revisit some principles and parameters in respect of the Greek data, and I will compare Greek derived nominals to English derived nominals. I will then consider the problems that arise as regards Greek derived nominal expressions.

In chapter 5, I will summarise my conclusions and I will suggest further investigation of certain issues I have not dealt with.

Chapter 2

The Principles and Parameters Theory

2.1. Introduction

The theoretical framework outlined in this chapter comprises a set of theories and sub-theories which Chomsky (1981, 1982a, 1982b, 1985, 1986, 1995) developed in his early and subsequent work. In particular, I will discuss the theory of *Principles and Parameters (P&P)* in section 2.2, which Ouhalla (1999) describes as one of several stages in Chomskyan linguistics. The distinctive characteristic of this stage is that it accounts for both identity and diversity of natural languages. An earlier version of this theory is termed *Government-Binding Theory (GB)*, which I will discuss in section 2.2.1.

This P&P framework consists of a number of modules. The first module contains the principles of *X-bar theory*, which is the main theory concerned with the principles of sentence structure. The asset of such a theory is that it is one step closer to achieving the major objective of Chomskyan grammar; i.e. reducing the tension between descriptive and explanatory adequacy. In section 2.2.2, I will present the universal principles of X-bar theory. In section 2.2.3, I will further present Chomsky's (1986) assumption that these principles do not only apply to lexical categories, such as nouns and verbs, but also to inflectional elements and complementisers, which are functional categories.

Each module in the theory of Principles and Parameters is interrelated with one or more other modules of the same theory in certain ways. In section 2.3, I will explore the interactions of the principles of X-bar theory with those of the other modular sub-theories. In particular, I will discuss Case theory in section 2.3.1, whereas, in section 2.3.2, I will discuss θ-theory, and I will explore how argument structure is related to X-bar theory as well as θ-theory. I will also focus on the consequences of movement for these theories as far as passivisation is concerned in section 2.3.3.

Chomsky's (1986) view on functional categories has lead to the idea that the structure of noun phrases can be analysed on a par with the structure of sentences. This structural analysis of noun phrases is known as the DP[1]-hypothesis and was developed in Abney (1987). I will first discuss the DP-hypothesis in section 2.4.1, and its variations in section 2.4.2. Then, I will draw possible parallels between verbal and nominal functional categories in section 2.4.3.

In contrast to such views on the structure of sentences and noun phrases, where each lexical category determines its functional structure, Marantz (1999) proposes that lexical elements are unspecified for syntactic category. When they are introduced into a particular syntactic environment, it is the functional layer dominating the unspecified element that determines its categorial status. In section 2.5, I will present this approach, which uses a generalised mechanism that derives nominal expressions out of neutral lexical roots across languages.

2.2. Principles and Parameters

2.2.1. The principles of Government-Binding Theory

In order to achieve explanatory adequacy, Chomskyan grammar has had to undergo a number of changes. Certain theories were developed by adding new input to an earlier theory each time improving on the previous one. For instance, Chomsky's (1981) earlier system of language-particular and construction-specific rules is reconsidered and abstracted as the Principles and Parameters model.

Chomsky (1981) analyses cross-linguistic phenomena by discussing certain crucial concepts, such as government and binding; hence his new approach was called Government-Binding Theory. The more concepts he explores, the more principles he sets. His new system was later known under the broader term of Principles and Parameters. The theory of Principles and Parameters provides a framework that aims at accommodating a reasonable explanation for as many similarities and at the same time as many differences as possible, which have so far been observed and

[1] DP: determiner phrase

investigated across related as well as unrelated languages. Further refinements of this system resulted in developing the ideas that Chomsky (1995) introduced as the *Minimalist Program (MP).*

In spite of the changes in Chomskyan grammar, all versions of the Principles and Parameters model agree in that the role of syntax is to account for the link between meaning and sound. In particular, meaning is represented at a level known as *Logical Form (LF)* and sound is represented at a level referred to as *Phonetic Form (PF)*. According to Baker (1988: 32), LF is the level of interface between the language faculty and the conceptual faculties of the human brain, whereas PF is the level of interface between the language faculty and the perceptual and motor faculties. In addition to LF and PF, Government-Binding Theory introduces two more formal syntactic levels of representation[2]. The first one represents the underlying structure of a sentence, which determines how lexical items are combined together. This level is called *D(eep)-structure*. The second one represents the structure of a sentence, which is derived from D-structure through syntactic rules and constitutes the input to PF and LF. This level is called *S(urface)-structure*.

Furthermore, in the theoretical framework of Principles and Parameters, the move from language rules to universal principles helps reconstruct certain notions (e.g. passive) as more general processes with a functional role in grammar. Therefore, Chomsky (1981: 5) assumes that a more generalised rule system of UG comprises the following subcomponents, as shown below in (1):

(1) (i) lexicon
(ii) syntax
(a) categorial component
(b) transformational component
(iii) PF-component
(iv) LF-component

[2] D-structure and S-structure were later eliminated in the Minimalist Program as redundant. In spite of their contribution to descriptive adequacy and explanatory adequacy, they are not indispensable.

(1i) specifies a range of information which is necessary for the proper use of each lexical item. Such information includes the morpho-phonological structure, the categorial status, as well as the subcategorisation and selectional features of lexical items. (1ii) generates well-formed sentences. (1iia) determines the lexical categories of nouns, verbs, adjectives, and prepositions, which carry grammatical features like [±N] (read: nominal/non-nominal) or [±V] (read: verbal/non-verbal), as shown in (2):

(2) Nouns [+N, –V] Adjectives [+N, +V]
Verbs [–N, +V] Prepositions [–N, –V]

(1i) and (1iia) constitute the base of grammar. (1iib) determines the mechanism which makes the necessary changes to structures from the base through all levels of representation, deriving acceptable utterances. (1iii) assigns PF-representations and (1iv) assigns LF-representations to the structures generated by (1ii).

In addition, Chomsky (1981: 5) introduces certain fundamental general principles which he claims are associated with the following subsystems of grammar in (3):

(3) (i) Bounding theory
(ii) Government theory
(iii) Theta theory (henceforth: θ[3]-theory)
(iv) Binding theory
(v) Case theory
(vi) Control theory

(3i) sets locality conditions on movement of an element. Consider the following pair of examples (taken from Baker, 1988: 41) in (4):

(4) (a) *Who* do you believe I said I saw?
(b) **Who* do you believe my statement that I saw?[4]

[3] θ: theta, viz. the Greek initial for ″thematic″.
[4] An asterisk (*) is conventionally used by linguists to indicate ungrammatical utterances.

In (4), the Subjacency Condition requires that a phrase can only cross one category of a certain type, e.g. either a sentence or a noun phrase, and in one step. In a transformational grammar, it is assumed that the object of the verb *saw* in (4a) moves from its original position to the front in the form of the question word *who*. Here, the object crosses one category (i.e. a sentence) at a time. In contrast, the Subjacency Condition is violated in (4b), as the object crosses more than one category (i.e. both a sentence and a noun phrase).

(3ii) determines locality relations between two items. In particular, α governs β if and only if α and β are constituents of the same phrase, α commands but does not dominate β, and no category γ of the wrong type intervenes between the two in such a way that γ contains β but not α. Consider Baker's (1988: 39) example in (5):

(5) (a) Linda will *win Wimbledon*.
(b) John's *story* about *Paris*

According to the principles of Government theory, the verb *win* in (5a) governs its object *Wimbledon.* In contrast, the noun *story* in (5b) does not govern its subject-matter *Paris*, because their locality relation is disrupted by the preposition *about*, which is closer to *Paris* than *story* is.

(3iii) involves the assignment of thematic roles to arguments. Consider the example in (5) above. According to the principles of θ-theory, the verb *win* assigns one θ-role to its object *Wimbledon* as this is determined by the semantic relation of the verb with its object. Furthermore, another θ-role is assigned to the subject of the sentence as this is determined by the semantic relation of the verb with the subject *Linda*.

(3iv) defines the relations between anaphors, pronouns and referential expressions. Consider the following examples (taken from Baker, 1988: 42) in (6):

(6) (a) Mark thinks that Sara likes *herself*.
(b) *Sara thinks that Mark likes *herself*.
(c) Sara thinks that Mark likes *her*.

Notice that the anaphor *herself* is possible in (6a). In contrast, the principles of binding theory disallow this anaphor in (6b), whereas the pronoun *her* is, instead, permissible in (6c).

(3v) deals with the assignment of abstract Case and how it is morphologically realised. Consider the following examples (taken from Ouhalla, 1999: 183-4, and Baker, 1988: 40) in (7):

(7)	(a)	(**John*) to leave suddenly is foolish.	(Ouhalla)
	(b)	That *John* should leave suddenly is surprising.	(Ouhalla)
	(c)	That *he* would strike *her* surprises me greatly.	(Baker)

In (7a), the principles of Case theory do not allow *John* to receive Case as a subject in the non-finite clause *to leave suddenly*. In contrast, in (7b), the subject *John* receives Case and, therefore, is permissible in the finite clause *that John should leave suddenly*. Crucially, finiteness determines Case assignment. Note also that, in (7c), the subject *he* is assigned Case, which is traditionally called nominative, whereas the object *her* is assigned Case, which is traditionally called accusative.

(3vi) is concerned with the potential for reference of an abstract pronominal element (called PRO) which occurs in the subject position of certain infinitives. Consider the following pair of examples (taken from Chomsky, 1981: 75) in (8):

(8)	(a)	John persuaded *Bill* to feed himself.
	(b)	*John* promised Bill to feed himself.

According to the principles of control theory, the subject of the infinitive *to feed himself* in (8a) is controlled by the object *Bill* of the main verb *persuaded*. In contrast, the subject of the infinitive in (8b) is controlled by the subject *John* of the main clause. Chomsky (1981: 135) views these subsystems as independent modules, which, nevertheless, are somehow interrelated.

According to Chomsky (1981: 48), the general rules of the categorial component determine the conditions of X-bar theory. The variable X is associated with different

lexical categories on the basis of their feature specification, i.e. [±N, ±V]. I will discuss the principles of X-bar theory extensively in section 2.2.2. Chomsky also observes that the transformational rules are constrained by a number of *requirements* such as the *θ-Criterion* and the *Case Filter*. These two requirements are the major principles of (3iii) and (3v) respectively, which I will introduce in section 2.3. Another important principle, which Chomsky considers to constitute the transformational component, is *Move-α.* This is a single general process which involves movement of a syntactic constituent from the position in which that constituent is introduced to a position elsewhere in the structure. α ranges over all categories. Movement operations will be repeatedly discussed throughout this study.

The overarching principles to be discussed explain how, not only related languages but also unrelated ones, share similar structures. However, it is well known that the grammars of languages also exhibit many differences, and it is an important task to establish how these differences can be explained on the basis of a shared set of universal principles. The theoretical framework of Principles and Parameters encompasses the idea that language variation is the result of different parameter settings. A given pattern is therefore the result of choice of one option, whereas a different pattern is yielded by the choice of another option.

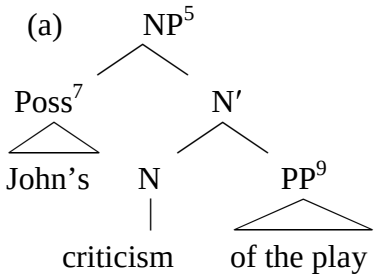
2.2.2. X-bar theory

Consider the following examples in (9):

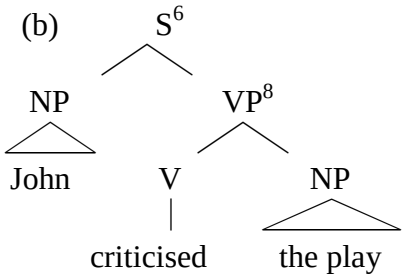
(9) (a) John's criticism of the play
(b) John criticised the play.

Chomsky (1970: 190) observes that (9a) and (9b) are characterised by the same structural relations between the basic constituents (see also Ouhalla, 1999: 52), as shown below in (10a & b):

(10) (a)



(b)



This observation leads to his proposal that a mechanism is provided by the lexicon (see (1i) in section 2.2.1 above), which relates the verb *criticise* and the noun *criticism* to a single lexical entry. This lexical entry is unmarked for the syntactic feature which distinguishes nouns from verbs. As a result, this entry will produce the first form when inserted under a verbal node, but the latter when inserted under a nominal node. On the basis of this structural parallel across categories, Chomsky (1970: 210) introduces a cross-category generalisation, which provides the basis for the universal principles of X-bar theory.

He achieves this kind of generalisation by means of the variable X, which stands for any one of the four lexical categories; i.e. verbs (V), nouns (N), adjectives (A) and prepositions (P). In other words, V, N, A, P are values of X. Consider the rules of the categorial component (see (1iia) in section 2.2.1 above), as shown in (11):

(11) (a) $VP \rightarrow V - Comp$

(b) $NP \rightarrow N - Comp$

(c) $AP \rightarrow A - Comp$

(d) $PP \rightarrow P - Comp$

In (11), each rule requires that a phrase, which is represented as VP, NP, AP, PP, consists of two parts. The first part is an indispensable lexical item, i.e. V, N, A, P, whose category determines the category of that phrase. The second part, which is represented as Comp, is the optional complement of the obligatory constituent. Comp entails a full range of structures, such as NP, S, and PP. Thus, for example, a verb

[5] NP: noun phrase
[6] S: sentence
[7] Poss: possessive
[8] VP: verb phrase
[9] PP: prepositional phrase

phrase (VP) consists of a verb (V) and its complement (Comp). These construction-specific base rules, which correspond to the four lexical categories introduced above, are abstracted as in the general base rule schema proposed by Chomsky (1970: 210), but reformulated in subsequent work of other researchers (see, for example, Jackendoff, 1977: 14, and Ouhalla, 1999: 113), as shown below in (12):

(12) $XP \rightarrow X - Comp$

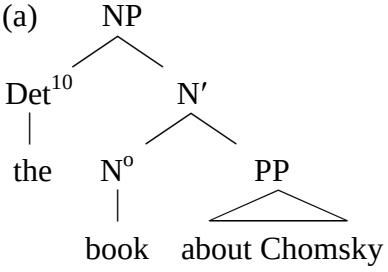
In (12), for every lexical category, any phrase XP has X as its obligatory constituent. X is the head of XP, as the category of XP is determined by the category of X. Interestingly, in (10a), the intermediate phrasal projection N′ is required to allow for the projection of the Poss(essive) *John's*, which specifies the noun *criticism*. Therefore, the projection of the noun *criticism* N combines with its complement, i.e. the PP *of the play*, forming N′, which, in turn, combines with another projection, viz. the Poss *John's*, forming NP. Chomsky (1970: 210) assumes that, for every lexical category, between X and XP there is an intermediate phrasal projection X′.

Consider, for instance, the following two sentences in (13):

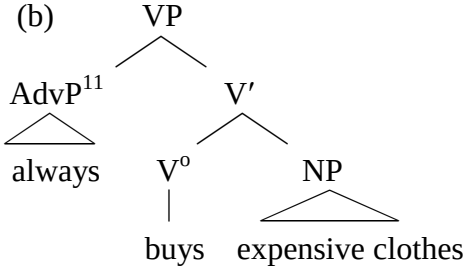
(13) (a) I liked <u>the book about Chomsky</u>.
(b) Peter <u>always buys expensive clothes</u>.

The structures of the underlined noun phrase (NP) in (13a) and the underlined verb phrase (VP) in (13b) are represented as in (14) within the syntactic framework of X-bar theory:

(14) (a)



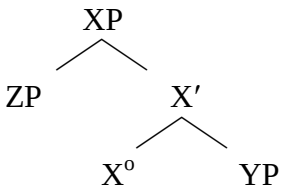
(b)



[10] Det: determiner position; it hosts articles, demonstratives or prenominal full (genitive) phrases.
[11] AdvP: adverb phrase.

In both cases (14a & b), the lexical categories are projected into higher-level phrasal categories, headed by their respective lexical heads. For every category X, the head of the phrase is marked as X^o, which ultimately projects into a maximal projection XP, whereas X´ is called an intermediate projection, as shown in (15):

(15)



Phrase markers projected on the same level are called sisters. In (15), the sister of X^o (= YP) is called the complement of the head; the sister of X´ (= ZP) is called the specifier of XP (ZP = SpecXP). The generalised format of the phrase structure in (15) can be considered a universal principle that determines the structure of phrases and sentences in all natural languages.

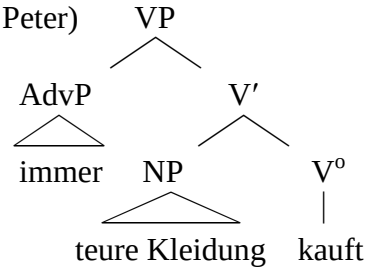
With respect to that format, notice that in (15) the head (X^o) of a phrase is assumed to precede its sister, as it appears on the left-hand side of its complement (YP). In English, the structure of the VP can satisfy X-bar theory as in (14b). However, recall from section 2.2.1 that languages vary with respect to the way they fix their parameters. Consider the difference between the English example in (14b) and the German example of an embedded clause below in (16):

(16) …weil Peter immer teure Kleidung kauft
because Peter always expensive clothes buys
'…because Peter always buys expensive clothes.'

The fact that English is an SVO-language, whereas German is an SOV-language (viz. the verb follows its complement)[12] can be captured within X-bar theory by assuming that the English VP is head-first (see 14b), whereas the German VP is head-last, as shown in (17):

[12] SVO: subject-verb-object
SOV: subject-object-verb

(17) (weil Peter)



In both configurations, i.e. (14b) and (17), there is a minimal projection (V^o) combining with its complement (NP), as well as a maximal projection (VP) and its specifier (AdvP). Consequently, the structure of the verb phrase in both English and German complies with X-bar theory. However, each language does so in a slightly different way. This variation is a typical instance of parameterisation, when the grammars of two different languages, which are based on the universal principles of X-bar theory, nevertheless differ as a result of different settings of a parameter.

The consequences of the X-bar schema for movement are outlined and explained in Chomsky (1986: 4), who posits substitution as a major type of movement. At large, there are four general properties of substitution stipulated by Chomsky (1986: 4: 4), as listed below in (18):

(18) (a) There is no movement to complement position.
(b) Only X^o can move to the head position.
(c) Only a maximal projection can move to the specifier position.
(d) Only heads and maximal projections are "visible" for the rule Move-α.

If a head or a specifier is not realised by a lexical element or a phrase respectively, its position remains empty, which makes it a possible landing site for movement. But if a head has no complement, there is no empty complement position that could serve as a landing site. It follows from (18b & c) that substitution will never move a head to a specifier position. In section 2.2.3, I will discuss *wh*[13]-movement (i.e. movement of a wh-phrase), which exemplifies a typical instance of substitution in English questions.

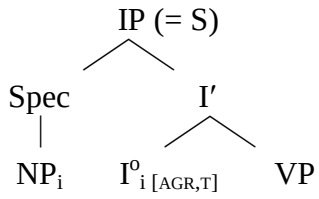
[13] Wh-: interrogative words like 'who', 'whose', what', etc.

2.2.3. Extending X-bar theory to functional categories

In the previous section I showed how the X-bar schema accommodates the four major lexical categories, i.e. nouns (N), verbs (V), adjectives (A), and prepositions (P). In this section I will examine the question whether such a schema also extends to categories that are non-lexical. Interestingly, Chomsky (1986: 3) argues that the principles of X-bar theory are also applicable to two functional categories, viz. inflectional elements (category Infl) and complementisers (category C) (see also Ouhalla (1999) for further relevant discussion).

The first functional category I(nfl) includes Modals and/or Tense (T), and Agreement (Agr). In English, for example, the head position I^o may host a modal, e.g. *will*, an auxiliary, e.g. *do*, the past tense morpheme *(-ed)*, or an agreement morpheme *(-s)*. In other languages whose morphological systems are richer, a number of different Tense morphemes or Agreement morphemes can appear. According to Chomsky (1986: 3), the maximal projection of I^o is IP, which replaces the clausal category S in order for the structure of S to comply with the principles of X-bar theory, as shown in (19):

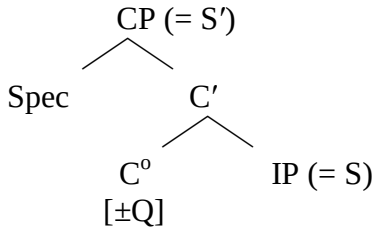
(19)



Notice that the functional head (I^o) selects a VP as its complement and is co-indexed with the specifier (SpecIP), which is the subject of the sentence. According to Ouhalla (1999: 124), this notation signifies that I^o and SpecIP agree in some relevant features, like person, number, and gender, which are called φ-features. These features play an important role in the agreement relation between the specifier and the head, called Spec-Head Agreement. However, notice also that Agr co-occurs with T under the functional head I^o. A general property of English is that Agreement only occurs in clauses which also include Tense. These clauses are called finite as opposed to non-finite clauses which are not specified for Tense and Agreement.

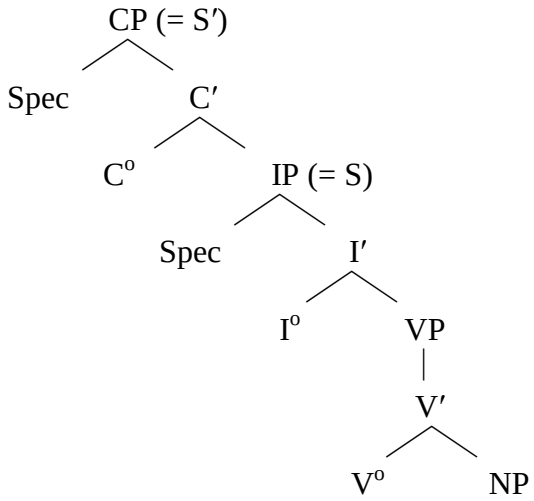
The second functional category C represents complementisers, which carry grammatical features, like [±Q][14], depending on the feature specification of the clause (i.e. sentence type). In interrogative clauses, C^o is the projection of the feature [+Q], whereas C^o is the projection of [–Q] in declarative clauses. In English, for example, the complementiser *that* appears under C^o in the latter type of clauses when they are embedded finite clauses, whereas in non-finite clauses, *for* may be introduced under C^o. It follows from X-bar theory that the maximal projection of C^o is CP, which replaces a projection previously labelled S′. Its specifier position (SpecCP) may host a wh-phrase in main or embedded interrogative clauses. The new structure of the former S′ is then consistent with the framework of X-bar theory, as shown in (20):

(20)



Since Chomsky (1986), the structure of a sentence is therefore represented as in (21):

(21)



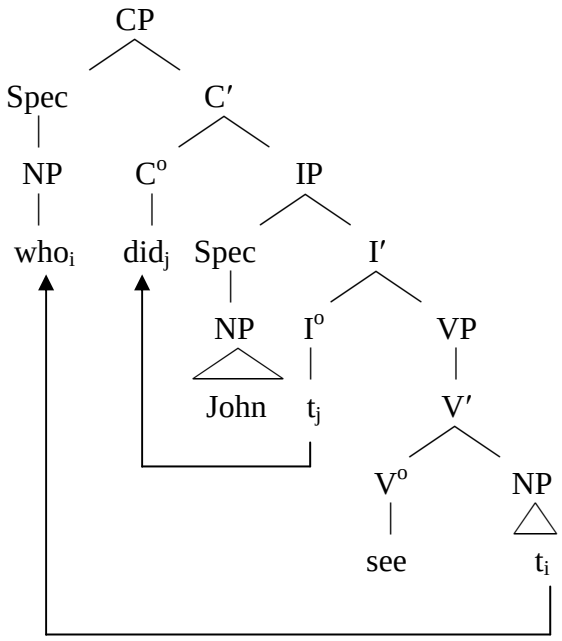
In English clauses marked with the feature [–Q], SpecCP remains empty. However, in clauses whose C^o is marked with the feature [+Q], this specifier position is a landing site available for wh-movement. For instance, consider Chomsky's (1986: 28) example in (22):

[14] Q: Question-feature; marker of interrogative sentence type.

(22) Who did John see?

In (22), the wh-pronoun *who* is the logical object of the verb *see* and therefore originates as the complement of the verb at D-structure. However, since it is a wh-phrase, it is attracted by the [+Q]-feature of C and has to undergo movement to SpecCP, which is empty at D-structure (compare 18c). This means that a wh-phrase cannot be base-generated under SpecCP, which can only be filled at S-structure via movement of the maximal projection of a wh-phrase. In addition, the functional head I^o is moved to a higher-level head position; notably C^o (compare 18b). This type of movement accounts for subject-auxiliary inversion typical of questions. The structure of the interrogative clause in (22) is illustrated below in (23):

(23)



Notice that Move-α only moves a head to a head position (viz. $I^o \rightarrow C^o$), in (23), and a maximal projection to a specifier position (viz. $Comp_{NP}$ of $V^o \rightarrow$ SpecCP). Thus, the structural representation of movement in (23) observes the general principles of substitution.

In this section I have examined the two functional categories I and C, as they are introduced by Chomsky (1986: 3). According to the principles of X-bar theory, IP

and CP are maximal projections of the functional heads I^o and C^o respectively, as shown above in (17). But at the same time, according to Grimshaw (1991), IP and CP are the *extended projections* of the lexical head V^o. This means (see also Zeller, 2001: 109) that the categorial status of a lexical head, e.g. V^o, determines the categorial status of the functional heads which are projected above that lexical head, i.e. I^o and C^o. Recall from section 2.2.1 that verbs have the feature specification [-N, +V]. These feature values are shared by the functional heads on top of VP, i.e. both I^o and C^o. However, in addition to being specified as verbal categories, I^o and C^o also have functional values on top of the categorial ones. In Grimshaw's (1991) terms, V = [-N, +V, -F] whereas C/I = [-N, +V, +F].

I will discuss the functional structure of noun phrases in section 2.4.1, where I will introduce a third functional category, viz. that of determiners (category D), explored by a number of researchers (for relevant discussion, see Abney (1987), Siloni (1997), Alexiadou (2001), Bernstein (2001), Longobardi (2001), Coene and D'hulst (2003), Roeper (2004), among others).

2.3. The interactions of principles

2.3.1. Case Theory

A general principle of grammar requires that all overt NPs have Case. This requirement follows from the *Case Filter*, formulated by Chomsky (1981: 49), as in (24):

(24) Case Filter

*NP if NP has phonetic content and has no Case

In English, only pronouns show overtly reflected Case in three different forms, i.e. subjective/nominative (e.g. *I*), objective/accusative (e.g. *me*) possessive/genitive (e.g. *my*). However, lexical categories, like nouns and adjectives, which bear nominal features, notably [+N], lack distinct morphological markers in English, except for the genitive Case-marker (*'s*). As a result, it is only the genitive Case that is reflected in terms of inflection in English non-pronominal NPs. In contrast, all noun phrases in

Greek show overtly reflected Case because Greek, like Latin, German, and other languages, has rich inflectional morphology. I have provided some examples from Greek in Table 1, which I have generated myself as a native speaker of Greek:

Table 1

Singular	Masculine	Feminine	Neuter
Nominative	eléfant**as** ‘elephant’ athlit**ís** ‘athlete’ kanap**és** ‘sofa’ kósm**os** ‘wold’	kardj**á** ‘heart’ psihj**í** ‘soul’ léks**i** ‘word’ méthod**os** ‘method’	óno**ma** ‘name’ ped**í** ‘child’ vivlí**o** ‘book’ éthn**os** ‘nation’
Genitive	eléfant**a** athlit**í** kanap**é** kósm**u**	kardj**ás** psihj**ís** léks**i**s methód**u**	Onó**matos** pedj**ú** vivlí**u** éthn**us**
Accusative	eléfant**a** athlit**í** kanap**é** kósm**o**	kardj**á** psihj**í** léks**i** méthod**o**	Óno**ma** ped**í** vivlí**o** éthnos
Plural			
Nominative	eléfant**es** ‘elephants’ athlit**és** ‘athletes’ kanap**édes** ‘sofas’ kósm**i** ‘wolds’	kardj**és** ‘hearts’ psihj**és** ‘souls’ léks**is** ‘words’ méthod**i** ‘methods’	onó**mata** ‘names’ pedj**á** ‘children’ vivlí**a** ‘books’ éthn**i** ‘nations’
Genitive	elefánt**on** athlit**ón** kanap**édon** kósm**on**	kardj**ón** psih**ón** lékse**on** methód**on**	Ono**máton** pedj**ón** vivlí**on** ethn**ón**
Accusative	eléfant**es** athlit**és** kanap**édes** kósm**us**	kardj**és** psihj**és** lékse**is** methód**us**	Onó**mata** pedj**á** vivlí**a** éthn**i**

In Greek, vocative Case is similar in form to accusative Case, except for certain masculine nouns in the singular, e.g. *kósme* 'world'.

In Chomsky (1981: 170) as well as in subsequent work, there is a distinction between different types of Case. When an NP occurs in a complement position or in a specifier position, that NP is assigned *structural Case*, which is assigned at S-structure. When Case assignment to an NP necessarily involves a particular semantic relation between the assigner and the assignee, that NP is assigned *inherent Case*, which is assigned at D-structure. Consider Chomsky's (1981: 170-1) examples in (25):

(25) (a) John gave a book to Bill.
(b) John gave Bill a book.

In (25a), the subject *John* is assigned structural Case because it appears in a specifier position. The direct object *a book* and the indirect object *Bill* are also assigned structural Case because the former is the complement of the verb *gave* and the latter is the complement of the preposition *to*. In (25b), nothing changes as regards the subject *John*. However, the indirect object *Bill* receives structural Case as the complement of the verb *gave*, whereas the direct object *a book* gets inherent Case from the verb *gave*. According to this analysis, the properties of the verb *gave* determine Case-marking of its direct object *a book* under government relations.

Chomsky (1981: 49-50) maintains that in English, only verbs, prepositions, and [+finite] INFL are potential Case-assigners. Thus, if a noun phrase is the complement of a verb, it may be assigned structural/accusative Case by that verb. Note that intransitive, ergative and passive verbs do not assign accusative Case. Prepositions assign oblique Case to their complement noun phrases. If a noun phrase is in the subject position of a finite clause, it gets nominative Case from I^o. Finally, genitive Case is assigned to an NP which occurs in the specifier position of another noun phrase. Consider Chomsky's (1981: 49-52) examples in (26):

(26) (a) *The barbarians* destroyed *the city.*
(b) the destruction of *the city*
(c) *the city's* destruction

In (26a), the noun phrase *the barbarians* occurs in the subject position (SpecIP) of a finite clause, and gets nominative Case from I^o, whereas the transitive verb *destroyed* assigns accusative Case to its object, which is the noun phrase *the city*. In (26b), the [+N] lexical category *destruction* cannot assign Case to *the city*. According to Chomsky (1981: 50), in English-like languages the preposition *of* is therefore required to be inserted in order to assign oblique Case to *the city*. Otherwise, the Case Filter is violated. In (26c), *the city* occurs in the subject position (SpecNP) of a noun phrase, and gets possessive/genitive Case. I will discuss how this is possible in section 2.4.1.

To summarise, Case assignment is the result of locality relations between a lexical or functional head, i.e. the assigner, and its complement or specifier, to which it assigns Case, i.e. the assignee. The latter is either base-generated or moved to a landing site by Move-α, as discussed in sections 2.2.3 and 2.2.4.

2.3.2. θ-theory and argument structure

The θ-criterion is another principle which was formulated by Chomsky (1981: 36), as in (27):

(27) Each argument bears one and only one θ-role,
and each θ-role is assigned to one and only one argument.

It follows from this principle that the number of θ-roles to be assigned is determined by the number of arguments a predicate takes. The predicate of a sentence is the verb phrase, which denotes an event, whereas the arguments of the predicate are the phrases which denote the participants of that event. Chomsky (1981: 35) assumes that arguments are expressions which are assigned the status of terms in a semantic/thematic relation at LF. Such expressions are names, variables, anaphors, pronouns, and clauses as opposed to expletives, namely *it* and *there*, which are non-arguments. According to θ-theory, semantic dependencies between the syntactic constituents of a sentence are represented in grammar by means of θ-roles. Some of the roles that I will be dealing with are agent, patient, theme, and possessor. Some

other roles I may refer to are experiencer, goal, source, path, benefactive, location, instrument, and proposition.

Consider for example, the sentence in (26a) above. The subject of that sentence (i.e. *the barbarians*) is traditionally associated with the θ-role of agent, whereas the predicate of the sentence (i.e. the transitive verb *destroyed*) requires an object (i.e. *the city*), which is associated with the θ-role of patient or theme. Now compare that sentence with the following two examples in (28):

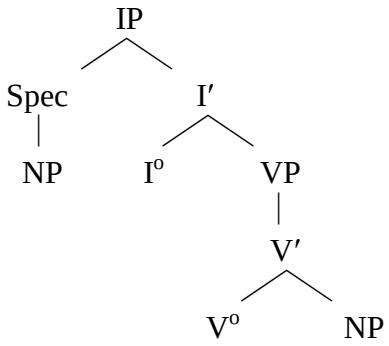
(28) (a) **Destroyed* the city.
(b) *The barbarians *destroyed*

In (28a), the sentence is ungrammatical because the subject of the sentence is missing. This means that the θ-role of agent is not assigned. As a result, the θ-criterion is violated. In (28b), the sentence is ungrammatical because the object of the verb is missing. This means that the θ-role of patient is not assigned. As a consequence, the θ-criterion is violated. This leads to the conclusion that both the subject and the object of the transitive verb *destroyed* are obligatory. Therefore, the verbal predicate *destroyed* takes two obligatory arguments and must assign two θ-roles obligatorily. Both examples in (28) are ungrammatical because they are violations of the θ-criterion.

According to Chomsky (1981: 38), the thematic structure of every lexical entry is determined in the lexicon along with the selection features and subcategorisation features of each lexical entry. When this lexical information is introduced in syntax at D-structure, it is projected through all levels of representation on the basis of the projection principle. The transitive verb *destroy* subcategorises for a logical object, selects an NP as its complement in X-bar terms, and directly θ-marks its object by obligatorily assigning the θ-role of patient to it. Furthermore, Chomsky assumes that the transitive verb *destroy* indirectly θ-marks the subject of the sentence in (26a), viz. its specifier in X-bar terms, by assigning the θ-role of agent to it obligatorily. As a consequence, this verb assigns two θ-roles obligatorily.

The principles of θ-theory and argument structure are linked within the theoretical framework of X-bar theory. Recall from section 2.2.3 that in Chomsky (1986: 3), the structural representation of a sentence (S) is as shown below in (29):

(29)



In the configuration above, the maximal projection VP of the lexical head V^o determines the domain of V^o, which is the predicate. In Williams' (1981a: 84) view, when a θ-role is assigned to a position outside the domain of the predicate, such as SpecIP, the respective argument of the predicate is called *external*. In contrast, when a θ-role is assigned to a position inside the domain of the predicate, such as to its complement, this argument of the predicate is called *internal*.

Chomsky (1981: 47) assumes that an argument position, which is also called an A-position, may be occupied by an argument base-generated at D-structure. This leads to the conclusion that, in (29), the complement of the lexical head V^o is an A-position, which may be occupied by the internal argument. SpecIP is also an A-position, which may be occupied by the external argument. In contrast, a non-argument position, which is also called an A'-position, cannot be occupied by a base-generated argument. Therefore SpecCP is an A'-position (cf. 23). If a syntactic constituent occupies a position, where it receives a θ-role, this position is called a θ-position. The θ-position occupied by the trace of an argument or the argument itself in LF, determines the θ-role to be assigned to that argument. According to Chomsky (1981: 36-7), complements of lexical heads are θ-positions. SpecIP is a θ-position as long as it is occupied by a base-generated argument to which a θ-role is assigned. In contrast, SpecIP is not a θ-position if it is occupied by an argument moved from another position, since the θ-role is assigned to the base position of the moved element. SpecCP is a non-θ-position because it cannot be occupied by a base-generated

argument to which a θ-role is assigned. Therefore, a θ-position is an A-position, whereas an A-position is not necessarily a θ-position. However, non-θ-positions are A'-positions and vice versa.

Consider the structural representation of the example in (26a), as shown in (30):

(30) $[_{CP}[_{C'}[_{IP}[_{SpecIP}$ NP *the barbarians*$][_{I'}[_{VP}[_{V'}[_{V}$ destroyed$][_{NP}$ *the city*$]]]]]]]$

The logical object of the verbal predicate in (26a) is the NP *the city* which occupies the complement position of the verb, and receives the θ-role of patient. The logical subject of (26a) is the NP *the barbarians*, which is base-generated in the subject position (SpecIP), and receives the θ-role of agent. Thus, the θ-criterion is fully satisfied. Notice that the active predicate takes an external argument and assigns an external θ-role.

Chomsky (1981: 40) draws a fundamental distinction between the θ-properties of a verb phrase and those of a noun phrase. Although there are certain verbs (e.g. *rain* and *seem*) whose lexical specification requires that they head verb phrases which do not θ-mark their subjects, the verb which heads a verb phrase (e.g. *kill Bill*), assigns the θ-role of agent to its subject obligatorily if it has this lexical specification. In contrast, if the head N of a noun phrase has the appropriate properties of indirectly θ-marking a subject, the noun phrase θ-marks the subject optionally. As a noun phrase may or may not have a subject, the nominal predicate of that noun phrase takes an argument in the subject position optionally. Therefore, nouns assign the θ-role of agent to the subjects of the NPs they head, when these subjects appear at D-structure.

For instance, consider the noun *destruction* in the following examples in (31):

(31) (a) the (barbarians') *destruction* of the city
(b) *the barbarians' *destruction*[15]*
(c) The *destruction* was widespread.

[15] The phrase is ungrammatical when *the barbarians'* assumes the θ-role of agent.

In (31a), the logical subject (i.e. *the barbarians'*) may or may not appear in the subject position, which is a θ-position, in a possessive form. If the subject is present, the θ-role of agent is assigned to the argument which occupies the subject position. If not, there is no argument occupying that position. As a result, the θ-role of agent fails to be assigned. Since the θ-criterion is not obviously violated when the subject is missing, it has to be concluded that nouns assign the θ-role of agent optionally. Moreover, the noun *destruction* subcategorises for a logical object, selects a PP as its complement in X-bar terms, and assigns the θ-role of patient to the internal argument obligatorily. Notice that the θ-role of patient is only obligatory in the presence of the agent. This is why the example in (31b) is ungrammatical. In contrast, none of the θ-roles associated with the noun *destruction* seem to be assigned in (31c). Therefore, the θ-role of agent is strictly optional in nominal expressions, whereas the θ-role of patient is strictly obligatory in the presence of an agent. Nevertheless, the θ-role of patient fails to be assigned by the head N when the lexical specification of this head N lacks the property of θ-marking.

2.3.3. The passive

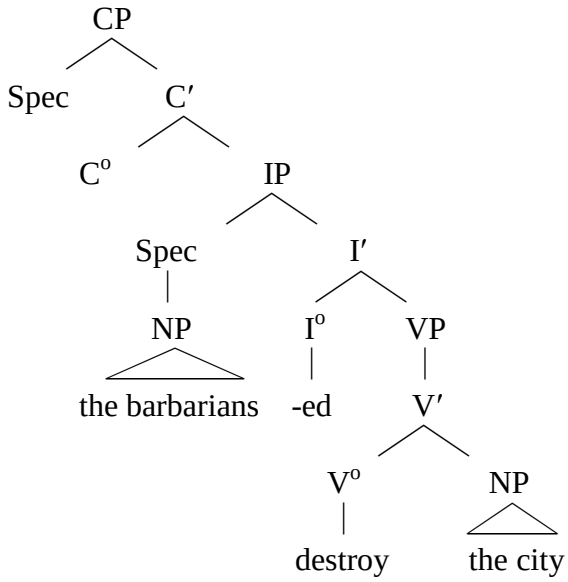
Recall from section 2.2.1 that Chomsky's (1981: 135) view of grammar is modular in the sense that each sub-theory has its own principles, which determine certain abstract features of language. However, these sub-theories interact with one another when accounting for particular linguistic phenomena, such as the *passive.* In traditional grammar, the passive is a rule, which entails changing the object of a verb to its subject. In Chomsky (1981: 7, 121), the passive is regarded as a general process pertaining to a number of fundamental principles and rules in his system, such as the Case Filter and Move-α. Crucially, Chomsky (1981: 124-5) posits two properties of the passive. The verb in passive constructions does not assign an external θ-role and does not assign accusative Case to its internal argument.

Consider the following example in (32):

(32) The barbarians destroyed the city.

In the active clause (32), the subject position (SpecIP) is filled with the logical subject *the barbarians*. This subject receives nominative Case (see section 2.3.1). Moreover, the transitive verb *destroyed* subcategorises for a logical object, selects the NP *the city* as its complement, and assigns accusative Case to it. The D-structure representation of (32) is as follows in (33):

(33)



In (33), I° hosts the past tense morpheme (*-ed*). This inflection morpheme combines with the verb *destroy* as in (32). In English, the I° is lowered to the V° so that the affix is adjoined to the verb at PF, yielding the past tense form *destroyed* to be pronounced as in the example above in (32).

Next consider the following example in (34):

(34) The city was destroyed by the barbarians.

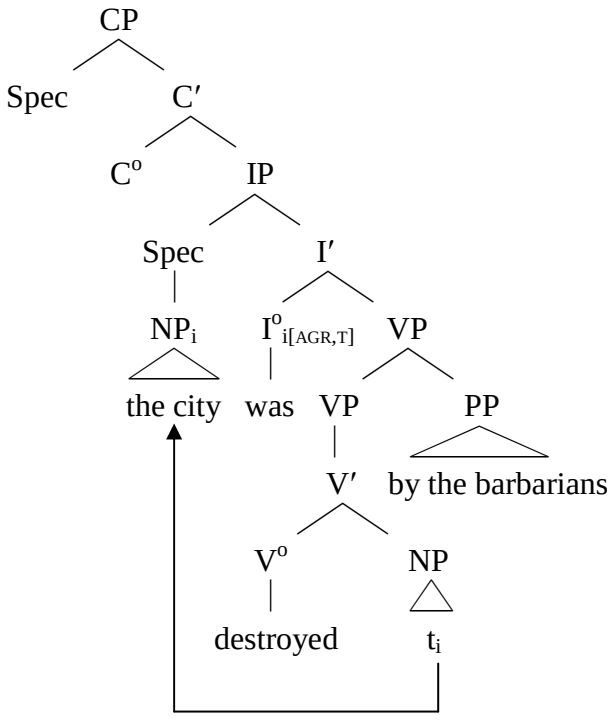
In the passive clause (34), the subject position (SpecIP) is filled with the logical object *the city*, which receives nominative Case (see section 2.3.1). Furthermore, the logical subject of (34) is realised inside the PP *by the barbarians*, which is optional in passive constructions. As noted above, the passive verb does not assign an external θ-role, and fails to assign accusative Case to the VP-internal NP *the city*, which is the complement of the verb. Therefore, the θ-role of agent is absorbed and the logical subject is suppressed in the passive. Then, SpecIP is not filled with a base-generated

NP, i.e. the logical subject of the clause. On the contrary, it remains empty at D-structure. Note that this empty specifier position serves as a landing site for movement. Simultaneously, accusative Case is absorbed. As a consequence, the NP *the city*, which is the logical object of the verb, will violate the Case Filter, unless this NP is moved by Move-α to fill SpecIP, where it gets Case. While it is the Case Filter that renders movement necessary, movement is made possible by Move-α. Recall from section 2.2.3 (18) that this type of movement is called substitution. Movement in the derivation of passive clauses is a typical instance of substitution.

Besides, the head P *by* of the PP *by the barbarians* assigns Case to its complement NP *the barbarians*. This so-called *by*-phrase in passives is usually analysed as an adjunct, which, in X-bar theory, is a sister of a phrase. According to Chomsky (1986: 6: 6), adjunction is possible only to a maximal projection that is a non-argument. Following Ouhalla (1999: 140), I therefore assume that the PP *by the barbarians* in (34) is right-adjoined to the VP.

The S-structure of the passive construction in (34) is represented below in (35):

(35)



In (35), I^o hosts an auxiliary. In passive constructions, T and Agr, being features of Infl, are realised on this auxiliary under I^o. In English, the third person singular past tense form of the auxiliary *be* takes the phonological form *was* as in the example above in (34). Note that the V^o in (35) hosts the past participle *destroyed* as a result of the combination of the verb *destroy* with the passive morpheme (*-en*). According to Jaeggli (1986: 595) this passive morpheme (*-en*) absorbs the accusative Case; for this reason, the verb can no longer assign accusative Case to its logical object.

In the foregoing discussion, I explained how the Case Filter and Move-α interact within the framework of X-bar theory, as regards passive constructions. Interestingly, the θ-criterion also interacts with Move-α and X-bar principles. As noted above, the logical object in (34) has moved to SpecIP, as shown in (35). This leads to the conclusion that SpecIP is not always filled with an external argument. As the syntactic subject of the passive sentence in (34), the NP *the city* does not receive the θ-role of agent because it has been moved to a landing site (i.e. SpecIP), which is not a θ-position. On the contrary, it must bear the θ-role of patient because it is still the logical object of the verb. This θ-role of patient is assigned to the trace *t*, which is left behind in the complement position when the internal argument *the city* is moved to SpecIP. The trace *t* transmits this θ-role to its antecedent *the city*, as coindexation shows in (35).

Moreover, the logical subject of the passive sentence in (34) appears in the PP *by the barbarians*, which occurs in an adjunct to VP in (35). Therefore, the θ-criterion is not violated. Recall from section 2.3.2 that the active predicate takes an external argument. In contrast, the passive predicate fails to take an external argument. Therefore, the passive must be based on a different lexical entry, which is lexically related to the active entry. As noted earlier, that new entry is derived by a morphological process, which combines the active entry *destroy* with the passive morpheme (*-en*). According to Jaeggli (1986: 590), this passive suffix (*-en*) absorbs the θ-role of agent. For this reason, this θ-role cannot be assigned externally to SpecIP in (35). Instead, the θ-role of agent is transmitted to *the barbarians* through the preposition *by*. As an adjunct, the PP *by the barbarians* may occur optionally.

Although Chomsky (1981: 124) admits that the traditional view of the passive holds for the core case of passive constructions (as in e.g. *John was killed.*), he claims that syntactic passives do not always require passive morphology and movement at the same time. On the contrary, passive constructions may exhibit passive morphology without movement, and vice versa. Consider Chomsky's (1981: 122) example below in (36):

(36) It was believed that the conclusion was false.

In (36), the passive verb *believed* does not assign objective case to its complement CP *that the conclusion was false*, as the passive suffix (*-en*) absorbs that Case. However, this CP need not move to SpecIP to get Case because, as a clause, it is not subject to the Case Filter. As the extended projection principle (EPP) requires that all clauses have a subject, SpecIP is filled with the expletive *it*. Recall from section 2.3.2 that expletives are not arguments, and, therefore, are not θ-marked. Furthermore, the passive predicate does not take an external argument and it does not assign an external θ-role. As a result, SpecIP is not a θ-position and it is filled with the expletive *it*, which is not an argument. Thus, the θ-criterion is fulfilled.

The discussion above shows that substitution is not indispensable for the derivation of certain passive clauses which exhibit passive morphology. This conclusion provides support to Chomsky's (1981: 121) analysis of the passive. Moreover, the observations made above confirm Jaeggli's (1986: 590, 595) hypothesis that the passive morpheme (*-en*) receives both the external θ-role and the accusative Case from the verb with which it combines. On this assumption, the passive morpheme (*-en*) is considered to be an argument (see also Baker et al, 1989: 219: 1).

Nevertheless, certain passive constructions may exhibit movement, but lack the passive morpheme (*-en*). According to Chomsky (1981: 122), different devices of expressing the sense of passive may be used within one language, e.g. English, and across languages. Nonetheless, the logical subject is suppressed in all cases. Except for the core case of passive, another case when the logical subject is suppressed, as a result of the interaction of principles, is in constructions with an ergative verb, e.g. *break*. Consider Chomsky's (1981: 105) examples in (37):

(37) (a) John broke *the window*.

(b) *The window* broke.

In (37a), the transitive predicate *broke* assigns accusative Case to its complement NP *the window* as well as the θ-role of agent to its external argument *John*. In contrast, in (37b), the ergative predicate *broke* subcategorises for a logical object, and assigns an internal θ-role to it. Yet, the ergative verb *broke* fails to assign accusative Case to its internal argument (i.e. the NP *the window*); hence it is called unaccusative. This internal argument must then move to SpecIP to get Case. Consequently, the D-structure object of the verb appears as its S-structure subject. In addition, the ergative predicate *broke* does not have an external argument. The θ-role of agent is not assigned to subject position. Otherwise, the θ-criterion would be violated. As noted above, this inability of an ergative verb to θ-mark an external argument and, simultaneously, Case-mark its logical object, i.e. its obligatory internal argument, relates to the properties of the passive. This similarity of passive and ergative verbs is captured in Burzio's (1986) Generalisation, as follows in (38):

(38) (a) a verb which lacks an external argument fails to assign accusative Case to its internal argument.

(b) a verb which does not assign accusative Case to its internal argument fails to θ-mark an external argument.

It follows from the foregoing analysis that unaccusativity results in lack of an external argument with regard to passive and ergative verbs. In contrast, their related transitive entries require two arguments, viz. an internal and an external one.

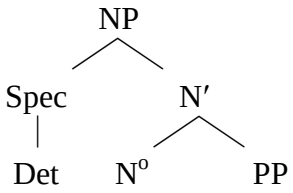
I come back to the discussion of the passive in section 3.3.2 in which I present Borer's (1993) analysis of the derivation of nouns from verbs. In the next section, I will explore how the interaction of principles applies to noun phrases.

2.4. Further extension of functional categories

2.4.1 The DP-hypothesis

The earlier representation of noun phrases as NPs is retained in Chomsky's (1986) work, as shown in the following configuration in (39):

(39)



However, such an approach is incompatible with the principles of X-bar theory. The structural analysis of noun phrases in (39) does not explain that a functional head, e.g. an article or a demonstrative, and a prenominal full (genitive) NP seemingly occupy the same syntactic position. Consider the following illustrations in (40):

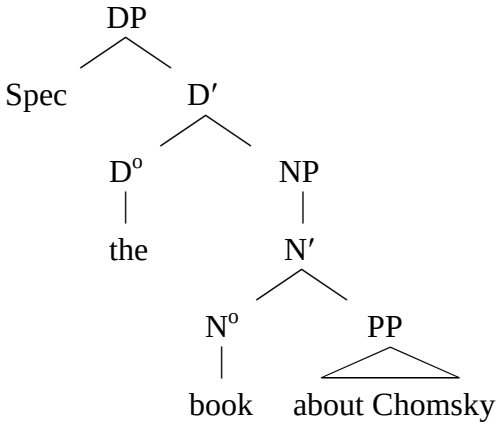
(40) (a) $[_{NP}\,[_{SpecNP}$ the $[_{N'}\,[_{N}$ book $[_{PP}$ about Chomsky]]]]]

(b) $[_{NP}\,[_{SpecNP}$ the student's $[_{N'}\,[_{N}$ book $[_{PP}$ about Chomsky]]]]]

The problem arising in (40a) is that SpecNP hosts the projection of a functional element, i.e. the article *the*. According to Bernstein (2001: 536), the principles of X-bar theory are violated, since a specifier cannot host a functional head. In Chomsky's (1986) view, a functional head must project to the phrasal level the same way a lexical head does.

Despite Chomsky's (1986) significant advances in extending X-bar theory to functional structure, he does not extend it to the nominal domain. However, Abney (1987) proposes an alternative view of the structure of noun phrases, which is known as the DP-hypothesis. Abney developed his proposal building on earlier assumptions introduced by Brame (1982) and Szabolcsi (1983). According to the DP-hypothesis, a noun phrase is considered to be a projection of the determiner position D, as shown in (41):

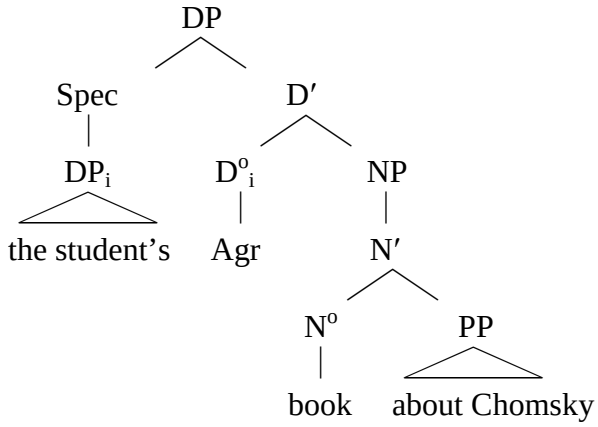
(41)



In (41), the head of the phrase is the determiner D°, which takes the NP as its complement. D° hosts a functional element, i.e. the article *the*. The specifier of the phrase (SpecDP) remains empty because it is not realised by a phrase. The determiner phrase (DP) is now the maximal projection of the functional head D° and, in Grimshaw's (1991) terms, the extended projection of the lexical head N°. In this case, it is N's categorial status that determines the lexical head's extended projection: D is [-V +N +F], while N is [-V +N -F] (see also Zeller, 2001: 112-4).

Abney's (1987) proposal is a significant contribution to the analysis of the structure of noun phrases. According to Coene and D'hulst (2003: 2-4), the DP-hypothesis dispenses with the problem posed by (40a). Whereas determiners are hosted by D°, prenominal (full) genitive phrases can fill SpecDP. Consequently, they occupy different syntactic positions. If a noun phrase is realised with a possessor, SpecDP is filled with the projection of that possessor. In this case, note that D° is not filled with the determiner in English. An obvious question to ask is what happens to the functional head D°, so that the principles of X-bar theory are satisfied. The most important development in Abney's work is that he parallels D° with I°. On a par with the idea that I° is the host of Agr(eement) features in the verbal domain, Abney proposes that the functional head D° hosts Agr(eement) features with respect to the nominal domain. His proposal is illustrated in (42):

(42)



In (42), the possessive morpheme (-*'s*) in English is introduced in the specifier position (SpecDP) along with the prenominal genitive phrase as a whole. Although the English clitic -*'s* could alternatively be assumed to be base-generated under D^o, Abney (1987: 85) prefers to regard the possessive/genitive -*'s* as a Case marker. The reason is that, under this analysis, D^o is the host of Agr not only in English, but also in languages with a rich morphological system. In such languages, overt Agreement features denote Num(ber), i.e. singular/plural, Gen(der), and Case among other φ-features. In these languages, the possessor agrees with the lexical head N in the same way the subject agrees with the lexical head V. Thus, the DP-hypothesis accounts for Case assignment within the nominal domain. The possessive morpheme (-*'s*) represents genitive Case and it is realised on the DP-subject in the same way as nominative Case may be realised morphologically on the IP-subject. Both are assigned under Agreement.

According to Coene and D'hulst (2003: 2-3) as well as Raffray (2001: 39), the parallelism between D^o and I^o leads to the conclusion that SpecDP hosts a subject-like position in the way SpecIP hosts the subject position in clausal structure. The parallel representation of sentential structure and noun phrase structure is illustrated in (43):

(43) (a) $[_{CP}\,[_{C'}\,[_{IP}\,[_{SpecIP}$ (DP:subject) $[_{I'}$ Agr $[_{VP}\,[_{V'}\,[V]]]]]]]]$

(b) $[_{DP}\,[_{SpecDP}$ (DP:possessor) $[_{D'}$ Agr $[_{NP}\,[_{N'}\,[N]]]]]]$

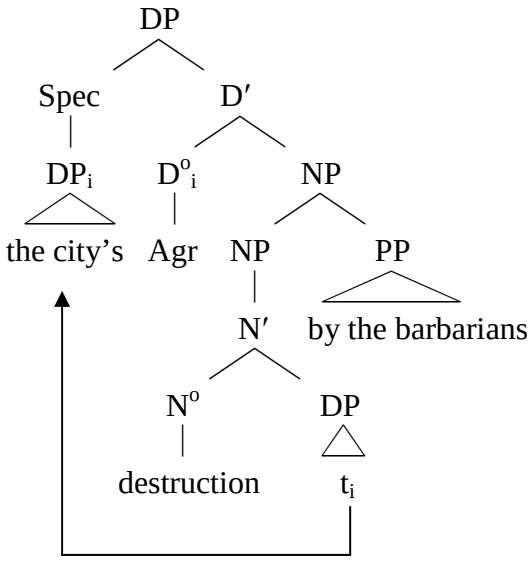
Both the DP-specifier and the IP-specifier are either realised by phrases which are base-generated in these positions or by phrases which have moved there. An example (see 35) of an IP-specifier filled by movement in a passive was discussed in section

2.3.3. In Abney's (1987) theory, (44b) is an example of a DP-internal passivisation process:

(44) (a) the barbarians' destruction of the city
(b) the city's destruction by the barbarians

In (44a), SpecDP is filled with the base-generated subject-like, prenominal genitive/possessive DP *the barbarians'*. This leads to the assumption that, in (44a), SpecDP, like SpecIP, is a θ-position, and therefore an A-position. In (44b), Abney (1987) maintains, SpecDP has been filled by movement[16]. According to (18c & d), the maximal projection DP *the city* can be moved by Move-α to fill SpecDP. This DP is the internal argument of the noun *destruction* in both (44a) and (44b). It is the complement of the preposition *of* (P^o) in (44a), but it appears as a prenominal genitive/possessive DP in (44b), and it is therefore inflected with the genitive marker (-*'s*) as a result of Spec-Head Agreement, as shown in (45):

(45)



The DP-movement illustrated in (45), which resembles movement to the subject position in passive clauses as illustrated in (35), is of central importance to my study. Notice that the preposition *of* does not appear in (45). Since P^o is responsible for Case-assignment in (44a), the DP-argument of the noun cannot receive Case in the

[16] Contrary to Abney's (1987) analysis of passive-like movement in (44b), SpecDP is filled with the base-generated DP *the city* according to Grimshaw's (1990), Borer's (1993), and Alexiadou's (2001) proposals, albeit from different perspectives, which I will discuss in chapter 3.

complement position in (45) and, therefore, must undergo movement to SpecDP, where it gets genitive Case. In this respect, DP-movement in (45) follows the same pattern as verbal passives (see 35), where movement of the internal argument is required for Case reasons. This leads to the assumption that, in (44b), SpecDP, like SpecIP, is not a θ-position, but it is an A-position, which is occupied by the internal argument. In English, therefore, in Abney's (1987) view, SpecDP is analogous to SpecIP, which is an A-position.

Another parallel between verbal and nominal passives is the occurrence of a *by*-phrase, illustrated by the adjunction of the prepositional phrase *by the barbarians* in both (35) and (45).

2.4.2. Variations of the DP-hypothesis

The analogy between the internal structure of noun phrases and sentences is advocated by Horrocks and Stavrou (1985, 1987), Siloni (1997), and Szabolcsi (1983, 1987, 1994), on the basis of evidence from data in Greek, Hebrew, and Hungarian respectively. However, some of this evidence suggests that D^o is analogous to C^o rather than I^o. In particular, Horrocks and Stavrou (1985, 1987) argue in favour of wh-movement in the nominal domain resembling the one that occurs in questions (see 23 above).

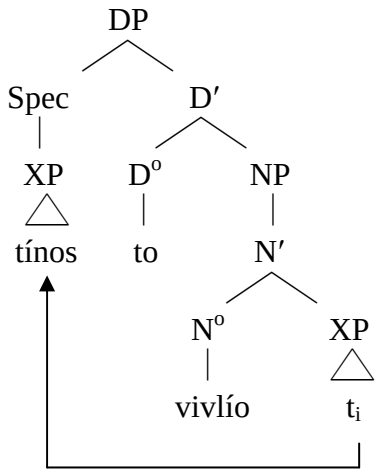
Consider, for instance, the following Greek constructions in (46) (examples taken from Horrocks & Stavrou, 1987):

(46) (a) to vivlío *tínos*
the book who-GEN
'whose book'

(b) *tínos* to vivlío
who-GEN the book
'whose book'

According to Horrocks and Stavrou (1985, 1987), the (genitive) wh-constituent *tinos* 'whose' appears as the complement of the head *vivlio* in echo questions like (46a). This construction is called *wh-in situ*, and is typical of questions in certain languages, e.g. Japanese. In (46b), the (genitive) wh-constituent *tinos* 'whose' is moved from a postnominal position to a prenominal position. This type of movement is represented by Horrocks and Stavrou through the structure in (47):

(47)



Notice that the wh-movement in (47), from the complement position at D-structure to the specifier position at S-structure is optional in Greek. Evidence supporting this account is given in Horrocks and Stavrou's (1987) examples below in (48):

(48) (a) ékane ti
did-3.SING[17] what
'S/he did what?'

(b) ti ékane
what did-3.SING
'What did s/he do?'

In (48a), the echo question is a wh-in situ construction (cf. 46a), whereas, in (48b), the wh-constituent *ti* 'what' is moved to SpecCP (cf. 46b, and see also 23), which is

[17] 3.SING: third person singular.

an A'-position. This leads to the conclusion that SpecDP is analogously an A'-position in Greek.

It follows from this analysis that variation in wh-movement in Greek is a result of parameterisation (see section 2.2.2). The type of optional movement in Greek nominal expressions exhibited in (47) is of particular significance to my study, because, as will be shown in chapter 4, this movement explains the differences between prenominal DPs in English and prenominal genitives in Greek. For instance, consider Horrocks and Stavrou's (1987) example in (49):

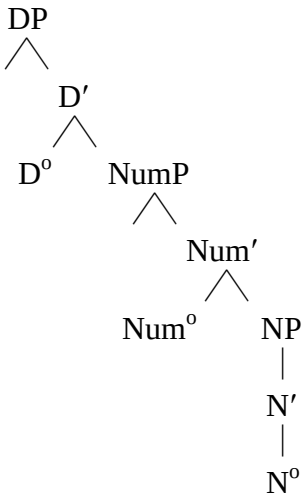
(49) tis pólis *(i) katastrofí
the-GEN city-GEN the destruction
'the city's (*the) destruction'

Crucially, in (49), the prenominal genitive *tis polis* 'the city's' does not undergo a passive-like movement. According to Horrocks and Stavrou (1985, 1987), it is optionally extrapolated for reasons of emphasis or contrast. This analysis explains why, in (49), the D^o position is obligatorily occupied by the article *i* 'the' in the presence of a prenominal genitive in Greek (cf. 47). In contrast, in the English translation of the Greek example in (49), D^o is not filled with the definite article *the*, due to the incompatibility of the prenominal genitive *the city's* with the determiner *the*. Recall from section 2.4.1 that Abney (1987: 85) regards the English clitic (*'s*) as a Case marker, which is base-generated in SpecDP, whereas the D^o position is occupied by Agr (cf. 45). In English, therefore, D^o assigns the feature [+definite] to the possessive/genitive in SpecDP, and cannot host the definite article *the*, as assigning the same feature twice is impossible.

In the light of this, I adopt Horrocks and Stavrou's (1985, 1987) view that D^o is equivalent to C^o in Greek, whereas, following Abney (1987), I regard D^o as equivalent to I^o in English. The implications of this approach for the status of SpecDP are that it is an A-position in English, but an A'-position in Greek. This is an example of cross-linguistic parameterisation.

Moreover, the analogy between the sentential and nominal structures involves a number of parallel functional projections between the lexical heads V/N and the functional heads C/D accordingly (see Bernstein, 2001). If D is parallel to C in Greek, then there should be a nominal functional projection which is equivalent to I^o. This could be one of the nominal Agreement features, i.e. Gender, Case or Number. However, since, according to Abney (1987), D is more like I, these features are all hosted under D in his proposal. Ritter (1991) suggests that, in Hebrew, I^o in the clausal structure is equivalent to the projection of the functional category Num(ber) in the noun phrase structure. She postulates NumP between NP and DP, as shown in (50):

(50)



In (50), NumP is the complement of D^o and the maximal projection of the functional category Num. Therefore, both DP and NumP are the extended projections of the nominal lexical head N^o. This assumption holds for Greek, but it would be impossible for English under Abney's (1987) analysis.

2.4.3. Clause Structure and DP-structure

In presenting the outline of his Minimalist Program (MP), Chomsky (1995) defends two functional projections between CP and VP, notably TP and vP[18]. While, T(ense) is equivalent to the category I(nflection) in GB-theory introduced above, v^o is a verbal functional category which introduces the external argument of a verbal predicate and

[18] vP: light verb phrase, in which v is the projection of a light verb, i.e. a verb which is lacking in semantic content. In English, for example, the verb *have* is a light verb in the expression *have a look*.

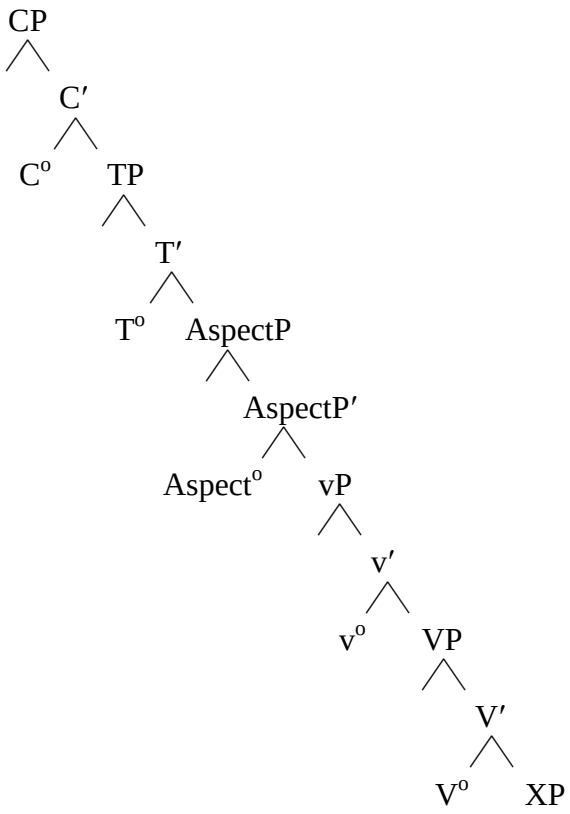
licenses accusative Case (see Zeller (2001: chapter 3[19]) for some discussion). The grammatical feature specification of the category v is [±active]; with the grammatical feature [-active], v does not introduce an external argument and specifies that the sentence is passive.

In addition, Tenny (1987, 1989, and 1994), among other linguists, proposes another verbal functional category *Aspect*, which is projected higher than v (see van Gelderen (1993), Hale & Keyser (2002), and Roeper (2004) for further discussion). According to Napoli (1993), *Aspect* determines the way an event is viewed within a given time frame. Traditionally, an action may be described as either a process or a completed whole. Its grammatical feature specification is, at large, [±perfective], which is usually subdivided into [±habitual/iterative, ±progressive]. In English, the distinction between the two sentences *I teach* and *I am teaching*, is aspectual. As a grammatical category, Aspect should be distinguished from the *lexical* aspect some verbs may denote by describing states, activities, accomplishments, or achievements. This type of Aspect is sometimes called *Aktionsart*. According to Comrie (1976), states, activities, and accomplishments receive a *durative* interpretation, whereas achievements receive a *punctual* interpretation. Moreover, achievements and accomplishments are *telic*, which means that they suggest a terminal point, whereas activities are *atelic*.

Since v^o and $Aspect^o$ are part of the functional structure above V^o, they count as part of the extended projection of the verb. Given the conclusions I drew in section 2.2.3, this account implies that the categorial features of v and Aspect are determined by the categorial status of the verb. In particular, v is a verbal functional category, which introduces the subject and determines Case assignment, whereas Aspect pertains to the predicate, which is headed by the verb, rather than the verb itself. The extended internal structure in the verbal domain is represented in (51):

[19] According to Zeller (2001), v^o is equivalent to $Voice^o$ in the sense that Voice is the verbal functional category which introduces the external argument of a verbal predicate, as introduced by Kratzer (1994).

(51)



Recall from section 2.4.1 that DP is the maximal projection of D^o whose feature specification is [-V, +N, +F], and the extended projection of N^o with the feature specification [-V, +N, -F]. In the same way, CP and IP are the maximal projections of C^o and I^o whose feature specification is [+V, -N, +F], and the extended projections of V^o with the feature specification [+V, -N, -F]. Under Abney's (1987) analysis D^o compares to I^o. Furthermore, recall from section 2.4.2 that D^o compares to C^o and Num^o compares to I^o in Ritter's (1991) proposal, which accounts s for the structure of noun phrases in Greek. As noted above, the category I^o in Chomsky's (1981) GB compares to the category T^o in Chomsky's (1995) MP. Therefore, I assume that D^o compares to T^o in English, whereas D^o compares to C^o, and Num^o compares to T^o in Greek.

Given that the verbal functional categories C and T have parallels in the nominal domain, i.e. D and Num respectively, in Greek, an obvious question to ask is which functional projection in the noun phrase structure could be assumed to be parallel to C^o in the clausal structure, in English. Moreover, the problem that arises is which nominal functional categories could be assumed to be equivalent to the verbal functional categories v^o and $Aspect^o$. In the next section, I will show how Marantz's

(1999) theory provides a solution to these problems, with interesting implications for the relation between lexical and functional categories.

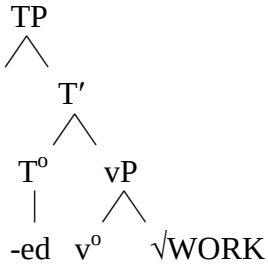
2.5. Functional categories in Distributed Morphology

Recall from sections 2.2.3 and 2.4.1, that, in Grimshaw's (1991) view, a lexical head (i.e. V^o or N^o) determines the categorial status of its extended projection. Contrary to this approach, Marantz (1999: 7, 18) proposes that it is the functional structure above the lexical head (i.e. X^o, in Chomsky's (1970: 210) terms) that determines the categorial feature specification of that lexical element. In his proposal, Marantz posits the functional heads v^o, n^o and a^o, which take on a decisive role. In particular, these functional heads determine the category of the lexical head (L), i.e. V, N, A respectively.

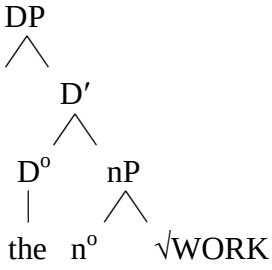
According to Marantz (1999: 8-9), word formation is a syntactic process. This assumption abandons Chomsky's (1981: 5) generative concept of the lexicon as an independent component of the base of grammar. The structure of grammar suggested in *Distributed Morphology (DM)* requires that there are no lexical entries specified as nouns or verbs (see Halle and Marantz (1993, 1994), and Marantz (1997, 1999) for discussion of DM). Marantz assumes that morphemes, which are units of meaning and structure, are combined with bundles of grammatical features, e.g. Agreement, Case, Tense or Number, which are selected from a UG feature set. These features are usually phonologically realised as affixes, depending on the morphological system of a language.

In Marantz's (1999) model of Distributed Morphology, morphological processes interact with syntactic operations. In DM terms, morphemes are *abstract lexical roots (√)*, whereas affixes are *vocabulary items*, which are inserted under terminal nodes that represent particular positions in certain syntactic structures. According to Marantz (1999), a root such as √WORK is neither a verb nor a noun. When this root combines with the verbal functional head v, the outcome is a verbalisation. However, when the same root combines with the nominal functional head n, the outcome is a nominalisation. The two derivations are structurally represented in (52):

(52) (a)



(b)

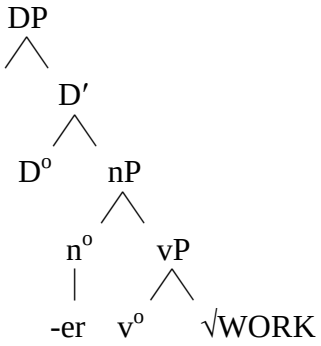


In (52), the two different functional heads v^o and n^o bear different functional features. Thus, they create two different domains, which specify the abstract root to be a verb or a noun respectively.

In Marantz's (1999: 7) view, the combination of an abstract root with a vocabulary item may apply either within or outside the domain of the root (√). As an example, consider the passive morpheme (*-en*) in English. In the first case, a vocabulary item may attach to a root (√) before this root is syntactically combined with a functional head (i.e. v, n, or a). Marantz (1999: 5-6) argues that this combination takes place below the little v in adjectival passives, e.g. *the chosen option*. As a consequence, adjectival passives lack the projection vP, and, therefore the verbal properties of the verb stem, like argument structure, are not visible in syntax. In the second case, the same root is first combined with a category-determining functional head (i.e. v, n, or a), and then the vocabulary item is attached to the root (√). According to Marantz, this combination takes place above the little v in syntactic passives, e.g. *The option was chosen*. As a consequence, syntactic passives include the projection vP, and, therefore, the argument structure of the verb stem is projected in syntax.

Marantz (1999: 11) assumes that inflectional affixation always takes place above v, whereas derivational affixes, e.g. *-er*, may attach to the root, but they may as well attach above v. Note that, in Marantz's (1999: 26) theory, a lexical head may be first combined with the verbal functional head v and then with the nominal functional head n. As a result, the outcome is a nominalisation with verbal properties. For example, consider the representation of the noun *worker* in (53):

(53)



In (53), the derivational affix *-er* has an agentive character, which involves an external argument. Thus, the abstract root √WORK is first combined with v, which accounts for the verbal property of the noun *worker*, and then with n, which accounts for the nominalisation of the root.

Marantz's (1999) theory provides a sound basis for Alexiadou's (2001) analysis of nominal expressions. On this view, lexical elements are projected as abstract roots (√) in syntax, and the verbal functional categories v and Aspect may be projected above these roots under a nominal functional structure. I will discuss Alexiadou's assumptions in the next chapter.

2.6. Summary

In this chapter, I first outlined the theoretical framework of Principles and Parameters as a generalised modular system of universal principles, which may be subject to different parameter settings to account for language variation. In particular, I focused on Government-Binding theory. Second, I introduced the principles of X-bar theory and showed how they apply to verbs and nouns. I also highlighted different parameter settings in English and German, and discussed movement within phrase structure. Furthermore, I explained how the X-bar schema extends to verbal functional categories.

Then, I discussed the principles of Case theory and θ-theory, and investigated how they are all interrelated with the principles of X-bar theory in the passive. Next, I presented the DP-hypothesis, which extends the X-bar schema to the nominal

functional category D. I also discussed parameterisation between English and Greek as regards this category, and examined the empirical motivation for an established parallelism between clausal and noun phrase structures. Finally, I explored the projection of more functional heads above an abstract lexical root, which determine syntactic categories, as is assumed in Distributed Morphology.

In the next chapter, I will investigate how the spirit of the theories discussed above is exploited in various analyses of derived nominals.

Chapter 3

Theories of derived nominals

3.1. Introduction

Nominal expressions may exhibit properties similar to clauses with respect to argument structure and DP-movement (see Grimshaw (1990) and Longobardi (2001) for relevant discussion). Interestingly, although a verb licenses argument structure systematically, its counterpart *derived* nominal may not always do so. Noun phrases seem to be ambiguous and inconsistent as regards taking arguments. I will discuss this idiosyncratic character of derived nominals in section 3.2.1. In section 3.2.2, I will investigate different semantic noun classes drawing the distinction between two types of derived nominals, which are called *process* and *result* nominals.

Chomsky's (1970) work in *Remarks on Nominalisation* initiated research into derived nominals from both the lexical and syntactic perspective (see also Alexiadou (2001), Borer (1993), and Roeper (2004), among other researchers for recent discussion). As far as nominalisation concerns the derivation of nouns[20], a major issue to address is whether this process takes place in the lexicon or in syntax. In section 3.3, I will discuss both the lexical and syntactic approaches to the derivation of process and result nominals, and I will further explore the structural similarities and differences between process and result nominals. In particular, I will argue in favour of Alexiadou's (2001) proposal.

3.2. Nominalisation

3.2.1. Derived nominals in English

Derived nominals are nouns formed by means of a morphological rule. According to this rule, when an affix like *-(t)ion,* or *-ment* and so forth is attached to a verb stem,

[20] I will not deal with the derivation of gerunds or nominalised clauses here.

the outcome is a derived nominal (see Kakouriotis, 2000). The relation of such a noun to its source verb is the central issue in this study.

The morphological process of combining verb stems with nominal affixes pertains to three properties of derived nominals, which are examined in Chomsky (1970). Firstly, the productivity of derived nominals is very limited, as shown in (1) (examples taken from Chomsky, 1970: 187-9):

(1) (a) John criticised the book.
(b) John's criticism of the book
(c) John amused the children with his stories.
(d) *John's amusement of the children with his stories

Although the structure underlying (1a) can surface as (1b), the ungrammaticality of (1d) provides evidence that this does not apply to (1c). In addition, according to Lees (1960), we cannot derive a noun from every single verb. Secondly, the relation between the meaning of a derived nominal and the meaning of the associated verb is idiosyncratic. Consider Chomsky's (1970: 189) example of the noun *trial*, which is derived from the verb *try*. The range of meanings of the derived nominal *trial* does not always strictly reflect the semantic variety of the associated verb *try*. Thirdly, the internal structure of a noun phrase headed by a derived nominal (cf. 1b) is the same as that of a common noun phrase (cf. 2.4.1: 40). Compare the illustrations in (2):

(2) (a) the (student's) book about Chomsky
(b) the (student's) criticism of the book

Recall from section 2.4.1 that nouns do not select bare NPs as their complements and optionally realise their subjects in the possessive form/genitive Case. This means that the common noun *book* and the derived nominal *criticism* are similar in their environments.

Although derived nominals occur in the typical nominal environment, note that constructions like (3a) can be related to sentential constructions like (3b), and constructions like (3c) can be related to passive constructions like (3d). Moreover,

derived nominals also occur in constructions like (3e), which can be half-related to constructions like (3a), but also half-related to constructions like (3c) (see Chomsky, 1970):

(3) (a) the enemy's destruction of the city
(b) The enemy destroyed the city.
(c) the city's destruction (by the enemy)
(d) The city was destroyed (by the enemy).
(e) the destruction of the city (by the enemy)

Recall from section 2.4.1 that the arguments of the nominal predicate *destruction* in (3a) are the same as the arguments of the verbal predicate *destroyed* in (3b). Therefore, when a nominal construction takes an external and an internal argument, this nominal construction parallels a transitive construction. Also, recall that, according to Abney (1987), a passive-like DP-movement is possible in noun phrases. Then, the internal argument of the nominal predicate *destruction* in (3c) is moved to SpecDP just like it is moved to SpecIP as the internal argument of the verbal predicate *was destroyed* in (3d). Therefore, nominal constructions parallel passive constructions in that the external θ-role is suppressed in both (see also Chomsky, 1981: 122, 124). Furthermore, recall from section 2.3.3 that, according to Jaeggli (1986: 590), the external θ-role is absorbed by the passive morpheme (*-en*). A plausible hypothesis would be that the nominalising suffix *-tion* also absorbs the external θ-role.

In (3c-e), the suppressed logical subject cannot be projected as a syntactic argument in SpecDP. Instead, it may be projected into an adjunct position through the PP *by the enemy*; hence it is optional. However, in (3a), the logical subject, which is realised in the possessive form *the enemy's*, does not seem to be suppressed because it is projected in SpecDP. An obvious question to ask is why the external θ-role is not absorbed by the suffix *-tion*. I come back to this problem in section 3.3.3.

Although the logical subject is suppressed in (3e) (*the destruction of the city by the enemy*) in the same way as it is suppressed in (3c) (*the city's destruction by the enemy*), there is no passive-like DP-movement in (3e). Chomsky (1970: 204) assumes

that (3e) is derived by means of postposing the agent, whereas (3c) is derived by agent-postposing and, subsequently, by preposing the internal argument. Nonetheless, Grimshaw (1990), Borer (1993), and Alexiadou (2001) argue against passive-like DP-movement in (3c). Moreover, Alexiadou argues against a suppressed external θ-role in nominalisation. I will discuss their approaches to these issues in sections 3.3.1, 3.3.2, 3.3.3 respectively, and I will adopt Alexiadou's assumptions.

As I mentioned in sections 2.3 and 2.4, a prenominal genitive in a nominal construction may assume different interpretations, i.e. possessor, agent, or patient. Moreover, a patient reading is also likely to be attributed to a prepositional phrase as the complement of a noun. Interestingly, the possessor can only appear in nominal constructions, whereas the agent and the patient may occur in sentences (i.e. CPs) as well as noun phrases (i.e. DPs). Although a verb licenses argument structure obligatorily, the noun which is derived from this verb may sometimes not license argument structure (cf. 2.3.2 (31c) repeated here as (4), for further discussion):

(4) The destruction was widespread.

The problem that arises by comparison of (3) and (4) is that a uniform account of the derivation of nouns from verbs is not an easy task. The hybrid noun-verb nature of derived nominals allows for conflicting accounts of their structural representation. Nevertheless, interesting research has been done with respect to optional/obligatory selectional and subcategorisation features which are responsible for the ambiguity in derived nominal expressions. I will investigate this ambiguity in the next section.

3.2.2. Process vs Result nominals

Nouns are traditionally divided into two major semantic classes, i.e. concrete and abstract nouns. The former describes concrete objects, e.g. *book*, whereas the latter refers to abstract notions, e.g. *idea*. From another point of view, nouns can be classified according to their interpretation. This classification distinguishes *process nominals*, which express actions, events or processes (e.g. *examination*), from *result nominals*, which are related to an entity in the world (e.g. *publication*) as a result of

actions, events or processes (see Grimshaw, 1990: 49, and Alexiadou & Grimshaw, 2008: 2).

Notice that certain derived nominals, like *examination*, allow two contrasting readings as they fall under both process and result nominals. A consequence of this overlap is ambiguity in the nominal system, which is reinforced when derived nominals occur in constructions with a prenominal genitive, e.g. *John's examination*. The interpretation of this genitive is also ambiguous. Consider Grimshaw's (1990: 48) examples in (5):

(5) (a) John's examination *(of the patients) took a long time.
(b) John's examination (*of the patients) was long.
(c) *The examination of the patients was John's.
(d) The examination was John's.

According to Grimshaw (1990), the noun *examination* in (5a) is unambiguously a process nominal, and selects the PP *of the patients* as its complement. As a process nominal, it obligatorily selects the PP, which is its internal argument. Notice that the prenominal genitive in the possessive form *John's* is the DP-subject, which is interpreted as the agent of the event, i.e. the examiner. Agentive genitives cannot occur predicatively, as shown in (5c). Therefore, process nominals take the same arguments as their counterpart verbal predicates.

In (5b), however, the noun *examination* is a result nominal, which refers to an exam. Here, the genitive *John's* is interpreted as either the possessor of the exam, viz. the one who has the exam in his possession, or the author of the exam, viz. the one who has signed the exam as the owner of its copyright. This possessive modifies the head noun *examination* and may also occur predicatively, as shown in (5d). Grimshaw (1990) terms this genitive a *modifier* of the head noun. In both (5b & d), the result nominal *examination* does not select the PP *of the patients* as its complement because this noun does not take an internal argument. Therefore, result nominals do not license argument structure as opposed to their counterpart process nominals.

Interestingly, the genitive *John's* in (5b) may as well be interpreted as the examinee. On this reading, Grimshaw (1990: 92) argues that the prenominal genitive *John's*

cannot occur predicatively. Hence, it is not a modifier of the head noun. Moreover, Grimshaw (1990: 95) claims that, even under the relevant reading, the genitive *John's* is not the internal argument of the head noun *examination*, because this derived nominal is a result nominal, and, as such, it does not license argument structure. This leads to the conclusion that this genitive is not base-generated as the syntactic complement of the head noun. On the contrary, Grimhaw (1990: 91, 92) regards the genitive *John's* as part of the lexical conceptual structure (lcs) of the derived result nominal *examination*. Therefore, Grimshaw considers this genitive to be an *lcs-complement* corresponding to an argument position in the lcs of the head. This *lcs-complement* of the head noun is not a syntactic argument, because it is licensed by the lcs representation of this noun rather than by argument structure.

Following Grimshaw's (1990) diagnostic test to disambiguate derived nominals, I will now discuss some of the differences observed between process and result nominals. Consider Grimshaw's (1990: section 3.2) examples below in (6):

(6) (a) The examination of the patients took a long time.
(b) The examination was long.
(c) The exam was on the table.

(d) They observed the/*one/*that/*an assignment of the problem.
(e) They studied the/one/that/an assignment.
(f) *The assignments of the problems took a long time.
(g) The assignments were long/on the table.

(h) The constant assignment of unsolvable problems is to be avoided.
(i) *The constant assignment is to be avoided.
(j) The constant assignments were avoided by students.
(k) The total destruction of the city in two days appalled everyone.
(l) *The total destruction in two days appalled everyone.

In (6a), the derived nominal *examination* denotes the process of an event because it can be assigned a temporal duration. Thus, it is a process nominal. In (6b), the same derived nominal describes the output of the relevant event. This means that it denotes

a resultant state and, consequently, is a result nominal. In (6c), the underived nominal *exam* refers to a concrete entity. Therefore, it is also a result nominal. In (6a), the process nominal *examination* assigns the θ-role of patient to its internal argument by means of the preposition *of*. In (6b & c), the result nominals *examination* and *exam* respectively do not take an internal argument. This means they cannot θ-mark one.

In (6d), the derived nominal *assignment* is a process nominal, whose obligatory internal argument is realised by the PP *of the problem*. Since what is denoted by this nominal is the particular event in process, the definite article *the* can precede this process nominal, whereas the demonstrative *that*, the indefinite article *an* as well as the number *one* cannot. In contrast, in (6e), the derived nominal *assignment* does not take an internal argument. Therefore, it is a result nominal, which refers to a concrete entity. Hence it can be preceded by both of the articles as well as numbers and demonstratives. In (6f), the PP *of the problems* realises the obligatory internal argument of the derived nominal *assignments*. Therefore, this derived nominal is a process nominal, which is disallowed in the plural, because the process of the event cannot be counted. Hence the sentence is ungrammatical. In contrast, in (6g), the same derived nominal is allowed in the plural because it refers to more than one concrete entity. This interpretation makes the noun *assignments* a result nominal.

In (6h), the derived nominal *assignment* takes an obligatory internal argument, which means that it is a process nominal. Therefore, the adjective *constant*, which describes the nature of an ongoing event, can modify this process nominal. In contrast, in (6i), this adjective cannot modify the same noun *assignment*, which refers to a concrete entity, and is a result nominal. However, in (6j), the same adjective *constant* modifies this result nominal in its plural form *assignments* signifying the high frequency of such a concrete entity. In (6k), the adverbial *in two days* modifies the process nominal *destruction* which denotes an event whose process can be looked at from various aspects in time, e.g. [+perfective]. In contrast, in (6l), the result nominal *destruction* refers to a resultant state, which is set at a point in time as an end product. Although 'the destroying' occurs over a period of time, the outcome is not looked at from this point of view. Therefore, the result nominal *destruction* does not license an aspectual modifier; hence the sentence in (6l) is ungrammatical.

So far I have discussed some of the major distinctive features of process as opposed to result nominals. Such a distinction has a number of consequences for the properties of nouns depending on which group a noun belongs to. Since process nominals denote the process of an event, they take arguments, but cannot be preceded by numbers, demonstratives, or the indefinite article. This means that they cannot appear predicatively, and they cannot be realised in the plural. In that respect, process nominals resemble mass nouns. Yet, they can be modified by adjectives or adverbials, which signify aspectual properties. Since result nominals refer to concrete entities or resultant states, they perform in exactly the opposite way.

According to Grimshaw (1990), the core difference between process nominals and result nominals is their (in)ability to license the argument structure of their counterpart base verbs. A derived nominal, e.g. *examination*, is a process nominal when it describes an event. In Grimshaw's (1990: 54) system, the participants of that event are obligatorily projected as syntactic arguments. This means that this derived nominal licenses the same argument structure as its corresponding base verb, e.g. *examine*. If the derived nominal is a result nominal, it may project a possessor as its external argument, but does not license argument structure.

3.3. Lexical and syntactic approaches to the derivation of nouns

The difference between a derived nominal and the verb it is related to, as regards licensing argument structure, has been discussed extensively in the literature. There are two different approaches to the derivation of nominals, with consequences for other interdisciplinary fields of study (e.g. psycholinguistics[21]). On the one hand, it is assumed that nominals are derived via syntactic movement. On the other hand, it is assumed that nominals are derived by virtue of lexical rules.

Following Lees (1960), some researchers argue that the morphological derivation of the noun *destruction* from the verb *destroy* reflects a syntactic derivation (see Borer, 1993, Alexiadou, 2001, Roeper, 2004). Along these lines, a verbal projection may or

[21] See Reeves et al. (1998).

may not be involved. In GB-terms, this verbal projection is inserted at D-structure and moves to a nominal projection at S-structure. In more recent theories, verbal functional categories are combined with nominal functional categories. In contrast, the idiosyncratic character of derived nominals led Chomsky (1970: 215) to the hypothesis that the derivation of nouns is a lexical process. This means that the category of derived nominals is determined in the lexicon. The meaning and structure of a derived nominal is also defined in the lexicon. Chomsky (1970) and Grimshaw (1990) assume that, as a lexical entry, the noun *destruction* may or may not have such selectional and subcategorisation features that involve licensing argument structure.

Alternatively, the theories of derived nominals differ from another perspective. Some researchers suggest that the noun *destruction* is projected as a base-generated N^o (see Chomsky, 1970, Grimshaw, 1990, Borer, 1993, Roeper, 2004). In contrast, Alexiadou (2001) assumes that a lexical head (L) is projected as an abstract root (√). According to Chomsky (1970: 194), derived nominals are directly generated as integral lexical units which already contain their suffixes. Chomsky argues that derived nominals are not formed at S-structure from base-generated verbs through movement. In subsequent work, however, it has been suggested that the affixes which produce derived nominals, e.g. *-tion*, *-ment*, *-ence*, are ambiguous in terms of their interpretation as well as their structural representation. Grimshaw (1990) proposes that affixes attach to the verb stem in the lexicon. This means that the semantics of the affix determines the noun class of the derived nominal, i.e. process or result. In contrast, Alexiadou (2001) and Roeper (2004) propose that affixes attach to the verb in syntax. This means that the functional categories involved in the derivation determine whether a derived nominal is a process nominal or a result nominal. Borer (1993) proposes that an affix may attach in the lexicon deriving a result nominal, or in syntax deriving a process nominal.

In the following, I will focus on the proposals made by Grimshaw (1990), Borer (1993), and Alexiadou (2001), showing that the third one is to be preferred.

3.3.1. Grimshaw's (1990) analysis

Grimshaw's (1990) proposal accounts for the idiosyncratic behaviour of nouns as regards argument structure and θ-role assignment. Result nominals, obligatorily, do not license argument structure. Therefore, they need not satisfy argument structure by projecting syntactic arguments. In contrast, process nominals do license argument structure obligatorily. Therefore, they need to satisfy argument structure by syntactically projecting the participants of the event these process nominals denote.

According to Grimshaw (1990: 107, 110), process nominals assign the internal θ-role and, therefore, take an internal argument obligatorily, but suppress the external θ-role and, therefore, project it optionally. This assumption is based on Chomsky (1981: 122, 124), where nominalisation, like passivisation, suppresses the logical subject (cf. 3.2.1 (3a & e) revised here as (7), for further discussion):

(7) (a) the (enemy's) destruction of the city
(b) the destruction of the city (by the enemy)

In (7a), the external θ-role may be realised via the prenominal genitive *the enemy's*, which occupies the DP-subject position, i.e. SpecDP. In (7b), the external θ-role may be realised via the PP *by the enemy*, which occupies an adjunct position. It follows from Grimshaw's (1990) stipulation that the external argument of a process DP is not obligatory. Arguably, suppressed external θ-roles cannot be projected as arguments; instead, they may surface as adjuncts (cf. 7b). Since SpecDP is not an adjunct position, an obvious question to ask is what happens in (7a). Grimshaw suggests (1990: 111) that SpecDP is an A'-position. This means that the prenominal genitive *the enemy's* is not an argument.

A core issue in Grimshaw's (1990) proposal is the reason why the external θ-role is suppressed in process nominals. Grimshaw's analysis is based on the idea that this suppression is caused by an independent property of nouns. Building on Williams's (1981a: 86-7) approach to the external argument of nouns, Grimshaw (1990: 65-6) assumes that the difference between process and result nominals lies in that each of these two types of nominals is linked to a different kind of external argument. The

question that arises is what makes it possible for a derived nominal to have different external arguments in different contexts. In Williams (1981a), nouns have an external argument, which he designates as (*R*) with a view to suggesting its (R)eferential role as opposed to a θ-role. Therefore, this external argument is non-thematic because it is not associated with a θ-role. Consider Williams's (1981a: 86) example in (8):

(8) (a) John is a *fool*.
(b) The *fool* left.

As a result of the statement in (8a), *John* is the referent of the noun *fool* in (8b). The sentence in (8b) then means *John left.* Williams (1981a: 86) posits that *John* is the external argument (R) of the noun *fool* in (8b), which is satisfied by reference. On this account, next consider Grimshaw's (1990: 65) lexical representation of result nominals in (9):

(9) (a) exam (R)
(b) dissertation (R)
(c) observation/expression (R)

The result nominals in (9), whether underived like *exam*, or derived like *dissertation*, *observation*, and *expression*, must be associated with an independent argument, which is an integral part of their lexical specification.

Grimshaw (1990: 66) posits an analogously non-thematic external argument of process nominals like *observation*, which she associates with the event described by the noun *observation* when it is a predicate. She designates this sort of external argument as (*Ev*) to suggest its (Ev)entive character. Notice that process nominals are always derived. Following Williams's (1981b: 5) view that an affix is, morphologically, the head of a derived nominal, Grimshaw argues that it is the affix that determines the character of (Ev). According to Roeper (2004: 19-20), different affixes capture different kinds of events implying result, quality, action, achievement and so forth. Further consider Grimshaw's lexical representation of the noun *observation* when it is a process nominal, where *x* is the θ-role of agent, and *y* is the θ-role of patient, in (9'):

(9') observation N, (Ev (x (y)))

In (9'), (Ev) is explicitly disassociated from the agent. This means that, if (Ev) is the external argument of the process nominal *destruction* in (7a) (*the enemy's destruction of the city*), the DP-subject *the enemy's* is not its external argument despite the fact that this DP-subject receives the θ-role of agent. Otherwise, process nominals would have two external arguments (i.e. (Ev) and the agent), which is impossible. According to Grimshaw (1990: 141), it is the non-thematic external argument (Ev) that suppresses the agent, which cannot be projected as an external argument. It follows from the discussion above that, under Grimshaw's (1990: 64) lexical analysis, all nouns have an external argument of their own, which suppresses the external θ-role in process nominals.

According to Grimshaw (1990: 66), the (Ev)/(R) distinction derives two independent but homophonous *lexical* entries; namely, a process nominal, which assigns the external and internal θ-roles at D-structure, and a result nominal, which is a non-θ-assigner. Therefore, the (Ev)/(R) distinction accounts for the crucial differences observed between process and result nominals. In Grimshaw's account, both process and result nominals are projected in syntax as heads (N^o) of noun phrases (NP). Thus, the noun class of a derived nominal is determined in the lexicon. This assumption aligns with Chomsky's (1970) hypothesis on derived nominals (see introduction to section 3.3), although Chomsky does not distinguish result from process nominals.

When a nominalising affix, say *-tion*, has (R) as its external argument, the morphological combination of a verb stem with that affix is a lexical process yielding a result nominal. As a non-θ-assigner, this result nominal takes no other arguments, and has no argument structure to project. In contrast, when the same nominalising affix (i.e. *-tion*) has (Ev) as its external argument, the outcome of the same lexical combination is a process nominal. As a θ-assigner, this process nominal must satisfy argument structure by projecting its syntactic arguments. This leads Grimshaw (1990: 62-3), following previous work by other researchers, to suggest that, even though affixation in process nominals happens in the lexicon, the affix moves to N'/NP at LF (see Pesetsky, 1985, Lebeaux, 1986). If the affix adjoins to N', only the internal

arguments of the verb are θ-marked. If it adjoins to NP, both the agent and the patient are θ-marked. Therefore, the projection of the agent depends on where the affix adjoins. This type of movement at LF accounts for the verbal character of the process nominal. However, Grimshaw admits that it remains an open issue whether affix-movement at LF provides a complete analysis of the derivation of process nominals.

Grimshaw (1990) fully exploits the lexicon as a generative component and does not deal with the structural representation of the derivation in terms of syntax. This is an expected corollary of the tension between the lexicon and syntax. Indeed, as result nominals are lexically derived, the morphological process of the derivation is not reflected into syntax in Grimshaw's (1990: 63) analysis. In addition, Grimshaw's proposal does not explicate how the verb stem is syntactically projected in the structural representation of process nominals. This is the first weak point, I consider, in Grimshaw's system. Recall from section 3.2.2 that process nominals allow for adverbial modification (cf. 6k) (*The total destruction of the city in two days appalled everyone.*). However, nouns are modified by adjectives rather than adverbs. I presume that an adverb(ial), say *in two days*, requires the projection of the verb in syntax. Interestingly, this issue is addressed in Borer's (1993) and Alexiadou's (2001) proposals, which I will present in sections 3.3.2 and 3.3.3 respectively.

Moreover, in my opinion, the projection of the prenominal genitive in process nominals is the second weak point in Grimshaw's (1990) analysis, as Grimshaw (1990: 63) does not fully account for this projection into syntax. In particular, notice that the agent is optionally realised, either as the prenominal genitive *the enemy's* in (7a) (*the (enemy's) destruction of the city*), or as the PP *by the enemy* in (7b) (*the destruction of the city (by the enemy)*). This observation leads Grimshaw (1990: 109) to the conclusion that agentive genitives are similar to *by*-phrases in that they receive the θ-role of agent. However, this θ-role is suppressed in both phrases. As regards the assignment of the external θ-role of agent, and its subsequent suppression by (Ev), Grimshaw (1990: 107) proposes that this θ-role is projected as an *argument-adjunct*. When the suppressed external θ-role is projected through a *by*-phrase, i.e. the PP *by the enemy*, in an adjunct position (cf. 7b), this projection is perfectly accommodated within the theoretical framework of X-bar theory. Yet, when the suppressed external θ-role is projected through a prenominal genitive *the enemy's* in DP-subject position,

i.e. SpecDP, (cf. 7a), the non-argument status of this argument-adjunct genitive requires the assumption that SpecDP is an A'-position in English.

Recall from section 2.4.1 that, in Abney's (1987) view, SpecDP is analogous to SpecIP in English. Since SpecIP is an A-position, SpecDP is analogously an A-position. An obvious question to ask is how the argument position SpecDP can be the host of the argument-adjunct, which is not an argument. Contrary to Abney's view, Grimshaw (1990: 111) assumes SpecDP to be an A'-position, which can only host a non-argument. This leads to the conclusion that Grimshaw regards SpecDP as equivalent to SpecCP, and not to SpecIP, in English. Following Abney's account, I have assumed that SpecDP is an A-position in English (see sections 2.4.1 and 2.4.2). This assumption entails that, under Abney's analysis, SpecDP is a θ-position in (3e) (*the enemy's destruction of the city*), and a non-θ-position in (3c) (*the city's destruction by the enemy*). In contrast, under Grimshaw's analysis, SpecDP is not a θ-position in any case. In the following, I will show that SpecDP is a θ-position, and, therefore, Grimshaw's account is explanatory inadequate.

The implications of the assumption that SpecDP is analogous to SpecCP in English seem to be corroborated by Grimshaw's (1990: 80) claim that passive nominals like (3c) (*the city's destruction by the enemy*), are result nominals, which do not license argument structure. In her analysis, the prenominal genitive *the city's* is not the internal argument of the derived nominal *destruction*. This is justified in Grimshaw's system, since, in her view, SpecDP is an A'-position in English. In addition, the PP *by the enemy* is a modifier of the result nominal *destruction* (see Grimshaw, 1990: 88). In contrast, the same PP *by the enemy* is an argument-adjunct in nominal expressions like (3e/7b) (*the destruction of the city by the enemy*). In Grimshaw's (1990: 137) proposal, the noun *destruction* in (3e/7b) must be rated as a process nominal with an obligatory internal argument.

However, consider the derived nominal *development* in the sentence *The city's development in a month amazed everyone*. This derived nominal is a process nominal because it is modified by the PP *in a month*. The process nominal assigns the θ-role of patient to its internal argument obligatorily. Since the patient is not suppressed, the prenominal genitive/possessive *the city's* is not an argument-adjunct, but a syntactic

argument which, in Grimshaw's (1990) account, is base-generated in SpecDP. As a consequence, SpecDP is an A-position in English, contrary to her proposal.

Nonetheless, Grimshaw's (1990: 89) account of passive nominals as result nominals is also justified with respect to the defective θ-marking properties of nouns. In Grimshaw's (1990: 46, 71) system, nouns need the preposition *of* to assign the internal θ-role to their syntactic complements. It follows from this stipulation that passive-like DP-movement is excluded in derived nominals. If the DP *the city* were base-generated in complement position, but had to move to SpecDP to get Case due to the lack of the preposition *of*, this DP would have failed to receive the internal θ-role for the same reason. Then the θ-criterion would be violated. The question that arises is how the θ-role of patient is assigned to SpecDP, when the process nominal *destruction* occurs in sentences like *The city's destruction by the enemy took a long time*. I come back to this point in section 3.3.3.

The third problem in Grimshaw's (1990) analysis regards the projection of passive nominals like (3c) (*the city's destruction by the enemy*). Recall from section 3.2.2 that, when the possessive *John's* is interpreted as the examinee in (5b) (*John's examination was long.*), Grimshaw (1990: 91, 92) suggests that this possessive is part of the lexical conceptual structure (lcs) of the derived nominal *destruction*. For further clarification of this assumption, consider Grimshaw's (1990: 91) examples in (10):

(10) (a) *John's* murder
(b) *John's* dog

In (10a), the prenominal genitive *John's* is connected to the meaning of the noun *murder*. In Grimshaw's terms, this genitive is an lcs-complement, but not a syntactic argument, of the head noun. In (10b), the noun *dog* does not have an argument structure, and therefore the possessive *John's* is not its lcs-complement. In Grimshaw's terms, this possessive is a modifier of the head noun. As the distinction is rather lexical than syntactic, Grimshaw's (1990) analysis simplifies the projection of passive nominals into syntax.

My criticism lies in Grimshaw's (1990: 46, 80) claim that passive nominals are result nominals. Since, in her account, the prenominal genitive/possessive *the city's* is not the internal argument of the passive/result nominal *destruction* in (3c) (*the city's destruction by the enemy*), this genitive/possessive occupies SpecDP without DP-movement. This leads to the conclusion that the prenominal genitive/possessive *the city's* is base-generated in the position of possessors. Although this account complies with the principles of X-bar theory, the semantic distinction in (10) is not reflected in syntax.

Furthermore, Grimshaw (1990: 46, 73) argues that derived nominals which select sentential complements are also result nominals, because the noun head cannot assign the internal θ-role without the help of the preposition *of*. Consider Grimshaw's (1990: 74) example in (11):

(11) *The announcement (that the position had been filled)* was a surprise.

In (11), the derived nominal *the announcement* optionally selects the embedded clause *that the position had been filled* as its syntactic complement. As a non-θ-assigner, the derived nominal *the announcement* is a result nominal which does not license argument structure. As a consequence, it does not obligatorily take an internal argument. As the CP *that the position had been filled* specifies the content of the result nominal *announcement*, it is part of its lexical conceptual structure (lcs). However, consider the derived nominal *announcement* in the sentence *The announcement that the position had been filled took a long time*. Once again, this noun receives a process reading, which contradicts Grimshaw's (1990) analysis.

In conclusion, Grimshaw (1990) distinguishes PP-complements, which are arguments because they are assigned the θ-role of patient, from possessivised lcs-complements, which are part of the lexical conceptual structure of passive nominals, but not syntactic arguments. She also disassociates DP-subjects, which are argument-adjuncts, from possessives, which are modifiers. In Grimshaw's (1990) analysis, PP-complements are systematically arguments of process nominals. These arguments are consistently assigned the internal θ-role of patient through the preposition *of*. Furthermore, the external θ-role of agent is consistently realised by argument-

adjuncts, which systematically are either *by*-phrases or possessivised forms in SpecDP. Since process nominals license argument structure, they license arguments and argument-adjuncts.

In contrast, result nominals do not license argument structure. As a consequence, result nominals can be modified by either a PP-adjunct with the preposition *by* or a possessivised form in SpecDP. Nonetheless, Grimshaw's (1990) comparison of *by* phrases with the genitive in SpecDP collapses in passive nominals. In particular, the former can only be a modifier of a passive nominal, whereas the latter can only represent part of the lexical conceptual structure of a passive nominal. Not surprisingly, a derived nominal is determined to be what is called passive, by intrinsic lexical rules under the lexical analysis.

3.3.2. Borer's (1993) analysis

Borer's (1993) proposal accounts for the derivation of nouns as regards the relation of their morphological derivation with their syntactic derivation. Borer assumes that lexical entries are inserted into syntax as strings with their own morphological structure. Independently, the syntactic structure of lexical entries is the result of the syntactic environment in which these strings are inserted. Result nominals are inserted at D-structure, whereas process nominals are inserted at S-structure. Borer (1993: 3) argues that, whenever verbal features, like argument structure, are associated with a derived nominal, say *collection*, the syntactic representation of this derived nominal must include a full VP. This assumption holds for process nominals. Otherwise, the structural analysis of that derived nominal lacks such a verbal projection. This is the case with result nominals. Consider Borer's (1993: 8, 12) examples in (12):

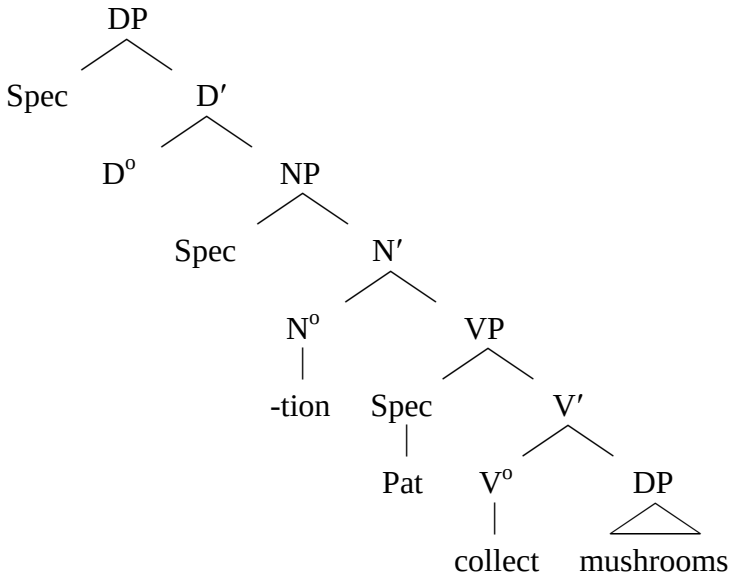
(12) (a) Pat's *collection* of mushrooms
(b) The *collection* was impressive.

In (12a), the derived nominal *collection* is a process nominal, which has the argument structure of the verb *collect* in a verbal construction such as *Pat collects mushrooms*. In contrast, the derived nominal *collection* is a result nominal in (12b), as the syntactic

arguments of the associated verb *collect* are not present. Interestingly, Borer (1993: 6) maintains that the derived nominal *collection*, either as a process nominal in (12a) or as a result nominal in (12b), does not license argument structure. She claims that licensing argument structure is a property of the associated verb, which is syntactically projected. According to Borer, the structural representation of process nominals includes the projection of a full VP, which is absent in the structural representation of result nominals.

In more recent approaches to the representation of nominals (see Alexiadou, 2001), the process which derives nominals by means of a nominalising affix is argued to be syntactic. According to this view, the suffixes are generated as separate units and then incorporated into lexical categories via syntactic operations such as head movement (see e.g. Baker, 1988, Roberts, 2001). In the spirit of this idea, Borer (1993: 10) assumes that the V^o *collect* in process nominals and the nominalising affix *-tion* are introduced separately at D-structure, as shown below in (13)[22]:

(13)



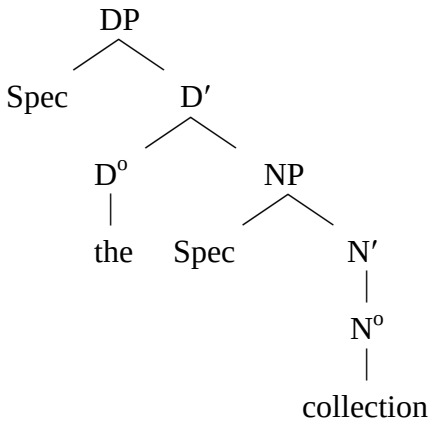
Notice that the VP in (13), which is embedded under the noun phrase at D-structure, is selected by N^o, which hosts the nominalising affix *-tion*. The verb *collect* is projected separately under V^o, which heads its own maximal projection VP. As noted

[22] At first, Borer (1993: 10) introduces this structural representation of the VP under the NP to account for the assignment of the external and internal θ-roles in process nominals. Later, Borer (1993: 46, 51) modifies this representation in order to account for the projection of a passive verb, which does not assign Case to its internal argument and does not project the agent in SpecVP.

above, Borer (1993: 6) argues that the presence of that VP licenses argument structure. Therefore, it is V^o that selects the external argument, i.e. *Pat* and the internal argument, i.e. *mushrooms*. It is the verb *collect* that assigns the θ-roles to them at D-structure. Consequently, when Move-α raises the verb *collect* to N^o, the derived nominal *collection* does not assign the external and internal θ-roles again. Otherwise, the θ-criterion would be violated. Therefore, process nominals are 'produced' at S-structure, but the θ-role assignment in this noun class takes place at D-structure. The VP-analysis accounts for the argument structure which is licensed in (12a) (*Pat's collection of mushrooms*).

In Borer's (1993: 8) view, the result nominal *collection* in (12b) (*The collection was impressive.*), is base-generated as the head (N^o) of a noun phrase (NP). The structural analysis of this result nominal is accommodated within the framework of X-bar theory and complies with the DP-hypothesis, as shown in the configuration in (14):

(14)



Notice that N^o in (14) selects no arguments, and lacks the VP which is selected by N^o in (13). Consequently, no θ-roles are assigned in (14), since N^o, according to Borer (1993: 6), is not a θ-assigner. However, the verb *collect* is projected along with the nominalising affix *-tion* under N^o at D-structure. Therefore, Move-α does not raise the verb *collect* to N^o.

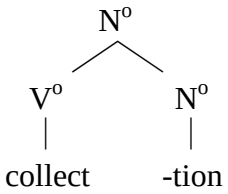
Under Borer's (1993) approach, both (13) and (14) project a head (N^o) of a noun phrase (NP). Therefore, N^o is consistently projected into a lexical head with the grammatical features [+N, –V] (cf. 2.2.1: 2). On this account, the nominal category of the derived nominal *collection* is determined in the lexicon. In contrast to Grimshaw

(1990), however, Borer (1993) assumes that the morphological process of combining the verb stem with the affix does not result in two different, but homophonous, lexical entries with the same morphological properties. On the contrary, Borer (1993: 7) claims that the outcome of this morphological combination is a single lexical entry. She terms the morphological structure of that lexical entry an *M-word*, which is independent of any syntactic operations. This one lexical entry is a process nominal when it has certain syntactic properties as represented in (13), but it is a result nominal when it has different syntactic properties as represented in (14).

In Borer (1988, 1991), and subsequent work, the issue of the morphology/syntax interface is addressed through the model of *Parallel Morphology (PM).* In general, Borer (1991: 135) develops the idea that each component of grammar processes its own structures and operations in a *parallel* way. This means that the relevant aspects of different components, e.g. morphology and syntax, are available simultaneously. Consequently, the result of morphological operations, say the noun *collection*, can be inserted under N^o at different levels of representation, viz. D-structure or S-structure/LF/PF.

According to Borer (1991: 136, 1993: 8), the derived nominal *collection* has the morphological structure illustrated in (15):

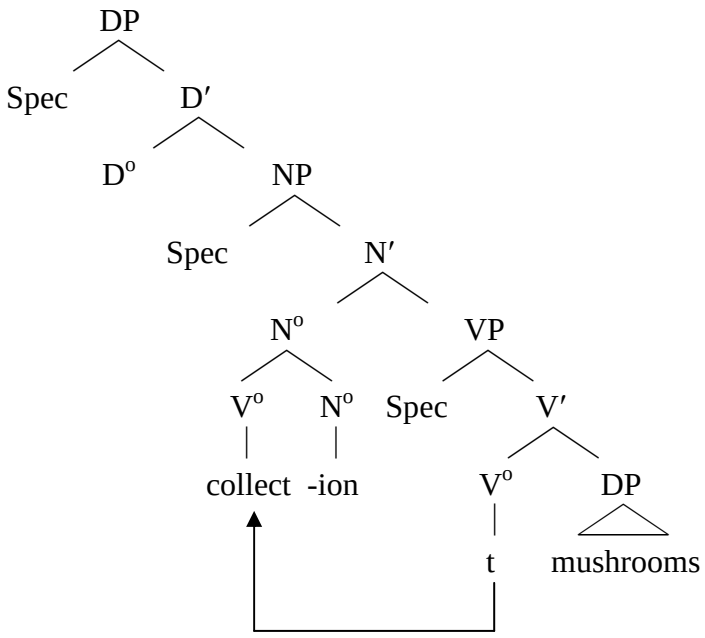
(15)



In (15), the verb stem *collect* combines with the nominal affix *-tion* to create a lexical entry, i.e. the noun *collection*. This is the representation of the morphological process. The product of this process can be inserted in, or, in other words, associated with, a syntactic configuration whenever syntax provides a representation which 'fits' this structure. The association of the morphological structure with the relevant syntactic environment can happen before or after syntactic projection. When (15) is inserted before syntactic projection, the outcome is a result nominal, since (15) is associated with a complex noun whose parts do not project. When lexical insertion happens after

projection, the structure includes a VP, since V projects first and then moves. The outcome of this syntactic movement resembles (15), and derives a process nominal, as shown in (16):

(16)



The core idea, which is developed in Borer's (1991) work on Parallel Morphology, is that the morphological derivation of nouns has its own constraints, regardless of the restrictions of the syntactic derivation of these nouns. In this sense, Borer's (1993) theory on derived nominals reduces the tension between the lexicon and syntax. Moreover, the presence of a VP in process nominals accounts for the verbal properties this type of nominals exhibits. One of these properties is aspect (cf. 3.2.2: 6k) (*The total destruction of the city in two days appalled everyone.*).

Borer (1993: 22-6) claims that her account gains support from the evidence that adverbial modification of a process nominal and the assignment of accusative Case to the complement of a process nominal are allowed in Hebrew. Consider Borer's (1993: 25) examples in (17):

(17) (a) pinui ha-cava *be-'itiyut*[23] *'et*[24] ha-mitnaxlim
evacuation the-army slowly ACC the-settlers
'the army's slow evacuation of the settlers'

(b) pinui ha-cava *ha-'iti* *'et* ha-mitnaxlim
evacuation the-army the-slow ACC the-settlers
'the army's slow evacuation of the settlers'

In both (17a & b), the accusative marker *'et* provides evidence for the projection of a verb. It is this verb that assigns accusative Case, because nouns do not assign Case. Since, according to Case theory, structural Case is assigned at S-structure, *'et* must be licensed by the trace of the verb, after the verb is raised to N^o. Furthermore, the presence of a VP is signalled by the adverbial phrase *be-'itiyut* 'slowly' in (17a). Notice that the same noun is modified by the adjectival phrase *ha-'iti* 'the-slow' in (17b). In a structure such as (13/16), the adverb is adjoined to VP, while the adjective modifies the NP. Note that both the NP and the VP are part of the DP. This is an advantage to Borer's (1993) account of the derivation of process nominals, since the presence of adverbials and accusative Case in Hebrew process nominals cannot be explained by a theory such as Grimshaw's (1990), which does not project the source verb of a process nominal.

In contrast, a process nominal in Hebrew does not always assign accusative Case, as is shown by the absence of *'et* in Borer's (1993: 34, 36) example in (18):

(18) (a) ha-hoxaxat Sel ha-te'ana ('al yedey ha-matematika'it)
the proof of the claim by the mathematician
'the proof of the claim (by the mathematician)'

[23] According to Siloni (1997: 76-7), the adverbial phrase *be-'itiyut* 'slowly' literally means 'in slowness'. Note that process nominals in Hebrew are only modified by PP-adverbial phrases. In contrast, adverbs like *le'at* 'slowly' never do so.
[24] According to Siloni (1997: 84), the accusative marker *et* appears in Hebrew when a verb selects a definite object, but not with indefinite objects. The same applies to the process nominal which is derived from that verb.

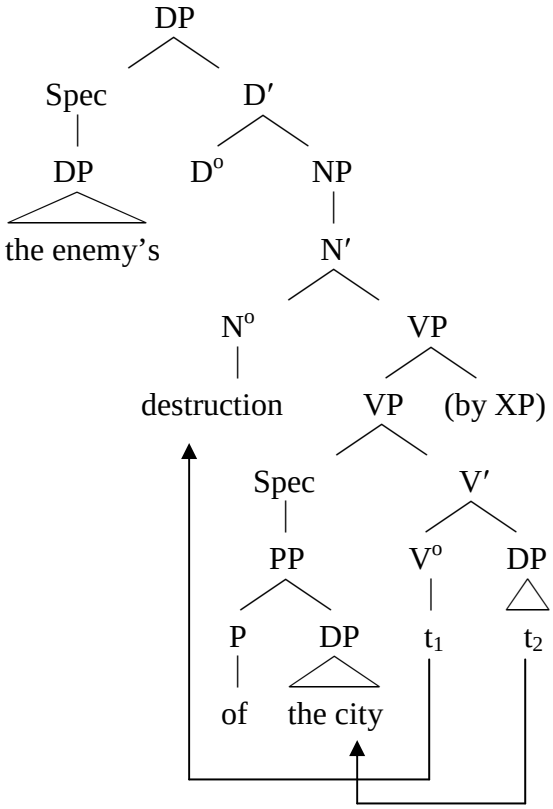
(b) *ha-hoxaxat 'al yedey ha-matematika'it
the proof by the mathematician
'the proof by the mathematician'

In (18a), the noun head *ha-hoxaxat* 'the proof' does not assign accusative Case to its complement *Sel ha-te'ana* 'of the claim'; hence *Sel* 'of' is inserted to satisfy the Case Filter. Borer (1993: 35-6) argues that the VP, which is included in the structure of the process nominal *ha-hoxaxat* 'the proof' in (18a), is passive and, therefore, it cannot assign accusative Case to its internal argument. This assumption is reinforced by the optional occurrence of the *by*-phrase *'al yedey ha-matematika'it* 'by the mathematician' in (18a), which is permissible in Hebrew only when the internal argument is present; hence (18b) is ill-formed. In contrast, the process nominal *pinui* 'evacuation' in (17) is not passive, whereas, in Borer's (1993: 21) account, the process nominal *ha-hoxaxat* 'the proof' in (18a) is passive.

However, recall from section 2.3.1 that complements of nouns in English-type languages can only receive Case via *of*-insertion. Since English process nominals like (12a) never assign accusative Case to their complements, Borer (1993: 53) assumes that the VP embedded under NP is always passive in English. As a consequence, the external argument of the verb is suppressed. Consequently, the logical subject optionally occurs pre-nominally, as the genitive *the enemy's* in (7a) (*the (enemy's) destruction of the city*). Alternatively, the logical subject may occur post-nominally in the form of an adjunct *by-phrase*, viz. the PP *by the enemy* in (7b) (*the destruction of the city (by the enemy)*).

The structural representation of process nominals in (13), therefore, only applies to Hebrew process nominals which include a non-passive VP, like (17). When a Hebrew or English process nominal includes a passive VP, like (18a) or (7), the external argument is suppressed. Borer (1993) argues that SpecVP is never filled by the agent in English process nominals, because the VP is passive. As a result, SpecVP is a non-θ-position. Consider Borer's (1993: 51) S-structure representation of the process nominal in (7a) (*the (enemy's) destruction of the city*), as follows in (19):

(19)



Notice that the internal argument of the verb is moved to SpecVP, where it is assigned genitive Case by insertion of the preposition *of*, which is licensed by N°. Therefore, there is no reason why it should be further raised to SpecDP to get Case. Moreover, SpecNP is not projected. Note that, in Borer's (1993) analysis, SpecDP is consistently a Case-assigner, but not a θ-assigner. Borer proposes that, because the agent *the enemy* is suppressed, it is not projected at D-structure inside the VP at all. Instead, it is base-generated under SpecDP in the form of a prenominal genitive, i.e. *the enemy's*, as illustrated above. Alternatively, (7b) (*the destruction of the city (by the enemy)*) would project the agent inside a *by*-phrase adjoined to the right of VP, like in passive clauses (see section 2.3.3: 35). In that case, D° typically hosts the determiner *the*.

Recall from section 2.4.1 that, in English, SpecDP is a θ-position when it is occupied by a base-generated DP-subject, which must receive the θ-role of agent. Nevertheless, according to Borer (1993), SpecDP is not a θ-position although the prenominal genitive *the enemy's* is base-generated in this DP-subject position. Borer (1993: 52) avoids a violation of the θ-criterion by relating this genitive/possessive with the suppressed agent in the same way a dislocated element, which is located in SpecCP, is related with an argument. Consider Borer's (1993: 51) examples in (20):

(20) (a) *My sister*, I don't invite *her* anymore.

(b) **My sister*, I don't invite *guests* anymore.

(c) *The Vandals'* destruction of Rome

(d) **John's* destruction of Rome *by the Vandals*

Notice that, when the argument is projected as the pronoun *her* in (20a), it is coindexed with the dislocated element *my sister*, which is base-generated under SpecCP. Similarly, when the suppressed agent is not realised as a *by*-phrase in (20c), the agentive genitive *the Vandals'* is base-generated under SpecDP. In contrast, the dislocated element *my sister* in (20b) is disallowed because it is not coindexed with the argument *guests*. Similarly, the possessive *John's* in (20d) is not coindexed with the external θ-role of agent, which is realised through the PP *by the Vandals*; hence (20d) is ungrammatical. These observations lead Borer (1993) to assume that SpecDP is an A′-position, and consequently a non-θ-position in English. Yet, I have already criticised this assumption, at least as far as English is concerned (see section 3.3.1).

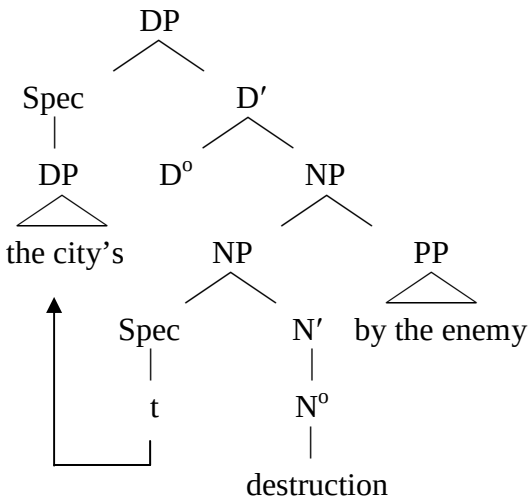
Recall from section 3.3.1 that a derived nominal may select a sentential complement like in (11) (*The announcement (that the position had been filled) was a surprise.*). It follows from the foregoing discussion that, when the noun *the announcement* occurs in a construction with the embedded clause *that the position had been filled*, this derived nominal is a process nominal, which takes an internal argument obligatorily. This means that the projection of a VP, which is, according to Borer (1993), included in process nominals, accounts for the selection of the CP by the V^o that heads the VP. Therefore, the verb *announce*, which assigns the internal θ-role to the clause, takes the internal argument obligatorily. In contrast, when the noun *the announcement* occurs in a construction without a complement, this derived nominal is a result nominal, which does not license argument structure due to the lack of a VP-projection.

Nevertheless, the meaning of the derived nominal *announcement* in (11), with or without a sentential complement, seems to be that of a result nominal, since it refers to an end-product rather than a process or event (see Alexiadou (2001: 13) for the discussion of the problem on the basis of cross-linguistic data). Here, the structural representation of its derivation as a process nominal, due to the selection of a CP-

complement, contradicts the fact that only the semantic analysis of this noun as a result nominal is relevant. My criticism against Borer's (1993) approach lies in that her proposal predicts that the derived nominal *announcement* in (11) is a process nominal, but it is undoubtedly a result nominal. Interestingly, the issue of result nominals being able to take internal arguments is raised along with the criticism of this contradiction, in Alexiadou's (2001: 20, 59) proposal, which I will present in section 3.3.3.

Furthermore, Borer (1993: 57) follows Grimshaw (1990: 80) and claims that constructions like (3c) (*the city's destruction by the enemy*), which are traditionally called passive nominals, are result nominals. In Borer's theory, result nominals do not project a VP, which would be subject to passivisation. Therefore, Borer associates the passive with the VP in process nominals like (7a) (*the (enemy's) destruction of the city*) and (7b) (*the destruction of the city (by the enemy)*). It follows from Borer's stipulation that there is no passive-like DP-movement in derived nominal expressions like (3c). Moreover, the prenominal genitive *the city's* in (3c) is not the internal argument of the associated verb. On this account, the prenominal genitive *the city's* is rather possessive. It is not agentive or associated with the patient. Borer also posits that, as opposed to process nominals, result nominals do project SpecNP, which hosts the possessor. Therefore, in Borer's system, the S-structure representation of the passive/result nominal in (3c): (*the city's destruction by the enemy*) is the following:

(21)



In (21), the result nominal *destruction* does not include a VP projection. The possessor is base-generated in SpecNP and then moved to SpecDP to get genitive Case. Note that the PP *by the enemy* is adjoined to the right of the NP in the same way as it is adjoined to the right of the passive VP (see section 2.3.3: 35). This means that Borer's (1993) analysis of passive nominals involves a parallel between the projection of *by*-phrases in nominal expressions and the typical projection of *by*-phrases in the passive. This is an advantage to Borer's account of the derivation of passive nominals, because they may entail passive-like adjunction even though they do not involve passive-like movement, due to the lack of a VP-projection.

Note that, albeit from different points of view, Grimshaw (1990) and Borer (1993) agree that passive nominals like (3c) are result nominals. Grimshaw maintains that passive/result nominals do not license argument structure. Borer argues that passive/result nominals do not project a VP. According to both of these two models, the prenominal genitive *the city's* is base-generated in SpecDP as the possessor rather than the patient. Therefore, this prenominal genitive/possessive is not base-generated in complement position and then moved to SpecDP. In both systems, the *by*-phrase *by the enemy* is a modifier projected in an adjunct position.

Admittedly, the autonomy of the different components, which are involved in the derivation of nouns, provides Borer's (1993) proposal with a balance between lexical and syntactic accounts. In my opinion, however, there are three weak points in this analysis. Firstly, as noted above, the process reading of (11) (*The announcement that the position had been filled was a surprise.*) requires the syntax of process nominals, but has the semantics of result nominals. Similarly, the possessive reading, instead of the patient reading, of the prenominal genitive *the city's* in (3c) (*the city's destruction by the enemy*) is not plausible. Nonetheless, the possessive form of this genitive perfectly matches with the syntactic environment created in (21).

Secondly, according to Borer's (1993) approach, passive-like movement is excluded in passive nominals like (3c). Likewise, a VP, which might be passive, is also excluded in this noun class. Conversely, the projection of a full VP may involve passive movement in process nominals like (7a) (*the (enemy's) destruction of the city*)

(cf. 19). Yet, such process nominals typically receive an active interpretation. In my opinion, Borer's assumptions, in this regard, are self-contradictory. In addition, the implications of the VP-projection bring about a third weak point in Borer's (1993) system. As noted earlier, defending a non-thematic SpecDP in (19), as a consequence of the passivisation of the embedded VP, is undesirable in English.

3.3.3. Alexiadou's (2001) analysis

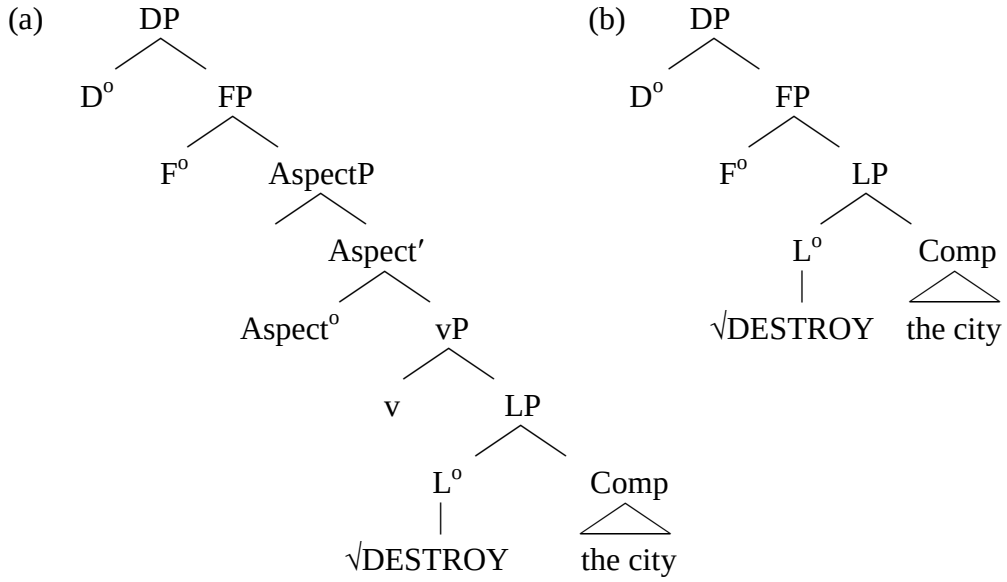
Alexiadou's (2001) proposal accounts for the derivation of nouns as regards the structural representation of this derivation. Following Marantz (1999), Alexiadou (2001: 7, 16) suggests that lexical entries are projected into syntax as category-free abstract roots carrying lexical information (L^o). Then, they are introduced into certain functional domains, where they are combined with certain functional heads yielding category-specific phrases. Recall from section 2.5 that according to Marantz (1999: 7, 18), the categorial feature specification of an abstract lexical root (√) is determined by the functional structure above that root. This means that different functional layers create different categories.

According to Alexiadou (2001: 10), derived nominals are not given their verbal properties by a lexical category (i.e. VP). On the contrary, any such properties, like denotation of the process of an event, are associated with a set of *functional* nodes (i.e. vP and AspectP), which are standard in the structural representation of clauses. In Alexiadou's view, process nominals include the projection of AspectP and vP, whereas result nominals lack these projections. However, although Alexiadou's (2001: 16) analysis is based on the theoretical framework of Distributed Morphology (DM), Marantz's (1999: 7) category-determining functional head n^o is not adopted in Alexiadou's (2001: 19) system. Instead, it is D that determines the category of the abstract lexical root (√). Therefore, under Alexiadou's approach, the nominal category of a derived nominal, e.g. *destruction*, is determined in syntax.

Recall from section 2.5 that, within DM, morphological processes interact with syntactic operations. On this view, the ambiguity between process and result nominals is accounted for as the same suffix is combined with the same root at a lower or

higher position, depending on the functional projections, which are involved in the derivation. These projections determine the status of a derived nominal. Under Alexiadou's (2001: 19) approach, the structures of the two noun classes are as shown respectively in (22a & b):

(22) Process nominals Result nominals



Notice that, in both configurations in (22), the main domain in which the abstract lexical root √*DESTROY* is introduced is nominal, due to the functional head D°. We will always derive a noun, but with different properties, depending on what happens between DP and √. Note that in Alexiadou's (2001: 19) system the nominal functional head F° hosts φ-features such as Number or Agr. Also, notice that the lexical head L°, which hosts the unspecified lexical root √*DESTROY* in both (22a & b), is uniformly allowed to select the complement *the city*. Under Alexiadou's (2001: 10) analysis, all nouns can have complements.

Ordinarily, when L° merges with v° and, subsequently, with Aspect°, this combination of lexical and functional heads is embedded under TP. It is the category T which produces a verb (see section 2.4.3). However, when a nominalising affix attaches to a root (√) inside the domain of that root, this attachment takes place in syntax below v° and Aspect°. This means that the affix attaches to the root (√) inside the lexical domain, viz. under LP. Then, L° first merges with v° and Aspect°, which equip L° with verbal properties, but do not produce a verb. Then, this structure is embedded

under D/Num (see section 2.4.2), and is first merged with Num and then with D, which produces a noun. For instance, when the affix *-tion* attaches to the root √*DESTROY* in this way, the outcome is the derived nominal *destruction*, which has verbal properties; hence it is a process nominal. In contrast, when the nominalising affix *-tion* attaches to the root √*DESTROY* outside the domain of that root, this attachment takes place in syntax above this root (√). This means that the attachment takes place in the functional domain. Yet, L^o does not merge with the verbal functional nodes v^o and $Aspect^o$, and is embedded directly under D/Num. The outcome is the derived nominal *destruction*, which lacks verbal properties because it lacks v^o and $Aspect^o$; hence it is a result nominal.

Following Williams (1981a), Alexiadou (2001: 23: fn7) argues that all derived nominals, whether process or result nominals, have an argument structure. Williams (1981a: 81, 90) claims that when a nominalising affix is attached to a verb, this morphological process changes the argument structure of that verb. Therefore, the morphological combination, i.e. the derived nominal, has an argument structure, which, however, is different, in some respect, from the argument structure of the related verb. In Alexiadou's (2001: 20) view, as the abstract lexical root √*DESTROY* subcategorises for a logical object (see section 2.3.2), the derived nominal *destruction* licenses argument structure, and can take an internal argument, before L^o is embedded under D^o. Alexiadou (2001: 10) assumes that all nouns have an argument structure. Such an analysis accounts for the internal CP-argument found within result nominals, like (11) (*The announcement (that the position had been filled) was a surprise.*).

In particular, the two configurations in (22) differ in that the configuration in (22a) includes two *verbal* functional projections, namely vP and AspectP, which the configuration in (22b) lacks. According to Alexiadou (2001: 66-7), these verbal functional projections signal event structrure, which is responsible for licensing argument structure obligatorily. Recall from sections 2.3.2 and 3.3.1 that the participants of an event, which is denoted by a verb or a process nominal, must be projected as syntactic arguments. Therefore, vP and AspectP enforce the obligatory projection of the internal argument in clauses and process nominals. This means that the derived nominal *destruction* takes the internal argument obligatorily when it is a process nominal because of vP and AspectP, like a verb takes the internal argument

obligatorily because of vP and AspectP. In contrast, the derived nominal *destruction* takes the internal argument optionally when it is a result nominal, due to the lack of vP and AspectP. When these verbal functional nodes are not present, nothing enforces the obligatory projection of the internal argument. As part of the lexical information, which is carried by L^o, the complement may or may not appear, without violating any syntactic principles.

Following Chomsky (1995), Harley (1995) and Kratzer (1994), among other researchers, Alexiadou (2001: 17) considers v to host features which are associated with an event reading, and with licensing an external argument as well as Case assignment. Recall from section 2.4.3 that the grammatical feature specification of v is [±active]. This leads to the conclusion that v may have different features. Note that v always bears an event interpretation. When v has the feature [+active], v licenses an external argument and assigns Case, yielding an active verb. In contrast, when v has the feature [-active], v does not license an external argument and does not assign Case, yielding an ergative verb. Nevertheless, when the feature of v is [-active], v may contain features relevant to the interpretation of an external argument, but it also does not assign Case, yielding a passive verb.

Since nominal predicates do not assign Case to their complements and do not assign the external θ-role obligatorily, Alexiadou (2001: 18) assumes that process nominals have a deficient type of v, which is projected by unaccusative (viz. ergative/passive) predicates. Such an account suggests that constructions with process nominals are subject to Burzio's Generalisation (see section 2.3.3). In this respect, Alexiadou's proposal is like Borer's (1993) analysis of process nominals with a VP which may be passive. In conclusion, according to Alexiadou's theory, the derivation of nouns may or may not include the projection of vP. If it does, the properties of the nominal, as regards the assignment of Case and θ-roles, depend on the combination of the properties of v.

Also recall from section 2.4.3 that Aspect has the grammatical features [±habitual, ±progressive, ±perfective]. For example, when the process nominal *destruction* denotes a completed event, this process nominal projects the functional category Aspect with the feature [+perfective] (cf. 3.2.2: 6k) (*The total destruction of the city*

in two days appalled everyone). Note that the PP *in two days* is a time adverbial. Recall from section 3.3.2 that, according to Borer (1993) adverbial modification in Hebrew process nominals provides evidence that this noun class includes a verbal projection, notably a VP.

According to Alexiadou (2001: 15), the adverbial modification of process nominals is also possible in Greek. In contrast, result nominals do not permit adverbs, as is illustrated below. Consider Alexiadou's examples in (23):

(23) (a) i katastrofí ton egráfon *prosektiká/me prosohí*[25]
the destruction the-GEN documents-GEN carefully/with care
'the careful destruction of the documents'

(b) *i katastrofí *prosektiká*
the destruction carefully
'the careful destruction'

In (23a), the internal argument *ton egráfon* 'of the documents' receives genitive Case, which is typical of arguments of nominal expressions, and the process nominal *katastrofi* 'destruction' is modified by the adverb *prosektika* 'carefully', which is typical of verbal constructions. In contrast, (23b) is ungrammatical because this adverb is disallowed with the result nominal *katastrofi* 'destruction', which requires an adjectival modifier. Although, Alexiadou (2001) acknowledges the verbal properties of process nominals, she does not adopt Borer's (1993) VP-analysis. Instead, she suggests a vP-analysis.

In my opinion, there are two assets in Alexiadou's (2001) proposal. Firstly, nouns behave as systematically as verbs do, regarding their insertion into syntax. Nouns as well as verbs uniformly enter syntax as lexical entries, which are abstract roots unspecified for syntactic category. The category of a lexical entry is syntactically determined by the functional features which are projected above that lexical entry.

[25] In contrast to Hebrew, Greek allows adverbial modification by either an adverb, e.g. *prosekiká* 'carefully', or a PP, e.g. *me prosohí* 'with care'.

According to Alexiadou (2001: 16) the number and the type of the functional projections above the derived nominal *destruction* determine whether this noun is a process or a result nominal. Secondly, the relationship between the morphological derivation of nouns and the structural representation of this derivation is interactive. Under such an approach, the lexicon provides lexical information, which comes into relation with grammatical features after the insertion of a lexical entry into syntax. The combination of morphological structures with functional nodes is then enforced by syntactic movement.

Consider the example in (3a/7a, 3e/7b, and 3c) repeated here as (24) for further discussion):

(24) (a) *the (enemy's)* destruction of the city
(b) the destruction of the city (*by the enemy*)
(c) *the city's* destruction (*by the enemy*)

In (24), the derived nominal *destruction* is a process nominal. Recall from sections 3.3.1 and 3.3.2 that, according to Grimshaw (1990) and Borer (1993), passive nominals, like (24c), are result nominals. However, in Alexiadou's (2001: 90, 92, 97) hypothesis, the derived nominal *destruction* is an event/process[26] nominal even in (24c). This means that, in all of the three constructions in (24), the noun *destruction* includes the functional projections vP and AspectP. Note that v comes with the feature [-active]. As a consequence, v does not assign the θ-role of agent. However, the semantic specification of the lexical root √*DESTROY* involves the *agent/causer* of the event. The question that arises is when and how this causer is projected according to Alexiadou's (2001) view. In English, the external θ-role can be realised through a possessive/genitive form in the functional domain yielding (24a). Alternatively, it may be realised through a *by*-phrase in the lexical domain of the root √*DESTROY*, yielding (24b or c). The first option requires a functional node (i.e. D), whereas the second option requires a lexical node (i.e. P).

[26] Alexiadou (2001: 10) uses the terms *event* and *process nominals* interchangeably, as opposed to the term *result nominals.*

Firstly, in Alexiadou's (2001: 153, 155) system, the external argument is introduced by D in (24a). Given that SpecDP may or may not be filled (see section 2.4.1), the DP-subject *the enemy's* is optionally projected in SpecDP as an argument. This assumption complies with Abney's (1987) view of SpecDP as an A-position in English (see section 2.4.1). Alexiadou (2001: 156) points out that constructions like (24a) are not possible in Greek because SpecDP is an A'-position in Greek (see section 2.4.2). Therefore D does not introduce the external argument in process nominals in Greek-type languages.

Besides, Alexiadou (2001: 153) maintains that the type of agent in English process nominals, which include a v with the grammatical feature [-active], is not the type of agent that one finds in active sentences with transitive verbs, which include a v with the grammatical feature [+active]. Since in transitive verbs [+active] v assigns the θ-role of agent, the external argument is base-generated in SpecvP. Since in English process nominals [-active] v does not assign the θ-role of agent, the external argument is not base-generated in SpecvP. Instead, it is introduced by D, and therefore it is base-generated in SpeDP.

Moreover, even English-type languages manifest restricted distribution of such nominalisations. Consider Alexiadou's (2001: 80) examples in (25):

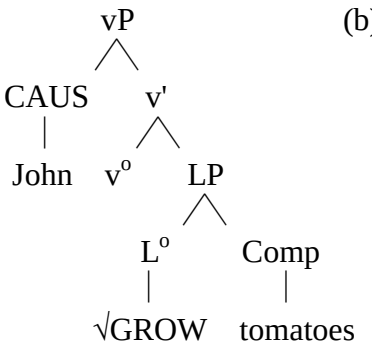
(25) (a) *John's growth of tomatoes
(b) the growth of tomatoes

In (25a), the prenominal genitive *John's* is disallowed; hence (25a) is ungrammatical. This means that no agent is projected in SpecDP. Therefore, (25b) is grammatical without the agent *John*, which is excluded by the determiner *the*. The derived nominal *growth* stems from the verb *grow*, which may be either causative or unaccusative. Consider Chomsky's (1970: 192, 215) examples in (26):

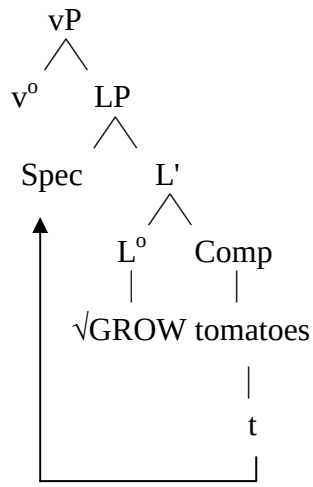
(26) (a) John grows tomatoes.
(b) Tomatoes grow.

Notice that, in (26a), the causative verb *grows* assigns an external θ-role, i.e. the agent *John*. In contrast, in (26b), the unaccusative verb grow does not assign an external θ-role. According to DM-theory, the structural representation of (26a & b) is the following in (27a & b) respectively:

(27) (a)



(b)



In (27a), the abstract lexical root √*GROW* is first combined with the functional category v, and then with the functional node CAUS[27], which yields the causative verb *grow* in (26a). Marantz (1999) suggests that this verb is created above little v, i.e. in the functional domain, and projects the external argument *John*, which is introduced by the type of v with the feature specification [+active]. In contrast, the unaccusative verb *grow* in (26b) is created below little v, i.e. in the lexical domain, and merges with the type of v with the feature specification [-active]. Therefore, the unaccusative verb *grow* in (27b) does not project an external argument.

It follows from the discussion above that the agent is present as a result of the semantics of the lexical root (√) and the feature specification of v. Alexiadou's (2001: 18) assumption that process nominals project a deficient v accounts for the derivation of the noun *growth* from the unaccusative, and not from the causative, verb *grow*. When the nominalising affix *-th* is attached to the lexical root √*GROW*, this attachment takes place in the lexical domain, i.e. below v and Aspect. Therefore, the process nominal *growth* is created below little v like the unaccusative verb *grow*.

[27] CAUS: causative

According to Alexiadou (2001: 80), constructions like (24) are grammatical in English, with process nominals which are derived from causative verbs like *destroy*, but ungrammatical with process nominals which are derived from unaccusative verbs like *grow* (see Marantz, 1997). Interestingly, Alexiadou (2001: 7, 154-155) points out that the semantic specification of the lexical root √*DESTROY* involves a change of state which requires an external *causer*. Since this external causer is not projected by the deficient v in process nominals, the agent can be introduced by the thematic D in English. In contrast, the semantic specification of the lexical root √*GROW* involves a change of state which does not involve an external causer. Since the agent is not present, there is no external argument which could be introduced by the thematic D in English.

Secondly, in nominal expressions like (24b) (*the destruction of the city (by the enemy)*) and (24c) (*the city's destruction (by the enemy)*), the agent is optionally projected through a *by*-phrase, namely the PP *by the enemy*, in an adjunct position. Since the derived nominal *destruction* in (24b & c) is a process nominal, as noted earlier, it includes a deficient v, which fails to assign the external θ-role of agent. In Alexiadou's (2001: 166: fn20) theory, there is no suppressed argument. Consequently, the θ-role of agent is not absorbed by the nominalising affix *-tion*, as opposed to the passive morpheme *-en* in Jaeggli's (1986) account of passives (see section 2.3.3). Therefore, the preposition *by* does not *transmit* the external θ-role to its complement DP *the enemy* contained in the *by*-phrase. According to Alexiadou, in nominal expressions, the preposition *by*, instead, assigns the external θ-role to its complement.

This assumption gains support from Rappaport's (1983) observation that the range of meanings a *by*-phrase can have in derived nominals is limited, in comparison with the range of meanings the same *by*-phrase can have in passive sentences. Following Fox and Grodzinsky (1998), Alexiadou (2001: 116) argues that the semantic properties of the preposition *by* in the *by*-phrase enable it to assign the θ-role of agent to its complement in the PP *by the enemy*. These properties are only associated with an agent, an instrument, or a creator. In contrast, a *by*-phrase in a verbal passive may be interpreted as the goal. For instance, consider Alexiadou's (2001: 116) examples below in (28):

(28) (a) The package was received *by John*.

(b) *the receipt of the package *by John*

In (28a), the external θ-role of goal is absorbed by the passive morpheme (-en), and then it is transmitted to the DP *John* through the preposition *by*. Yet, in (28b), this is not possible because there is not a suppressed argument. Therefore, the θ-role of goal is not transmitted. In addition, the semantic specification of the preposition *by* does not license the θ-role of goal; hence (28b) is ungrammatical.

It follows from the foregoing discussion that, in English, the agent may be introduced by either the *functional* category D or the *lexical* category P. One might criticise such an analysis as inconsistent. However, the abstract lexical root (L) always carries the full range of its lexical information rather than part of it. In Alexiadou's (2001) architecture of derived nominals, whether this information is mapped onto functional projections above the lexical domain or onto lexical projections within that domain is the result of syntactic variation within a language as well as cross-linguistically.

Furthermore, the internal argument of the lexical root √*DESTROY* is projected as the complement of L^o through *of*-insertion (see section 2.3.1) in constructions like (24a) (*the (enemy's) destruction of the city*) and (24b) (*the destruction of the city (by the enemy)*). However, notice that, in constructions like (24c) (*the city's destruction (by the enemy)*), the prenominal genitive/possessive form *the city's* occupies SpecDP. Arguably, this raises one of the most controversial issues with regard to passive-like movement. Recall from section 2.4.1 that SpecDP hosts possessive forms, which occupy this syntactic position in one of two ways; either as base-generated possessors and agents or as patients through DP-movement. However, Alexiadou (2001: 102) argues against the passive-like movement of the internal argument of the root √*DESTROY* from complement position to specifier position. When the semantic specification of that root involves a theme, this theme is not projected as the complement of L. On the contrary, the theme *the city's* is projected directly in SpecDP as a syntactic argument of the noun *destruction*. Note that SpecDP is an A-position in English, and a Case-assigner.

On the one hand, Alexiadou (2001: 102) assumes that, in passive nominals like (24c) (*the city's destruction (by the enemy)*), the prenominal genitive/possessive form *the city's* is base-generated in SpecDP. On the other hand, Alexiadou (2001: 90, 92, 97) claims that in (24c) the derived nominal *destruction* is a process nominal. Recall from section 3.2.2 that, according to Grimshaw's (1990: section 3.2) diagnostic test, adverbial modification gives derived nominals a process reading, and not a result reading (cf. 6k) (*The total destruction of the city in two days appalled everyone.*). Recall further from section 3.3.1 that, in Grimshaw's (1990: 80) account, passive nominals, like (24c), are result nominals. However, I have argued against this assumption, because passive nominals may have a process interpretation in sentences like *The city's destruction took a long time*. Alexiadou maintains that passive nominals, like (24c), include the verbal functional projections vP and AspectP. Consider Tenny's (1994: 161) examples, shown in (29):

(29) (a) the book's publication *in* a month
(b) *the book's publication *for* a month

Notice that the different properties of AspectP render (29a) a well-formed noun phrase as opposed to (29b), which is ill-formed. The grammaticality of (29a) confirms the conclusion that passive nominals do not fall under the result noun class. By contrast, according to Alexiadou (2001: 99), the ungrammaticality of (29b) is not the consequence of the lack of AspectP; on the contrary, it is due to the functional features specification of AspectP (see section 2.4.3). In particular, (29a) receives a telic reading due to the preposition *in*, whereas (29b) receives a durative reading due to the preposition *for*.

Nonetheless, under such an analysis of passive nominals as process nominals, an obvious question to ask is what makes base-generation of the theme in SpecDP syntactically possible. Recall from section 2.3.2 that, in Williams's (1981a: 84) terms, all the arguments within the domain of the lexical head (V), notably below the VP, are called internal. According to Williams (1981a: 92, 99), a morphological process may externalise one of the internal arguments, i.e. the theme. Consider, for example, the formation of adjectives from verbs, such as *readable* when the suffix *-able* is attached

to the verb stem *read*. According to Williams (1981a: 94), affixation requires that the theme of the root occupies the subject position, as is illustrated in (30):

(30) (a) I can read *the book*.
(b) *The book* is readable.

Notice how affixation in (30b) affects the argument structure of the lexical item *read* in (30). This morphological process entails that the theme *the book* of the verb *read* in (30a) is base-generated in the subject position in (30b).

Building on these views, Roberts (1987) claims that a similar process affects the nominalisation in passive nominals like (24c) (*the city's destruction (by the enemy)*). Following Roberts, Alexiadou (2001: 102) assumes that, when the affix *-tion* is attached to the root √*DESTROY*, the theme of that root can be externalised in passive nominals, like (24c). Since the deficient v in derived nominals does not assign the external θ-role, the external argument position is available to be occupied by the theme. Nonetheless, SpecvP cannot be the host of the externalised theme because v is deficient. Therefore, according to Alexiadou (2001: 153), the next available functional specifier position is SpecDP, which is not restricted to one θ-role in English.

To summarise Alexiadou's (2001) key assumptions, derived nominals are the result of syntactic movement. This means that lexical items are projected into syntax as abstract lexical roots (√), which combine with functional categories. Therefore, the nominal category of a root is determined in syntax. The difference between process nominals and result nominals lies in the projection of vP and AspectP. Process nominals include these two functional categories, whereas result nominals lack them. Furthermore, passive nominals are process nominals. In passive nominals like (24c), the theme is base-generated in SpecDP; hence no passive-like DP-movement is involved.

From the foregoing discussion, it follows that, under Alexiadou's (2001) approach, the lexicon provides the necessary information, whose projection into LF and PF is determined in syntax. The derivation of a noun depends on the internal functional

structure of that noun. In my opinion, this approach keeps the best balance between the lexicon and syntax capturing a number of differences between clauses and derived nominal expressions, as well as between various noun classes.

3.3.4. Concluding Remarks

Following Chomsky (1970), Grimshaw (1990) and Borer (1993) assume that the category of derived nominals is determined in the lexicon. In contrast, building on Marantz (1999), Alexiadou (2001) assumes that the category of derived nominals is determined in syntax. As a consequence, Grimshaw presents an extensive lexical analysis of the differences between process and result nominals, providing a vague, if any, structural representation of these differences. By contrast, Borer develops an attractive theory of two independent components, attempting to join morphological structures with syntactic structures, whereas Alexiadou introduces a powerful structural device with a view to accommodating lexical specification as well as morphological structures within syntax.

Firstly, in Grimshaw (1990), the lexicon derives the two different types of nouns prior to syntax; this suggests a linear relationship between the two components of grammar, which meet at D-structure. Secondly, in Borer (1993), one morphological structure has to be accommodated within diverse syntactic environments. This means that the interface between morphology and syntax is parallel involving reflexive links at D-structure or at post-D-structure. Thirdly, in Alexiadou (2001), syntactic operations do not restrict semantic properties of morphological structures prior to the insertion of a lexical entry into syntax. Therefore, Alexiadou's (2001) proposal retains the autonomy of independent components of grammar. This autonomy constitutes an integral part of their interaction. The lexicon provides the necessary information so as generative operations to be performed in syntax. No generative work is done in the lexicon.

Furthermore, Grimshaw (1990) argues that process nominals license argument structure obligatorily, whereas result nominals do not have an argument structure at all. Borer (1993) proposes that the argument structure is licensed by an embedded VP-

projection (viz. by the verb) in process nominals rather than by the noun itself. Consequently, result nominals do not have an argument structure because they exclude the VP-projection. Alexiadou (2001) suggests that both noun classes have an argument structure, which is satisfied by different internal functional structures within the architectures of process and result nominals. On this view, a set of specific functional features that relate a derived nominal to its corresponding verb is hosted by certain *functional* projections, namely vP and AspectP, which render the derived nominal a process nominal. In contrast, when the derived nominal lacks such projections associated with verbal clauses, the derived nominal is rendered a result nominal.

Moreover, Grimshaw (1990) assumes that passive nominals do not license argument structure; therefore, passive nominals are result nominals. Similarly, Borer (1993) assumes that passive nominals do not project a VP; therefore, passive nominals are result nominals. In contrast, Alexiadou (2001) assumes that passive nominals do project a vP and an AspectP; therefore, passive nominals are not result nominals. All of the three accounts admit that the DP-subject in passive nominals is base generated in the specifier position, which is associated with the possessor, i.e. SpecDP.

However, only Alexiadou's (2001) analysis explains syntactically the semantic difference between the theme, which is projected by passive process nominals (cf.10a) (*John's murder*) and the possessor, which is projected by common nouns (cf. 10b) (*John's dog*). In her account, a passive nominal is a process nominal, which assigns the θ-role of theme to its internal argument. In contrast, Grimshaw's (1990) and Borer's (1993) proposals cannot account for the projection of the prenominal genitive/possessive as the theme of the verb stem, since passive nominals are result nominals, which assign no θ-roles.

Interestingly, Alexiadou's (2001) account of passive nominals uniformly applies to both of the constructions which Chomsky (1970) associated with the passive (cf. 24b & c) (*the destruction of the city by the enemy*) and (*the city's destruction by the enemy*). In essence, (24b & c) are both process nominals, which do not involve passive-like DP-movement. Note that their distribution is similar, as illustrated in (31):

(31) (a) The destruction of the city took a long time.
(b) The city's destruction *took a long time*.
(c) the publication of the book in a month
(d) the book's publication *in a month*

Notice that the passive nominal (31b) is the subject of the same sentence as the process nominal (31a). Likewise, the passive nominal (31d) selects the same PP *in a month* as the process nominal in (31c). Therefore, evidence from (31) provides support to Alexiadou's (2001) assumption that passive nominals are process nominals which allow for aspectual modification. In contrast, Grimshaw (1990) and Borer (1993) account for (31a & c) as process nominal expressions, whereas (31b & d) contradict their proposals that passive nominals are result nominals.

Finally, result nominals select sentential complements. Grimshaw (1990) suggests that the complement is an lcs-complement instead of a syntactic argument. Besides, Borer's (1993) view that result nominals do not project a VP cannot account for these constructions. By contrast, Alexiadou's (2001) theory permits internal arguments, notably themes, in result nominals.

In conclusion, I believe that Alexiadou's theory is superior to Borer's and Grimshaw's theories in a number of respects: the theoretical framework; the approach to analysing the data; the structural representation.

3.4. Summary

In this chapter, I first contrasted noun phrases with sentences, outlining the ways in which their argument structure is satisfied, and the process of passive is observed. Moreover, I presented Chomsky's (1970) discussion of the properties of derived nominals, and distinguished process nominals from result nominals on the grounds of Grimshaw's (1990) diagnostic tests of their interpretation as well as their function as predicates.

Next, I introduced two different approaches to the derivation of nouns, and discussed three analyses of derived nominals, which account for the structural differences between process and result nominals: namely Grimshaw's (1990) lexical analysis, Borer's (1993) proposal, which is based on her view of Parallel Morphology (PM), and Alexiadou's (2001) proposal, which is based on the theory of Distributed Morphology (DM). Having examined each one separately, I finally compared the three of them.

In the next chapter, I will investigate how Alexiadou's (2001) analysis applies to derived nominals in Greek, carrying out a comparative study between English and Greek.

Chapter 4

Derived nominals in Greek vs derived nominals in English

4.1. Introduction

The structure of the noun phrase and the derivation of nouns in Greek has been extensively investigated by a number of researchers (see Alexiadou (1999a & b, 2001), Alexiadou and Stavrou (1998a & b), Horrocks and Stavrou (1985, 1987), Kakouriotis (2000), Karanassios (1990), Kolliakou (1995), Markantonatou (1992, 1995), Mouma (1993), Ralli (1992), Stavrou (1983), and Valetopoulos (2000) among others). Accommodated within the Principles and Parameters model, Alexiadou's work best explains the process of nominalisation in terms of abstract lexical and functional projections into syntax (see section 3.3.3). In this chapter, I will discuss Alexiadou's account for Greek derived nominals in comparison with English derived nominals.

In Greek, derived nominals correspond to various verb classes, e.g. transitive and un/ergative verbs[28] (see Alexiadou (2001), Markantonatou (1992, 1995) for a detailed discussion). Moreover, in Greek, genitive Case is assigned to the DP which is base-generated as the complement of a noun head. In English, the θ-roles of possessor, agent or patient/theme may be realised by means of a possessive form in SpecDP. Moreover, the θ-role of patient/theme may be realised by means of a PP in the complement position of the noun head (see sections 2.3.1, 2.3.2, 2.4.1, and 3.2.1). In contrast, the θ-roles of either possessor or agent or patient/theme are not assigned to SpecDP in Greek (see section 2.4.2). This means that there are certain differences between the Greek DP and the English DP, which have crucial consequences for the syntax of derived nominals in Greek. In section 4.2, I will discuss the derivation of

[28] I will not discuss psychological and ditransitive predicates, as they are outside the scope of my contrastive study.

nouns as well as their structure and distribution[29] in Greek, and I will compare them with English counter-examples.

Depending on the interpretation and the structural properties of derived nominals, they fall into two noun classes, i.e. process and result nominals (see section 3.2.2). Greek derived nominals are no less ambiguous than English ones. In section 4.3, I will discuss argument structure in Greek derived nominals, and I will distinguish constructions with Greek process nominals from constructions with Greek result nominals (see Alexiadou (2001), Kakouriotis (2000) for relevant discussion). In particular, the θ-roles of agent and patient/theme are associated with the presence of the functional verbal projections vP and AspectP, whereas the θ-role of possessor is associated with the absence of such projections in Greek derived nominals (see section 3.3.3, and Alexiadou (2001) for further discussion).

Furthermore, I will consider passivisation in DP and passive-like DP-movement (see chapter 3). I will examine the general process of passive within Greek nominalisations in section 4.4 (see Alexiadou, 2001).

To conclude, in section 4.5, I will discuss genitive Case assignment in Greek, and I will explain why the co-occurrence of two genitives is not possible with Greek process nominals, but is possible with Greek result nominals.

4.2. Nominalisation patterns in Greek

4.2.1. The derivation and structure of nouns in Greek vs English

According to Valetopoulos (2000), Greek derived nominals are formed by the morphological rule which attaches a nominalising affix to a stem in a way analogous to the one that applies in English (see Kakouriotis, 2000). Interestingly, an English verb, for example *express*, may not require the attachment of a verbalising suffix. In contrast, Greek verbs always require a verbalising suffix, which is attached to the

[29] On principle, I will be using examples taken from the literature. But, as I am a native speaker of Greek, I will often provide data which I have generated myself. Note that the Greek examples with no references are mine.

stem. One example, the Greek verb *ekfrázo* 'express', consists of the stem *ekfrá**z***- and the suffix -*o*, whereas the Greek derived nominal *ékfrasi* 'expression' consists of the stem *ékfra**s***- and the suffix -*i*. Therefore, the stem of the derived nominal *ékfrasi* 'expression' bears a morpho-phonological relationship with the stem of the verb *ekfrázo* 'express', which corresponds to this nominal. Consider the following examples (taken from Kakouriotis, 2000, and Valetopoulos, 2000), in (1):

(1)	(a) ***katastr**éf**o*** 'destroy'	→	(a') ***katastr**of**í*** 'destruction'
	(b) ***perigráf**o*** 'describe'	→	(b') ***perigraf**í*** 'description'
	(c) ***ektel**ó*** 'execute'	→	(c') ***ektél**es**i*** 'execution'
	(d) ***paratir**ó*** 'observe'	→	(d') ***paratír**is**i*** 'observation'
	(e) ***eksig**ó*** 'explain'	→	(e') ***eksíg**is**i*** 'explanation'
	(f) ***eksolothr**évo*** 'exterminate'	→	(f') ***eksolóthr**efs**i*** 'extermination'
	(g) ***metafráz**o*** 'translate'	→	(g') ***metáfras**i*** 'translation'
	(h) ***eksetáz**o*** 'examine'	→	(h') ***eksétas**i*** 'examination/exam'
	(i) ***plir**óno*** 'pay'	→	(i') ***plir**omí*** 'payment'

On the one hand, notice that all the verbs in (1a-i) end in -*o* which is first person singular in present tense[30]. On the other hand, all the nouns in (1a'-i') are feminine and end in -*í* or -*i*. Moreover, notice that the derivation of nouns in Greek may entail some changes from verbal infixes to nominal infixes, which are underlined above. Note that the Greek derived nominals in (1a'-i') are, semantically, counterpart examples of the English derived nominals discussed in chapter 2. Note that both the Greek derived nominals in (1a'-i') and their English counterparts correspond to transitive verbs.

However, Greek derived nominals may be derived from ergative/unaccusative and unergative verbs. Consider the following examples in (2):

(2)	Ergative/unaccusative verbs		
	(a) (*pí**pt**o*)[31]/***péf**to*** 'fall'	→	(a') ***pt**ós**i*** / ***pé**simo*** 'fall'
	(b) ***vráz**o*** 'boil/stew'	→	(b') ***vrá**si*(*mo*) 'boil/stew'

[30] In Greek dictionaries, verbs are not listed in the infinitive form. Thus, *ime* 'am' appears as the Greek counterpart of the English entry *be*.

[31] This rather obsolete form of the verb is still used in Modern Greek when referring to cliché expressions from Classical/Medieval Greek.

(c) ***pízo*** ‘congeal/thicken’ → (c') ***píksi***(*mo*) ‘congelation/thickening’

(d) ***ljóno*** ‘melt’ → (d') ***ljósimo*** ‘melting’

(all of the examples above taken from Markantonatou, 1995: 276)

(e) ***eksasthenó*** ‘weaken’ → (e') ***eksasthénisi*** ‘weakening’

Unergative verbs

(f) ***kolimbó*** ‘swim’ → (f') ***kolímbi*** ‘swim(ming)’

(example above taken from Markantonatou, 1995: 276)

(g) ***vadízo*** ‘tramp’ → (g') ***vádisma*** ‘walking’

(h) ***vimatízo*** ‘step’ → (h') ***vimatismós*** ‘step(ping)’

(i) (***o***)***milí*** ‘talk’ → (i') ***omilía*** ‘talk(ing)’

On the one hand, notice that the derived nominals in (2a'-c') may be either feminine ending in *-i*, or neuter ending in-*imo*. (2d') is also neuter ending in *-imo*, whereas (2e') is feminine ending in *-i*. However, (2f') is neuter ending in *-i*, whereas the derived nominal in (2g') is neuter ending in *-ma*, and (2h') is masculine ending in *-mós*. Moreover, (2i') is feminine ending in *-ía*. Note that the gender of a noun affects its morphology, but not its syntax. On the other hand, the translation of a Greek derived nominal into English ranges from an underived nominal to a derived nominal or a gerund.

Note that the Greek nouns in (2) are not gerunds, despite what the English translations suggest. Ordinarily, the use of the gerund in Greek is rather limited in comparison to the use of the English gerund. Consequently, the English gerund often translates into a noun in Greek, e.g. *kápnizma* ‘smoking’. Consider the following example in (3):

(3) O Pétros stamátise to kápnizma.
the-NOM.MASC Peter stopped the-NOM.NEUT smoking
‘Peter stopped smoking.’

In (3), the noun *kápnizma* ‘smoking’ is not a gerund. Alternatively, the English gerund may be translated into a nominalised clause in Greek. Consider the following example in (4):

(4) To na kapnízis íne kakí siníthia.
the-NOM.NEUT to smoke-2.SING is a-bad habit
‘Smoking is a bad habit.’

In (4), the nominalised clause *to na kapnízis* ‘smoking’ is not a gerund, and is not a derived nominal. Notice that this clause is embedded under the determiner *to* ‘the’.

In Greek, nouns may be preceded by a determiner, and may be followed by a DP with genitive Case. The internal structure of derived nominal expressions in Greek is the same as the internal structure of common Greek noun phrases. Consider the following examples in (5):

(5) (a) To vivlío tu Pétru íne edó.
the book the-GEN Peter-GEN is here
‘Peter’s book is here.’

(b) I katastrofí tis pólis ítan olosherís.
the destruction the-GEN city-GEN was total
‘The destruction of the city was total.’

In (5a), the possessive *tu Pétru* ‘Peter’s’ occurs in post-head position; therefore, this possessive is base-generated as the complement of the noun head *vivlío* ‘book’. In contrast, the English possessive *Peter’s* is base-generated in SpecDP. Likewise, in (5b), the genitive *tis pólis* ‘of the city’ occurs in post-head position; therefore, this genitive is base-generated as the complement of the noun head *katastrofí* ‘destruction’. By contrast, the head *destruction* in English selects the PP *of the city* as its complement.

However, the Greek post-nominal possessive/genitive DP may as well occur in prenominal position for reasons of emphasis or contrast, as shown in (6):

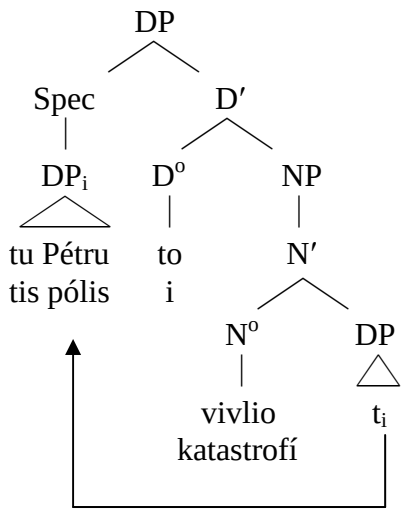
(6) (a) Tu Pétru to vivlío íne edó, óhi tu Jórgu.
the-GEN Peter-GEN the book is here not the-GEN George-GEN
'Peter's book is here, not George's.'

(b) Tis pólis i katastrofí ítan ksafnikí,
the-GEN city-GEN the destruction was sudden
óhi ton horjón.
not the-GEN village-GEN
'The city's destruction was sudden, not the villages'.'

Following Horrocks and Stavrou (1987) (see section 2.4.2), I assume that, in (6a), the possessive *tu Pétru* 'Peter's' is moved to SpecDP unlike its English counterpart, which is base-generated in SpecDP. Similarly, I assume that the genitive *tis pólis* 'the city's' in (6b) is moved to SpecDP. In essence, this movement leads Horrocks and Stavrou to the hypothesis that SpecDP is an A'-position in Greek, which I have adopted. In contrast, its English counterpart *the city's* is base-generated in SpecDP, according to Grimshaw's (1990), Borer's (1993), and Alexiadou's (2001) analyses of passive nominals.

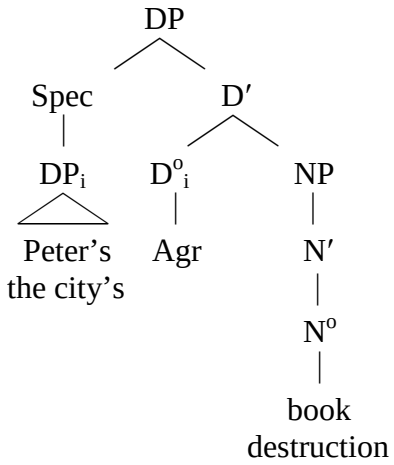
Consider Horrocks and Stavrou's (1987) structural representation of the underlined constructions in the Greek examples in (5) and (6), as illustrated in (7):

(7)

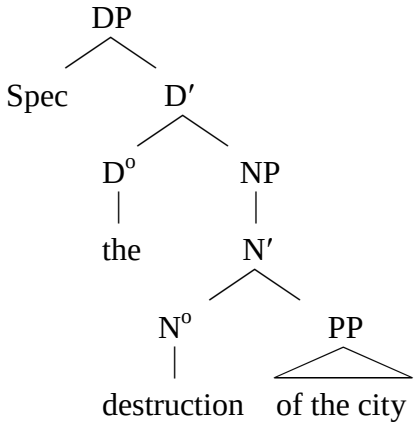


In (7), both of the possessive/genitive DPs in Greek, viz. *tu Pétru* / *tis pólis*, may occupy one of two syntactic positions: either the complement position or SpecDP. Notice that the morphological identity of these Greek DPs in genitive Case is not affected when they occupy different syntactic positions. Next compare the structure in (7) with the rather simplified structural representation of the English counterparts, which abstracts away from theory internal assumptions about process nominals, as illustrated in (8):

(8) (a)



(b)



In (8a), both of the English possessive forms *Peter's / the city's* occupy SpecDP, whereas SpecDP cannot host the PP *of the city* in (8b).

4.2.2. The distribution of derived nominals in Greek vs English

In Greek, nominative Case, which is assigned to the subject of a sentence, is *morphologically* distinct from accusative Case, which is assigned to the object of a verb, as illustrated in (9):

(9) (a) I várvari katéstrepsan tin póli.
the-NOM.PL barbarians-NOM.PL destroyed the-ACC city-ACC
'The barbarians destroyed the city.'

(b) I póli katastráfike apó tus varvarus.
the-NOM.SING city-NOM.SING was-destroyed by the barbarians
'The city was destroyed by the barbarians.'

Note that the predicate *katéstrepsan* 'destroyed' in (9a) is active; hence the subject/agent *i várvari* 'the barbarians' is marked with nominative Case, whereas the object/patient *tin póli* 'the city' is marked with accusative Case. In contrast, the predicate *katastráfike* 'was destroyed' in (9b) is passive; as a result the internal argument *i póli* 'the city' is now the subject and is marked with nominative Case. Moreover, the agent is realised through the *by*-phrase *apó tus varvarus* 'by the barbarians'.

Yet, the thematic correspondents of the agent and the patient in nominal constructions bear the same Case as the one many languages employ for the argument which is assigned the θ-role of possessor, viz. genitive Case (see Longobardi, 2001: 566). Consider the English nominal expressions in (1a & c) in section 3.2.1, repeated here as (10a & b):

(10) (a) *the barbarians'* destruction of the city
(b) *the city's* destruction by the barbarians

In (10a), the agent is realised in the possessive form *the barbarians'*. In contrast, the patient is realised in the possessive form *the city's* in (10b).

In Greek, the patient/theme is always realised in genitive Case, whereas the agent may be realised by means of either a *by*-phrase or a genitive DP. Interestingly, although the Greek translation of (10b) is acceptable, the Greek translation of (10a) is problematic, since the genitive agent is sometimes not licit in the presence of the patient/theme, as shown in (11):

(11) (a) i katastrofí tis pólis apó tus varvarus
the destruction the-GEN.SING city-GEN.SING by the barbarians
'the destruction of the city by the barbarians'

(b) *i katastrofí tis pólis ton varvaron[32]
the destruction the-GEN.SING city-GEN the-GEN.PL barbarians-GEN
'the barbarians' destruction of the city'
(examples taken from Alexiadou (2001: 40)

(c) *ton varvaron i katastrofí tis pólis
the-GEN.PL barbarians-GEN the destruction the-GEN.SING city-GEN
'the barbarians' destruction of the city'

In (11a), the agent is realised via the PP *apó tus varvarus* 'by the barbarians'; hence the agent in Greek is realised through a *by*-phrase, as in English. In contrast, the agent is not permissible in the post-head position in (11b), or in the prenominal genitive *ton varvaron* 'the barbarians'' in (11c). Note that the corresponding English example in (10a) is grammatical in English-type languages.

Consider further Kolliakou's (1995) example in (12):

(12) i metáfrasi tis Odísias apó to Maroníti
the translation the-GEN Odyssey-GEN by the Maronitis
'the translation of the Odyssey by Maronitis'

[32] The same nominal expression is acceptable under the interpretation 'the destruction of the barbarians' city'.

In (12), as in (11a), the agent is realised through a *by*-phrase; i.e. the PP *apó to Maroníti* 'by Maronitis'. In contrast to the ungrammatical examples of (11b & c), a group of Greek derived nominals, such as *metáfrasi* 'translation', allow the genitive agent in the presence of patient/theme, as shown in (13):

(13) (a) i metáfrasi tis Odísias tu Maroníti
the translation the-GEN Odyssey-GEN the-GEN Maronitis-GEN
'Maronitis's translation of the Odyssey'
(example taken from Kolliakou, 1995)

(b) tu Kakridí i metáfrasi tis Odísias
the-GEN Kakridi-GEN the translation the-GEN Odyssey-GEN
'Kakridis's translation of the Odyssey'
(example taken from Alexiadou, 2001: 148)

Notice that the possessive *tu Maroníti* 'Maronitis's' in the post-head position in (13a), as well as the prenominal genitive *tu Kakridí* 'Kakridis's' in (13b), which both seem to correspond to the agent of the translating process, are possible in Greek. The question that arises is why the genitive agent is not possible in (11b & c), whereas it is acceptable in (13). I come back to this problem in section 4.3.

Next consider the following Greek examples of constructions with ergative/unaccusative and unergative verbs in (14):

(14) (a) I timés péftun sinehós.
the-NOM.PL prices-NOM.PL fall-3PL constantly
'The prices fall constantly.'
(taken from Markantonatou, 1995: 287)

(b) Ta pedjá kolimbún epí mía óra.
the-NOM.PL children-NOM.PL swim-3PL for an hour
'The children swim for an hour.'

In (14a), the subject *i timés* ‘the prices’ is the *internal* argument of the ergative predicate *péftun* ‘fall’, which is assigned nominative Case. In contrast, in (14b), the subject *ta pedjá* ‘the children’ is the *external* argument of the unergative predicate *kolimbún* ‘swim’, which is also assigned nominative Case. Note that the ergative verb *péftun* ‘fall’ takes no external arguments, whereas the unergative verb *kolimbún* ‘swim’ takes no internal arguments.

The derived nominal expressions which correspond to the sentences above are illustrated in (15):

(15) (a) i ptósi ton timón
the-NOM.SING fall-NOM.SING the-GEN.PL prices-GEN.PL
‘the fall of the prices’

(b) ton timón i ptósi
the-GEN.PL prices-GEN.PL the-NOM.SING fall-NOM.SING
‘the fall of the prices’

(c) to kolímbi ton pedjón
the swim the-GEN.PL chidren-GEN.PL
‘the children’s swim’

(d) ton pedjón to kolímbi
the-GEN.PL children-GEN.PL the swim
‘the children’s swim’

In (15a), the derived nominal *ptósi* ‘fall’ selects the DP *ton timón* ‘of the prices’ as its complement. This is the internal argument of this derived nominal (cf. 7) (*tis pólis* ‘of the city’). In accordance with (7), the internal argument *ton timón* ‘of the prices’ can be moved to SpecDP yielding (15b). Furthermore, in (15c), the derived nominal *kolímbi* ‘swim’ selects the DP *ton pedjón* ‘the children’s’ as its complement. This occupies the possessor position (cf. 7) (*tu Pétru* ‘Peter’s’). In accordance with (7), the agent *ton pedjón* ‘the children’s’ can be moved to SpecDP yielding (15d). Note that,

in contrast to (11b & c), here the agent can appear in a genitive DP, provided there is no other argument.

It follows from the foregoing discussion that, in Greek derived nominal expressions, the patient/theme is realised in genitive Case (cf. 11a, 12, 13, 15a & b), whereas the agent can be realised via a *by*-phrase (cf. 11a, 12) or in the genitive (cf. 13, 15c & d). The genitive agent is excluded in (11a) in the presence of the genitive patient/theme, whereas the genitive agent is permissible in (13) in spite of the presence of the theme. Notably, the genitive agent is possible in (15c & d) in the absence of the internal argument. An obvious question to ask is why the genitive agent is only allowed with some derived nominals. I will investigate these interesting aspects of Greek derived nominals in section 4.3.

4.3. Process vs result nominals in Greek as opposed to English

Recall from sections 3.2.2 and 3.3.1 that, in Grimshaw's (1990: 45) view, process nominals license argument structure. Recall further from sections 3.3.2 and 3.3.3 that, following Grimshaw, Borer (1993) and Alexiadou (2001) also assume that process nominals take arguments. In particular, a process nominal takes its internal argument obligatorily. According to Grimshaw and Borer, a process nominal supresses its external argument obligatorily, but Alexiadou argues against argument suppression. In English, the external argument may be realised in a possessive form or through a *by*-phrase. Moreover, process nominals can be modified by aspectual adverbs or adverbials, unlike common nouns which can only be modified by adjectives (cf. 3.2.2 (5a, b), 3.2.1 (1e), and 3.2.2 (6k, l) repeated here as (16) for further discussion):

(16) (a) John's examination *(of the patients) took a long time.
(b) John's examination (*of the patients) was long.
(c) the destruction of the city *by the enemy*
(d) The total destruction of the city in two days appalled everyone.
(e) The total destruction (*in two days) appalled everyone.

In (16a), the process nominal *examination* selects the PP *of the patients* as its complement obligatorily. In contrast, in (16b), this PP is incompatible with the result nominal *examination*. Furthermore, in (16c), the suppressed argument of the process nominal *destruction* is realised by means of the PP *by the enemy*. In (16d), the process nominal *destruction* is modified by the PP *in two days*; hence this process nominal allows aspectual modification. In contrast, in (16e), the result nominal *destruction* disallows this aspectual adverbial.

According to Kakouriotis (2000: 92, 96), the Greek derived nominals in (1a'-i') attest to Grimshaw's (1990) diagnostic criteria of distinguishing process nominals from result nominals. Therefore, a Greek process nominal also takes its internal argument obligatorily, suppresses its external argument, which is realised through a *by*-phrase, and admits aspectual modification, as shown in (17) (examples taken from Kakouriotis, 2000: 93, 96):

(17) (a) i ektélesi *(tu ehmalotu) apó to apóspazma
the execution the-GEN prisoner-GEN by the squad
'the execution *(of the prisoner) by the squad'

(b) I sinehís ékfrasi *(ton esthimáton su) íne enohlitikí.
the continual expression the-GEN feelings-GEN your is annoying
'The continual expression *(of your feelings) is annoying.'

In (17a), the noun *ektélesi* 'execution' is a process nominal, which selects the genitive *tu ehmalotu* 'of the prisoner' as its complement obligatorily. This is the internal argument of the process nominal, which is required to be assigned the θ-role of patient. Notice that the noun *ektélesi* 'execution' is a nominal predicate which projects its agent as an adjunct *by*-phrase, i.e. the PP *apó to apóspazma* 'by the squad'. Likewise, in (17b), the noun *ékfrasi* 'expression' is a process nominal, which selects the genitive *ton esthimáton su* 'of your feelings' as its complement obligatorily. This is the internal argument of the process nominal, which is required to be assigned the θ-role of theme. Notice that the noun *ékfrasi* 'expression' is modified by the aspectual adjective *sinehís* 'continual'.

Next consider the following example in (18) (combining Markantonatou's (1995: 274) and Alexiadou's (2001: 40) examples):

(18) i ptósi *(ton timón) epí tris evdomádes
the-NOM.SING fall-NOM.SING the-GEN.PL prices-GEN.PL for three weeks
'the fall *(of the prices) for three weeks'

In (18), the noun *ptósi* 'fall' is a process nominal, which takes the internal argument *ton timón* 'of the prices' obligatorily, and admits aspectual modification through the PP *epí tris evdomádes* 'for three weeks'. The process nominal *ptósi* 'fall' derives from the ergative/unaccusative verb *péfto* 'fall'. Recall from section 2.3.3 that ergative/unaccusative verbs lack the external argument (see also 4.2.2: 14a) (*i timés péftun sinehós* 'the prices fall constantly'). In Grimshaw's (1990) and, therefore, Kakouriotis's (2000) view, only if an external argument is suppressed can a derived nominal be a process nominal. This means that a verb, say *fall*, without an external argument should not be nominalisable. However, as Markantonatou (1995: 274, 277) claims, (18) provides evidence that, in Greek, the nominalisation of these verbs, e.g. *péfto* 'fall', is possible; hence external arguments are not required for nominalisation. Recall from section 3.3.3 that, according to Alexiadou (2001: 166: fn20), the external argument is not suppressed. This assumption accounts for the derivation of process nominals from ergative/unaccusative verbs in Greek.

It follows from the foregoing discussion that Kakouriotis's (2000) account of Greek process nominals, which is on a par with Grimshaw's (1990) analysis of English process nominals, fails to encompass the Greek process nominals that derive from ergative/unaccusative verbs. In contrast, Alexiadou (2001: 19) proposes that process nominals exhibit verbal properties when they project the functional categories vP and AspectP (see section 3.3.3). Therefore, Alexiadou's theory has a wider scope in the sense that it accounts for the derivation of Greek process nominals from transitive as well as ergative/unaccusative verbs.

In particular, when a process nominal is derived from a transitive verb in Greek, say *katastréfo* 'destroy', according to Alexiadou (2001: 19), vP and AspectP are responsible for licensing argument structure and aspectual modification respectively.

Consider Alexiadou's (2001: 78) as well as Markantonatou's (1995: 269) example in (19):

(19) i katastrofí *(tis pólis) apó tus varvarus mésa se tris méres
the destruction the-GEN city-GEN by the barbarians within three days
'the destruction *(of the city) by the barbarians within three days'

In (19), the obligatory assignment of the internal θ-role of patient, which is realised in the post-nominal genitive *tis pólis* 'of the city' is associated with the functional projection v. The lexical information of the derived nominal *katastrofí* 'destruction' requires that the agent is introduced by the preposition *apó* 'by'; hence the agent is realised by means of the PP *apó tus varvarus* 'by the barbarians'. Moreover, the functional projection AspectP is associated with the PP *mésa se tris méres* 'within three days'.

Likewise, when a process nominal is derived from an ergative/unaccusative verb in Greek, say *péfto* 'fall', this derived nominal includes the two functional projections vP and AspectP. Consider Markantonatou's (1995: 284) example in (20):

(20) to ljósimo *(tu hjonjú) mésa se mia níhta
the-NOM melting-NOM the-GEN snow-GEN within one night
'the melting *(of the snow) within one night'

In (20), the internal θ-role of patient is realised in the post-nominal genitive *tu hjonjú* 'of the snow'. The obligatory assignment of this internal θ-role is linked to the functional projection vP. The lexical information of the derived nominal *ljósimo* 'melting' requires that there is no agent. Consequently, (20) lacks the external argument. Moreover, this process nominal is modified by an aspectual adverbial, i.e. the PP *mésa se mia níhta* 'within one day', which is related to the functional projection AspectP.

It seems that the result of nominalisation of ergative/unaccusative verbs is an underived nominal or the gerund in English. The question that arises is how Alexiadou's (2001) proposal can account for this derivation. I will not examine this

here, as underived nominals and the English gerund are outside the scope of my study. Moreover, another question to ask is why ergative/unaccusative verbs cannot form derived nominals in English. I leave this question open (see chapter 5).

Recall also from sections 3.2.2 and 3.3.1 that Grimshaw (1990: 45, 49) argues that result nominals, like the noun *examination* in (16b) (*John's examination (*of the patients) was long.*), do not license argument structure, as they refer to an entity in the world or to the result of an event. Consider Kakouriotis's (2000: 96) example in (16):

(21) I (*sinehís) ékfrasi sto prósopó su íne enohlitikí.
the continual expression on-the face your is annoying
'The (*continual) expression on your face is annoying.'

In (21), the impossibility of the adverb *sinehís* 'continual' shows that this is a result nominal. Since the derived nominal *ékfrasi* 'expression' does not take an internal argument, result nominals do not take internal arguments (see Grimshaw, 1990: 45 and Kakouriotis, 2000: 96).

However, recall from section 3.3.3 that Alexiadou (2001: 23: fn7) maintains that result nominals may as well have an argument structure. This claim is corroborated by the following example in (22) (adapted from Kolliakou, 1995):

(22) I metáfrasi (tis Odísias) (*mésa se éna mína) íne sto ráfi.
the translation the-GEN Odyssey-GEN within one month is on-the shelf
'The translation (of the Odyssey) (*within one month) is on the shelf.'

In (22), the derived nominal *metáfrasi* 'translation' is a result nominal denoting a concrete entity, which can be located on a shelf. As is expected, the aspectual PP *mésa se éna mína* 'within one month' is not compatible with this result nominal. However, this result nominal optionally selects the post-nominal genitive *tis Odísias* 'of the Odyssey' as its complement, which is the theme of the noun head.

Therefore, Kakouriotis's (2000: 96) account of Greek result nominals, which follows Grimshaw's (1990) theory, fails to adequately explain the acceptability of (22). In

contrast, Alexiadou's (2001: 19, 20) proposal entails that even result nominals can take an internal argument, which is assigned the θ-role of theme. This assumption leads to the conclusion that the projection of the theme *tis Odísias* is possible with the result nominal *metáfrasi* 'translation' in (22). According to Alexiadou (2001: 19), however, result nominals select their complements optionally due to the lack of vP, and disallow aspectual modification due to the lack of AspectP.

Furthermore, in Greek, nouns may also be derived from unergative verbs, e.g. *kolimbó* 'swim' (see section 4.2.1: 2). Alexiadou (2001: 41) argues that these derived nominals are result nominals. This assumption distinguishes (11b) (*ton varvaron i katastrofí tis pólis* 'the barbarians' destruction of the city') from (15c) (*to kolímbi ton pedjón* 'the children's swim'). In (11b), the derived nominal *katastrofí* 'destruction' is a process nominal, which includes vP and AspectP, whereas in (15c), the derived nominal *kolímbi* 'swim' is a result nominal which excludes these two functional categories. On this view, a genitive agent is impossible with process nominals, but is allowed with result nominals. Consider the following example in (23) (adapted from Alexiadou, 2001: 41):

(23) to kolímbi ton pedjón (*epí mía óra)
the swim(ming) the-GEN.PL chidren-GEN.PL for an hour
'the children's swim (*for an hour)

In (23), the noun *kolímbi* 'swim(ming)' may receive two interpretations, viz. 'a swim' and 'the swimming'. Since it derives from the unergative verb *kolimbó* 'swim', it does not subcategorise for a logical object. Therefore, this derived nominal does not have a patient/theme (see also 4.2.2: 14b) (*Ta pedjá kolimbún epí mía óra.* 'The children swim for an hour.'). Notice that the PP *epí mía óra* 'for an hour' in (23) is not acceptable. Therefore, this Greek derived nominal is a result nominal, which lacks vP and AspectP, but selects the post-nominal genitive *ton pedjón* 'the children's' as its complement. Recall from sections 4.2.1 (5a) (*to vivlío tu Pétru* 'Peter's book') and 4.2.2 (15c) (*to kolímbi ton pedjón* 'the children's swim') that this genitive is base-generated in the possessor position.

Consider some more constructions with Greek nouns which are derived from unergative verbs in (24) (examples generated by myself):

(24) (a) To moró vadízi peristasiaká.
the-NOM.SING toddler-NOM.SING walk-3SING occasionally
'The toddler walks occasionally.'

(b) to vádizma tu morú (*peristasiaká)
the-NOM walking the-GEN toddler-GEN occasionally
'the toddler's walking occasionally'

(c) O próedros omilí taktiká.
the-NOM.SING president-NOM.SING talk-3SING regularly
'The president talks regularly.'

(d) i omilía tu proedru (*taktiká)
the-NOM talk(ing) the-GEN president-GEN regularly
'the president's talk (*regularly)

In (19a), the aspectual adverb *peristasiaká* 'occasionally' modifies the predicate, which is the unergative verb *vadízi* 'walks'. This verb does not take an internal argument. In (19b), the same adverb is not compatible with the derived nominal *vádizma* 'walking', which is a result nominal, denoting the result of the toddler's efforts to walk. Similarly, in (19c), the unergative verb *omilí* 'talks' lacks a patient/theme, and is modified by the adverb *taktiká* 'regularly'. In (19d), the derived nominal *omilía* 'talk(ing)' is a result nominal denoting a talk; hence the same adverb is not permitted in this construction. This result nominal selects as its complement the genitive *tu proedru* 'the president's', which is the possessor (or author) of the talk. Recall from section 3.3.1 that, in Grimshaw's (1990) analysis, too, result nominals project a possessor, which may sometimes be interpreted as the author. Nevertheless, in English, unergative verbs mostly correspond to underived nominals or gerunds, which are outside the scope of my study.

To sum up, in Greek, transitive and ergative/unaccusative verbs may derive process or result nominals, whereas unergative verbs derive unambiguously result nominals.

Now consider the example in (25) (adapted from Markantonatou, 1995: 287):

(25) O Jánis sinisféri hrímata káthe mína.
the-NOM John-NOM contributes money-ACC every month
'John contributes money every month.'

In (25), the verb *sinisféri* 'contributes' subcategorises for a logical object. Therefore, this verb is transitive, and selects the noun *hrímata* 'money' as its complement, which is its internal argument. The nominalisation of this transitive verb yields (26) (example adapted from Markantonatou, 1995: 287):

(26) i miniéa sinisforá *(hrimáton)
the-NOM monthly-NOM contribution-NOM money-GEN
apó to Jáni epí déka hrónja
by the-ACC John-ACC for ten years
'the monthly contribution *(of money) by John for ten years'

In (26), the derived nominal *sinisforá* 'contribution' selects the genitive *hrimáton* 'of money' as its complement obligatorily. This genitive is its obligatory internal argument. Moreover, the agent is realised through a *by*-phrase, i.e. the PP *apó to Jáni* 'by John'. Furthermore, this derived nominal is modified by the iterative adjective *miniéa* 'monthly' and the aspectual adverbial, viz. the PP *epí déka hrónja* 'for ten years'. In accordance with Alexiadou's (2001) analysis of the nominal expression in (19) (*i katastrofí *(tis pólis) apó tus varvarus mésa se tris méres* 'the destruction *(of the city) by the barbarians within three days'), this means that this derived nominal is a process nominal, which includes vP and AspectP.

Alternatively, the nominalisation of the verb *sinisféro* 'contribute' derives the process nominal in (27) (example adapted from Markantonatou, 1995: 285):

(27) i miniéa sinisforá (*hrimáton) tu Jáni
the-NOM monthly contribution-NOM money-GEN the-GEN John-GEN
epí déka hrónja
for ten years
'John's contribution of money for ten years

Notice that, in (27), the aspectual modification of the derived nominal *sinisforá* 'contribution' is acceptable, and the agent is realised in the post-nominal genitive *tu Jáni* 'John's'. In this case, the derived nominal is a process nominal, which includes AspectP. Yet, the projection of vP seems problematic, since this process nominal cannot project the obligatory theme. Note that Greek process nominals take only one argument in the genitive (see Horrocks & Stavrou, 1987, Theophanopoulou-Kontou, 1988). This leads to the conclusion that either the agent or the theme can be base-generated as the complement of the process nominal in Greek (see also 4.2.2: 11c) (**i katastrofí tis pólis ton varvaron* 'the barbarians' destruction of the city'). The question that arises is what happens to the theme when it is not projected as a syntactic argument.

The solution to this puzzle is provided by Markantonatou (1995: 278-279). She suggests that process nominals do not necessarily project a suppressed argument, but must always exhibit an internal argument, which is *visible* in one of two ways. The internal argument of a nominal predicate can be a syntactic argument, i.e. a theme or patient, which is also the internal argument of the corresponding verb (cf. 25, 26). Alternatively, the denotation of the nominal predicate is pragmatically the same as the denotation of the internal argument of the associated verb (cf. 25, 27). Note that the result of the event denoted by the process nominal *sinisforá* 'contribution' may be interpreted as the internal argument of the relevant verb, viz. *sinisféri* 'contributes'. Markantonatou (1995: 278) calls the derivation of this type of process nominals a *bound nominalisation*.

Although Alexiadou (2001) does not address this issue, I contend that her proposal can account for bound nominalisations, as well. When the theme is not projected as a syntactic argument, L^o does not select this theme as its complement. The reason for

that is that the theme is semantically identical with the abstract lexical root (√), which is projected under L^o.

Next consider the result nominal which is derived by the verb *sinisféro* 'contribute', as shown in (28):

(28) i simantikí sinisforá (tu Jáni) (*taktiká)
the-NOM significant contribution-NOM the-GEN John-GEN regularly
'John's significant contribution (*regurarly)'

In (28), the result nominal *sinisforá* 'contribution' does not take an internal argument, but selects the genitive *tu Jáni* 'John's' as its complement optionally. This post-nominal genitive occupies the possessor position. Notice that the aspectual adverb *taktiká* 'regularly' is not permissible. In accordance with Alexiadou's (2001) analysis of result nominals, this result nominal *sinisforá* 'contribution' lacks vP and AspectP.

Furthermore, recall from section 3.2.2 that, along with the lisencing of argument structure and aspectual modification, Grimshaw (1990) introduces some more diagnostic criteria to disambiguate derived nominals in English. For instance, consider Grimshaw's (1990: 48) examples below in (29):

(29) (a) *The examination of the patients was John's.
(b) The examination was John's.

Notice that the possessive form *John's* does not occur predicatively in (29a), because the derived nominal *examination* is a process nominal. In contrast, the same possessive occurs predicatively in (29b), because this derived nominal is a result nominal.

Likewise, a Greek process nominal cannot be predicated of its external argument, in contrast to a result nominal, as shown below in (30) (examples adapted from Kakouriotis, 2000: 100):

(30) (a) *I metáfrasi tu vivlíu íne tis Marías.
the translation the-GEN book-GEN is the-GEN Maria-GEN
‘*The translation of the book is Mary’s.’

(b) I metáfrasi íne tis Marías.
the translation is the-GEN Maria-GEN
‘The translation is Mary’s.’

In (30a), the noun *metáfrasi* ‘translation’ selects the genitive *tu vivlíu* ‘of the book’ as its patient. This leads to the conclusion that the translation should be interpreted as a process; hence the derived nominal is a process one, which cannot be separated from the outermost genitive *tis Marías* ‘Mary’s’ by the copula. Therefore, (30a) is ungrammatical. In contrast, when the noun *metáfrasi* ‘translation’ in (30b) refers to the translation as a book itself, the derived nominal is a result nominal and the genitive is interpreted as its possessor.

As regards the distinctive features of derived nominals in English, namely [±definite] and [±count], consider Grimshaw’s (1990: 54) examples below in (31):

(31) (a) They observed the/*one/*an assignment of the problem.
(b) They studied the/one/an assignment.
(c) *The assignments of the problems took a long time.
(g) The assignments were long/on the table.

In (31a), the only licit determiner is the definite article *the*, which precedes the process nominal *assignment*. In contrast, in (31b), the result nominal *assignment* also allows the number *one* as well as the indefinite article *an*. Moreover, in (31c), the process nominal *assignment* does not pluralise, whereas, in (31d), the result nominal *assignment* is possible in the plural.

Similarly, in Greek, process nominals are preceded by the definite article. Yet, they cannot be preceded by the indefinite article or numbers, as illustrated below in (32):

(32) (a) i pliromí tu logariasmú miniéos
the-NOM.SING payment-NOM.SING the-GEN bill-GEN monthly
'the payment of the bill monthly'
(example adapted from Alexiadou, 2001: 45)

(b) *mia pliromí tu logariasmú miniéos
a/one payment the-GEN bill-GEN monthly
'a/one payment of the bill monthly'

In (32a), the process nominal *pliromí* 'payment' is determined by the definite article *i* 'the'. In contrast, in (32b), the indefinite article *mia* 'a' or the number *mia* 'one' – note that they are homophonous – is ungrammatical, because it cannot determine the process of paying, which is denoted by the process nominal *pliromí* 'payment'.

In contrast to process nominals, result nominals can be preceded by the indefinite article or numbers, and also pluralise, as illustrated below in (33):

(33) (a) mia pliromí / tris pliromés
a/one payment/three payments
'a/one payment/three payments'
(example adapted from Kakouriotis, 2000: 100)

(b) *i pliromés tu logariasmú miniéos
the-NOM.PL payment-NOM.PL the-GEN bill-GEN monthly
'the payments of the bill monthly'

In (33a), the nouns suggest the instance of paying at one or more different times. Therefore, the derived nominal *pliromí* 'payment' can be determined by the indefinite article *mia* 'a' or the number *mia* 'one'. It follows that this derived nominal is a result nominal, which denotes the resultant state of the event, and consequently can be counted; hence this derived nominal can occur in the plural *pliromés* 'payments'. In contrast, the process nominal *pliromí* 'payment' does not pluralise; hence (33b) is ungrammatical.

Recall from section 4.2.2 that, in Greek, some derived nominals are ungrammatical with two genitives (cf. 11c) (**ton varvaron i katastrofí tis pólis* 'the barbarians' destruction of the city'). In contrast, two genitives are possible with some other derived nominals (cf. 13b) (*tu Kakridí i metáfrasi tis Odísias* 'Kakridis's translation of the Odyssey'). Furthermore, recall from section 3.2.2 that the interpretation of certain derived nominals is ambiguous with respect to their distinction between process and result nominals. The asymmetry which is observed between the two different goups of Greek derived nominals can be explained as a consequence of the distinction between process and result nominals. Indeed, compare Kolliakou's (1995) examples in (34) (see also section 4.2.2):

(34) (a) i metáfrasi *(tis Odísias) (apó to Maroníti)
the translation the-GEN Odyssey-GEN by the Maronitis
mésa se éna kalokéri
within one summer
'the translation *(of the Odyssey) (by Maronitis) within one summer'

(b) i metáfrasi tis Odísias (*tu Maroníti)
the translation the-GEN Odyssey-GEN the-GEN Maronitis-GEN
mésa se éna kalokéri
within one summer
'Maronitis's translation of the Odyssey within one summer'

(c) i metáfrasi tis Odísias tu Maroníti
the translation the-GEN Odyssey-GEN the-GEN Maronitis-GEN
íne sto ráfi
is on-the shelf
'Maronitis's translation of the Odyssey is on the shelf.'

In (34a), the theme *tis Odísias* 'of the Odyssey' is the obligatory internal argument of the nominal predicate *metáfrasi* 'translation', which, therefore, is a process nominal, and consequently, allows for aspectual modification by the PP *mésa se éna kalokéri* 'within one summer'. Hence, the agent may be realised via the *by*-phrase *apó to Maroníti* 'by Maronitis'. Then, it follows that the genitive *tu Maroníti* 'Maronitis's' is

disallowed in (34b) in the presence of the aspectual modifier and the obligatory internal argument. In contrast, (34c) is well-formed as the acceptability of the same genitive *tu Maroníti* 'Maronitis's' signals that the derived nominal *metáfrasi* 'translation' is a result nominal, denoting a concrete entity, which can be located on a shelf (cf. 22).

In the light of these observations, the difference between nominal expressions with only one genitive (cf. 11c) and nominal expressions with two genitives (cf. 13b) provides another diagnostic criterion, which is established to distinguish process nominals from result nominals in Greek (see Markantonatou (1992, 1995), Kolliakou (1995) for a discussion of different types of genitive). It follows that, in English, this test is irrelevant as active constructions of derived nominals are acceptable (cf. 10a) (*the barbarians' destruction of the city*). Nonetheless, an obvious question to ask concerns the status of the innermost genitive *tis Odísias* 'of the Odyssey' in (34c). I will address this issue in section 4.5.3.

4.4. Passivisation in Greek vs English derived nominals

Recall from section 4.3 that process nominals in Greek may be derived from transitive or ergative/unaccusative verbs. Such nominals license argument structure obligatorily and allow aspectual adverbs. Consider Alexiadou and Stavrou's (1998a: 104, 116) examples in (35):

(35) (a) i eksétasi *(ton fititón) epí dío óres
the examination the-GEN students-GEN for two hours
'the examination of the students for two hours'

(b) i ptósi *(ton timón) stadiaká
the-NOM.SING fall-NOM.SING the-GEN.PL prices-GEN.PL gradually
'the fall of the prices gradually'

In (35a), the patient *ton fititón* 'of the students' is base-generated in the complement position of the derived nominal *eksétasi* 'examination', which takes its internal

argument obligatorily, and is modified by the aspectual PP *epí dío óres* 'for two hours'. Similarly, in (35b), the theme *ton timón* 'of the prices' is also base-generated in the complement position of the derived nominal *ptósi* 'fall', which takes its internal argument obligatorily, and is modified by the aspectual adverb *stadiaká* 'gradually'.

These observations lead to the conclusion that both of these derived nominals are process nominals (see also section 4.3). Recall from the previous chapter that, according to Borer's (1993) and Alexiadou's (2001) accounts of process nominals, a process nominal should include a verbal projection. Under Borer's analysis, this projection should be a full VP. As the complement of a Greek process nominal is not assigned accusative Case, this VP would have to undergo passivisation. However, passivisation of ergative/unaccusative verbs is not possible. Therefore, Borer's analysis is not feasible for Greek process nominals. Note that passivisation of unergative verbs is also impossible in Greek. Now, recall from section 4.3 that nominalisation of Greek unergative verbs, yields result nominals. Nevertheless, in Borer's account, result nominals do not project a verbal projection. As a consequence, the impossibility of Greek unergative verbs to passivise does not provide evidence against Borer's proposal.

Furthermore, recall from section 3.2.1 that, in English, derived nominal expressions may correspond to active or passive sentences (cf. 3.2.1 (1a, b, c d, and e) repeated here as (36) for further discussion):

(36) (a) the enemy's destruction of the city
(b) The enemy destroyed the city.
(c) the destruction of the city by the enemy
(d) the city's destruction by the enemy
(e) The city was destroyed by the enemy.

Notice that (36a) can be related to (36b), whereas (36c & d) can be related to (36e). In comparison to (36a & b), consider Kakouriotis's (2000: 93) Greek examples in (37):

(37) (a) To apóspazma ektélese ton ehmáloto.
the-NOM squad-NOM executed the-ACC prisoner-ACC
'The squad executed the prisoner.'

(b) (*tu apospázmatos) i ektélesi tu ehmalotu
the-GEN squad-GEN the execution the-GEN prisoner-GEN
'the squad's execution of the prisoner'

Recall from section 4.3 that, in Greek, process nominals do not permit two genitives. Kakouriotis (2000: 93) claims that, due to the incompatibility of the agentive genitive *tu apospázmatos* 'the squad's' with the patient *tu ehmalotu* 'of the prisoner', (37b) cannot correspond to the active sentence in (37a). Moreover, in comparison to (36c & e), consider Kakouriotis's (2000: 93) Greek examples in (38):

(38) (a) O ehmálotos ekteléstike apó to apóspazma.
the-NOM.SING prisoner-NOM.SING was-executed by the squad
'The prisoner was executed by the squad.'

(b) i ektélesi tu ehmalotu apó to apóspazma
the execution the-GEN prisoner-GEN by the squad
'the execution of the prisoner by the squad'

In both (38a) and (38b), the agent is realised through a *by*-phrase, i.e. the PP *apó to apóspazma* 'by the squad'. Kakouriotis (2000: 93) claims that Greek process nominal expressions like (38b) correspond to passive sentences like (38a). Recall also from section 4.3 that, in Greek, two genitive forms are permitted with result nominal expressions, like in (13b) (*tu Kakridí i metáfrasi tis Odísias* 'Kakridis's translation of the Odyssey'). Since result nominals do not have verbal properties, (13b) is not associated with a sentence.

The lack of an agentive genitive in (37b) and the occurrence of a *by*-phrase in (38b) lead Kakouriotis (2000: 93) to the conclusion that the derivation of the Greek process nominal *ektélesi* 'execution' involves the obligatory passivisation of the source verb, viz. *ekteló* 'execute'. However, I have already argued against this hypothesis. On a

par with Borer's (1993) analysis, Kakouriotis's account fails to encompass Greek process nominals which are derived from ergative/unaccusative verbs. In contrast, Alexiadou's (2001) analysis of process nominals accounts for the derivation of all nouns, irrespective of the type of the source verb. In her proposal, all process nominals include a [-active] v. Recall from sections 2.4.3 and 3.3.3 that this feature specification is responsible for the deficient (passive/ergative) character of v.

Furthermore, compare (36c) (*the destruction of the city by the enemy*) and (36d) (*the city's destruction by the enemy*) with their Greek counter-examples, as shown in (39):

(39) (a) i katastrofí tis pólis apó tus varvarus
the destruction the-GEN city-GEN by the barbarians
'the destruction of the city by the barbarians'

(b) tis pólis *(i) katastrofí apó tus varvarus
the-GEN city-GEN the destruction by the barbarians
'the city's destruction by the barbarians'

On the one hand, in (39a), the patient *tis pólis* 'of the city' is base-generated as the complement of the process nominal *katastrofí* 'destruction', like its English counterpart. Note that, according to Alexiadou (2001: 78), this process nominal is passive. Conversely, recall from section 3.3.3 that, in Alexiadou's (2001) theory, passive nominals are process nominals. On the other hand, (39b) is the result of A'-movement (see section 4.2.2). Therefore, (39b) is both a passive nominal and a process nominal.

Moreover, the process interpretation of passive nominals in Greek, like (39b), is confirmed by aspectual modification, as shown in (40):

(40) tis pólis i katastrofí apó tus varvarus mésa se pénde leptá
the-GEN city-GEN the destruction by the barbarians within five minutes
'the city's destruction by the barbarians within five minutes'

In (40), the passive nominal *katastrofí* ‘destruction’ is modified by the aspectual PP *mésa se pénde leptá* ‘within five minutes’. Hence, this passive nominal is by no means a result nominal. On the contrary, it is a process nominal.

Therefore, Grimshaw’s (1990) and Borer’s (1993) assumption that English passive nominals, like (36d), are result nominals do not account for the Greek data. In contrast, Alexiadou’s (2001) proposal that passive nominals are process nominals, which include vP and AspectP, accommodates the data from English as well as Greek nominal constructions. For this reason, I consider Alexiadou’s theory to be more comprehensive.

4.5. Genitive Case in Greek nominal expressions

4.5.1. Genitive Case assignment in Greek

Recall from section 2.4.1 that, according to Abney (1987: 85), possessive/genitive Case in English is structural Case, which is assinged to SpecDP and is marked with the possessive morpheme (*’s*). This prenominal genitive may receive different readings, viz. possessor, patient/theme, or agent. Nevertheless, the patient/theme can also be base-generated post-nominally (see section 3.2.1). Then, the preposition *of* is required to be inserted so as to assign structural Case to the internal argument of the nominal predicate. For instance, consider the following constructions in (41) (examples taken from Coene and D’hulst, 2003: 2, and Chomsky, 1981: 49-52):

(41) (a) *the student’s* book
(b) *the city’s* destruction
(c) *the enemy’s* destruction *of the city*

In (41a), the possessor of the book is realised in the possessive form *the student’s*, which is base-generated in SpecDP. Similarly, in (41b), the patient of the derived nominal *destruction* is represented by the prenominal genitive *the city’s*. In contrast, in (41c), the agent of this derived nominal is realised in the prenominal genitive *the enemy’s*, whereas the patient of the same derived nominal selects the PP *of the city* as its complement.

The Greek genitive Case is morphologically marked, as illustrated in Table 2:

Table 2

	Singular		*Plural*	
	Nominative	**Genitive**	Nominative	**Genitive**
Masculine	-as	**-a**	-es	**-on**
	-is	**-i**	-es	**-on**
	-os	**-u**	-i	**-on**
Feminine	-a	**-as**	-es	**-on**
	-i	**-is**	-es/-is	**-on/-eon**
	-os	**-u**	-i	**-on**
Neuter	-o	**-u**	-a	**-on**
	-i	**-ju**	-ja	**-jon**
	-io	**-iu**	-ia	**-ion**
	-os	**-us**	-i	**-(e)on**
	-ma	**-matos**	-mata	**-maton**

Traditionally, the genitive in Greek is termed *possessive*, *subjective*, or *objective*, irrespective of word order. This means that genitive Case in Greek may express the possessor when a genitive DP occurs with a common noun, say *vivlio* 'book', or a result nominal, e.g *metafrasi* 'translation'. Alternatively, the subject or the object of the source verb from which a process nominal derives, may receive genitive Case in process nominal expressions. It follows from this that genitive Case in Greek may also denote either the patient/theme or the agent in a process nominal expression. Consider the following examples in (42):

(42) (a) to vivlío/i metáfrasi tu Pétru
the book/the translation the-GEN Peter-GEN
'Peter's book/translation'

(b) tu Pétru to vivlío/i metáfrasi
the-GEN Peter-GEN the book/the translation
'Peter's book/translation'

(c) i katastrofí tis pólis
the destruction the-GEN city-GEN
'the destruction of the city'

(d) tis pólis i katastrofí
the-GEN city-GEN the destruction
'the city's destruction'

(e) i miniéa sinisforá tu Jáni
the-NOM monthly contribution-NOM the-GEN John-GEN
epí déka hrónja
for ten years
'The monthly contribution of John for ten years'

(f) tu Jáni i miniéa sinisforá
the-GEN John-GEN the-NOM monthly contribution-NOM
epí déka hrónja
for ten years
'John's monthly contribution for ten years'

In (42a & b), the genitive DP *tu Pétru* 'Peter's' represents the possessor of the noun *vivlío* 'book' / *metáfrasi* 'translation'. In (42c & d), the post-nominal genitive *tis pólis* 'of the city' is the theme of the derived nominal *katastrofí* 'destruction'. Likewise, in (42e & f), the post-nominal genitive *tu Jáni* 'John's' is the agent of the derived nominal *sinisforá* 'contribution'.

As Horrocks and Stavrou (1985, 1987) argue, the genitive in Greek is base-generated as the complement of the lexical head. As a consequence, there is only one syntactic position, viz. the complement position of a noun head, available for the assignment of genitive Case in Greek. Arguably, the structure of Greek noun phrases allows Move-α

to raise the genitive DP from its complement position to SpecDP (see section 4.2.2). Yet, since SpecDP is an A'-position in Greek, this DP does not require to be moved to SpecDP for Case reasons. Since genitive DPs are base-generated as the complement of the lexical head, genitive Case in Greek must be assigned post-nominally. This means that Greek nouns assign genitive Case to their complements in the same way verbs assign accusative Case to their complements. But recall from section (2.3.1) that nouns are not Case assigners. As argued in Alexiadou (2001: 177-9) and Mouma (1993: 83-84), genitive Case is assigned by a functional node with the feature [+Gen]. It seems that there is not yet consensus on the functional node which bears this specification.

Recall from section 4.3 that, in Greek result nominal expressions, the possessor is realised in genitive Case in Greek (cf. 32a & b). Moreover, as Markantonatou (1995: 281) points out, the θ-roles which are assigned to the arguments of derived nominals may be realised in genitive DPs in Greek (see section 4.2.2 for a discussion following Longobardi, 2001: 566). In Markantonatou's terms, these genitive DPs are, therefore, *thematic* genitives. Consequently, the θ-role of theme/patient, which is assigned to the internal argument of a nominal predicate, is realised in genitive Case in Greek (cf. 42c & d). Instead, the genitive agent is only allowed in process nominals when the theme is not realised as a genitive argument (cf. 42e & f). This means that, in Greek process nominals which derive from transitive verbs, only one argument receives genitive Case, which is thematic (see Markantonatou, 1995: 182, Alexiadou & Stavrou, 1998a: 105, Alexiadou, 2001: 39).

In Chomsky (1986), genitive Case is inherent (see section 2.3.1). However, Mouma (1993: 84) assumes that genitive Case is assigned under government in Greek and, consequently, it is structural. Alexiadou (2001: 174) also argues in favour of the structural rather than inherent character of genitive Case. Under Alexiadou's proposal, a lexical head (L^o) hosts an abstract lexical root (√), which assigns a structural Case to its complement. At PF, accusative Case is assigned in verbalisations, whereas genitive Case is assigned in nominalisations. Since accusative Case is structural, Alexiadou claims that genitive Case is structural, too. Therefore, in contrast to Chomsky (1981), Alexiadou claims that nouns are Case assigners, as their roots assign Case to their complements.

In conclusion, the canonical position of genitive Case in Greek is postnominal, but it can be moved to prenominal position through an A'-movement. In Greek, the possessor is assigned genitive Case in nominal expressions with result nominals. In contrast, genitive Case is assigned to the patient/theme in nominal expressions with process nominals, whereas the agent is realised via a *by*-phrase (see section 4.4). Alternatively, the agent is assigned genitive Case only when the theme does not.

4.5.2. Ambiguity in Greek genitive DPs: patient/theme, possessor or agent?

Recall from section 4.3 that a derived nominal in Greek, say *perigrafí* 'description', may be interpreted as either the process of an event or the result of an event, i.e. its end-product. This brings about an ambiguity between a process reading and a result reading of derived nominals in Greek, like in English (see also section 3.2.2). As noted in the previous section, derived nominals in Greek select a DP-complement, which receives genitive Case. For instance, consider the following construction in (43) (example adapted from Alexiadou, 2001: 149):

(43) i perigrafí tu topíu (epí mía óra)
the description the-GEN landscape-GEN for an hour
'the description of the landscape (for an hour)'

In (43), when the noun *perigrafí* 'description' denotes the process of the 'describing', this derived nominal is a process nominal, which can be modified by the aspectual PP *epí mía óra* 'for an hour'. In contrast, when the same noun refers to a concrete entity in the world, e.g. a poem or a book, this derived nominal is a result nominal, which disallows aspectual modification. Notice that the semantic specification of the genitive DP *tu topíu* 'of the landscape' suggests that genitive Case is assigned to the theme. Recall from section 3.3.3 that, according to Alexiadou (2001: 20) result nominals can take a theme, like process nominals.

However, the interpretation of a genitive argument is ambiguous sometimes, as exemplified below in (44) (examples taken from Alexiadou, 2001: 39, and Mouma, 1993: 81):

(44) i perigrafí tu Jáni (epí mía óra)
the description the-GEN John-GEN for an hour
'the description of John / John's description (for an hour)'

In (44), the derived nominal *perigrafí* 'description' selects the possessive/genitive *tu Jáni* 'John's/of John', as its complement. Interestingly, this complement may be assigned the θ-role of theme or the θ-role of possessor when this derived nominal is a result nominal, which disallows aspectual modification. In contrast, when the aspectual modifier, viz. the PP *epí mía óra* 'for an hour', gives the derived nominal *perigrafí* 'description' a process reading, the genitive *tu Jáni* 'John's/of John' is not assigned the θ-role of possessor, but the θ-role of theme. Nonetheless, this genitive might as well be interpreted as the agent of the process nominal. Recall from section 4.5.1 that genitive Case in Greek may express an agent when the theme is not realised in the genitive. In this case, the theme of this process nominal is not syntactically projected. Consequently, Markantonatou (1995: 279) assumes that the agent is not realised as a *by*-phrase, but as the genitive *tu Jáni* 'John's', which occupies the complement position of the lexical head (see section 4.5.1). Recall from section 4.3 that, in Markantonatou's (1995: 278) terms, this is an instance of bound nominalisation. This means that the internal argument of the Greek transitive verb *perigráfo* 'describe' could be regarded as part of the lexical conceptual structure of the nominal predicate *perigrafí* 'description'. Therefore, the theme is denoted by the predicate itself, and (44) complies with the incompatibility of two thematic genitives in Greek process nominals (cf. 11c) (**ton varvaron i katastrofí tis pólis* 'the barbarians' destruction of the city').

As a consequence, it is sometimes impossible to decide whether a genitive argument is assigned the θ-role of theme or the θ-role of agent, unless the agent is realised through a *by*-phrase. Compare (44) with the following construction in (45) (example generated by myself):

(45) i perigrafí tu Jáni apó ti mitéra tu
the description the-GEN John-GEN by the mother his
'the description of John/John's description by his mother'

In (45), the genitive DP *tu Jáni* 'John's/of John' is unambiguously the theme of the process nominal *perigrafí* 'description', as the agent is realised in the PP *apó ti mitéra tu* 'by his mother'.

In conclusion, process nominals may take the theme as a genitive argument and the agent as a *by*-phrase. Alternatively, process nominals may take either the theme or the agent in the genitive. In contrast, result nominals may take a theme or a possessor, but also both a theme *and* a possessor. Consider Alexiadou's (2001: 149) example in (46):

(46) i perigrafí tu topíu tu Seféri
the description the-GEN landscape-GEN the-GEN Seferis-GEN
'Seferis's description of the landscape'

In (46), the genitive *tu topíu* 'of the landscape' is assigned the θ-role of theme. In addition, the genitive *tu Seféri* 'Seferis's' is possessive, not agentive. Notice that the derived nominal *perigrafí* 'description' is a result nominal (cf. 34c) (*I metáfrasi tis Odísias tu Maroníti íne sto ráfi*. 'Maronitis's translation of the Odyssey is on the shelf.').

It follows from the foregoing discussion that two genitive arguments are compatible with result nominals in Greek. I will discuss how this is possible in the next section.

4.5.3. Co-occurrence of two genitives in post-head position

Recall from section 4.5.1 that, as pointed out in Horrocks and Stavrou (1985, 1987), only one structural Case is allowed in Greek noun phrases. This structural Case is genitive Case, which is assigned to the complement of the lexical head. This means

that process nominals do not license two post-head genitives in Greek. Consider the following construction in (47) (example adapted from Alexiadou, 2001: 39, 40):

(47) i katastrofí tis pólis (*ton varvaron)
the destruction the-GEN.SING city-GEN the-GEN.PL barbarians-GEN
se pénde leptá
in five minutes
'the barbarians' destruction of the city in five minutes'

In (47), the process nominal *katastrofí* 'destruction' assigns genitive Case, which is structural Case, to its complement *tis pólis* 'of the city'. Consequently, the outermost genitive *ton varvaron* 'of the barbarians' is not allowed as an agentive genitive (cf. fn31). Therefore, when the complement position is occupied by the patient/theme, the agent must be realised otherwise, namely through a *by*-phrase (cf. 11a) (*i katastrofí tis polis apó tus varvarus* 'the destruction of the city by the barbarians').

Nonetheless, result nominals permit constructions with two post-head genitives in Greek, as illustrated in (34c) repeated here as (48):

(48) i metáfrasi tis Odísias tu Maroníti
the translation the-GEN Odyssey-GEN the-GEN Maronitis-GEN
íne sto ráfi
is on-the shelf
'Maronitis's translation of the Odyssey is on the shelf.'

In (48), the derived nominal *metáfrasi* 'translation' is a result nominal, which is compatible with two genitive arguments. In particular, the innermost genitive *tis Odísias* 'of the Odyssey' is assigned the θ-role of theme and the outermost genitive *tu Maroníti* 'Maronitis's' is assigned the θ-role of possessor. Since a noun head (N^o) assigns genitive Case to only one argument, which is base-generated as its complement, two questions arise. Firstly, which one of these two arguments occupies this syntactic position, i.e. the complement of (N^o)? Secondly, how does the other argument also occur in the genitive?

Following Markantonatou (1992), Alexiadou (2001: 147, 149) assumes that the outermost genitive *tu Maroníti* 'Maronitis's', viz. the possessor, is base-generated as the complement of (N^o). Here, the noun head is a sort of compound noun, which is formed by the derived nominal *i metáfrasi* 'the translation' and the theme *tis Odísias* 'of the Odyssey'. This compound noun denotes an end-product like a common noun, e.g. *vivlío* 'book'. As Agathopoulou (2003: 3) points out, compound formation in Greek ordinarily yields proper compound nouns, which are single morphological units, e.g. *maheropíruna* 'cutlery'. These compounds consist of the stems of two words, i.e. ***mahér****-i* 'knife' and ***pirún****-i* 'fork', which are linked by the vowel *o*. The compound noun is inflected as a unit (see Ralli (1992) for a detailed discussion of compounds).

However, compound formation in Greek also yields *phrasal compounds*, which exhibit properties of both compounds and noun phrases. These compounds consist of two morphologically autonomous words, which are inflected individually but their internal structure is not affected by syntactic operations. According to Agathopoulou (2003: 3), a compound form in Greek may involve one noun, which is the head, and another noun inflected for genitive case, which is morphological and, therefore, need not be assigned syntactically. For instance, consider the following nominal constructions in (49):

(49) (a) fakí epafís
lenses-NOM.PL.MASC contact-GEN.SING.FEM
'contact lenses'
(example taken from Alexiadou, 2001: 149)

(b) (to) plindírio (ton) rúhon
the washer-NOM.SING.NEUT the clothes-GEN.PL.NEUT
'(the) washing-machine'

Notice that both of the morphological compounds in (49) are left-headed. However, each head and each genitive is inflected for number and gender independently. Moreover, in (49b), the determiner *to* 'the' is optional for the head *plindírio* 'washer', whereas the determiner *ton* 'of the' is independently optional for the genitive *rúhon*

‘of clothes’. As a consequence, each lexical constituent of the compound is an autonomous word.

These observations reinforce Markantonatou’s (1995: 281: fn7) assumption that the noun phrase *i metáfrasi tis Odísias* ‘the translation of the Odyssey/the Odyssey-translation’ is a compound form. Indeed, the lexical constituents of this compound are not subject to separation and subsequent movement to SpecDP, in contrast to the general movability of genitive DPs (see section 4.2.2). Consider Alexiadou’s (2001: 148) examples in (50):

(50) (a) *tis Odísias i metáfrasi tu Kakridí
the-GEN Odyssey-GEN the translation the-GEN Kakridi
‘The Odyssey’s translation of Kakridis’’

(b) tu Kakridí i metáfrasi tis Odísias
the-GEN Kakridi-GEN the translation the-GEN Odyssey-GEN
‘Kakridis’s translation of the Odyssey’

In (50a), the theme *tis Odísias* ‘Odyssey’s’ cannot be separated from the derived nominal *i metáfrasi* ‘the translation’ and moved to SpecDP. Hence (50a) is ill-formed. In contrast, (50b), where the possessor *tu Kakridí* ‘Kakridis’s’ has raised from complement position to SpecDP, is well-formed.

In contrast to Markantonatou (1992), Kolliakou (1995) argues in favour of a semantic rather than thematic distinction of the two genitives in (48). Recall from section 4.5.1 that result nominals select *possessive* genitives as opposed to process nominals, which may select either *theme* or *agent* genitives. According to Kolliakou, since the derived nominal *metáfrasi* ‘translation’ in (42) is a result nominal, both genitives in (42) are possessive. However, the θ-role of possessor is assigned to only one of the two genitive DPs. Kolliakou proposes that it is the outermost genitive *tu Maroníti* ‘Maronitis’s’ which receives a possessive reading. In contrast, the innermost genitive *tis Odísias* ‘of the Odyssey’ receives a *pseudo-possessive* reading, in the broad sense of ‘having the property of’ rather than the narrow sense of ‘ownership’ (see Huang (1985) for a discussion of pseudo-possessives).

Interestingly, Kolliakou (1995) terms the outermost genitive *tu Maroníti* 'Maronitis's' a *referential* genitive (*RG*), which picks out a particular entity in discource, whereas she terms the innermost genitive *tis Odísias* 'of the Odyssey' a *kind* genitive (*KG*), which identifies the type of that entity. This KG occurs with common nouns in Greek, as illustrated in (51) (example taken from Alexiadou, 2001: 149):

(51) to vivlío tis istorías
the-NOM book-NOM the-GEN history-GEN
'the history book/the book of history'

In (51), the noun *vivlío* 'book' selects the possessive genitive *tis istorías* 'of the history'. However, this genitive does not receive a possessive reading. On the contrary, as pointed out in Kolliakou (1995), this is a KG, which denotes the 'property/type of the book'. Kolliakou's claim gains support from *wh*-questions, as shown below in (52) (examples taken from Alexiadou, 2001: 148):

(52) (a) Tínos i metáfrasi tis Odísias íne sto ráfi?
whose the translation the-GEN Odyssey-GEN is on-the shelf
'Whose translation of the Odyssey is on the shelf?'

(b) *Tínos i metáfrasi tu Kakridí íne sto ráfi?
whose the translation the-GEN Kakridi-GEN is on-the shelf
'*Whose Kakridis's translation is on the shelf?'

In (52), the question requires an answer which denotes the possessor. Notice that the *wh*-word *tínos* 'whose' is linked to the RG *tu Kakridí* 'Kakridis's', which can be interpreted as the possessor. It follows that the co-occurrence of the *wh*-word with the RG is impossible. Hence (52b) is ungrammatical. Moreover, Kolliakou (1995) regards the KG *tis Odísias* 'of the Odyssey' as a kind modifier. If this KG received a possessive reading, the *wh*-word *tínos* 'whose' could be linked to the KG in (52b). On the contrary, the ungrammaticality of (52b) corroborates Kolliakou's theory.

However, I do not adopt Kolliakou's (1995) theory for two reasons. Firstly, Kolliakou (1995) suggests that, in (48) (*I metáfrasi tis Odísias tu Maroníti íne sto ráfi*. 'Maronitis's translation of the Odyssey is on the shelf.'), the KG *tis Odisias* 'of the Odyssey' denotes the 'Odysseic' property of the result nominal *metáfrasi* 'translation'. Arguably, this is not a felicitous interpretation though it might somehow apply to other examples. Rather, I would think that the outermost genitive *tu Maroníti* 'Maronitis's' may receive a *style* reading in the sense of 'Maronitian' as opposed to the genitive *tu Kakridí* 'Kakridis's', which may be interpreted as 'Kakridian'. Recall from section 3.2.2 that, according to Grimshaw (1990), this possessive, as the possessive *John's* in *John's examination*, is a modifier which denotes either ownership or authorship.

Secondly, such an analysis requires semantic equipment at the expense of syntax. Kolliakou (1995) does not provide a solution to the structural problem of the co-occurrence of the two genitives in result nominals. Focusing on the semantic account of the differences between the KG and the RG, she does not deal with the assignment of genitive Case on each one of them. Therefore, Kolliakou's (1995) analysis does not answer the question how Case is assigned.

Independently, suppose each of the two genitive DPs were assigned genitive Case in syntax. Then the theme genitive *tis Odísias* 'of the Odyssey', or the KG in Kollikou's terms, would be base-generated as the complement of the head *metáfrasi* 'translation' and, consequently, would receive Case from this head. Also, the possessor *tu Maroníti* 'Maronitis's', or the RG in Kolliakou's terms, would receive Case in a specifier position in the same way possessive Case is assigned in SpecDP in English. If such an account of genitive Case assignment were possible for result nominals in Greek, the question that arises is why it would not be possible for process nominals (cf. 11b) repeated here as (53):

(53) *i katastrofí tis pólis ton varvaron
the destruction the-GEN.SING city-GEN the-GEN.PL barbarians-GEN
'the barbarians' destruction of the city'
(examples taken from Alexiadou, 2001: 40)

In (53), the patient genitive *tis pólis* 'of the city' is base-generated as the complement of the process nominal *katastrofí* 'destruction'. Why can the agent genitive *ton varvaron* 'the barbarians' not project in a specifier position on a par with the possessor *tu Maroníti* 'Maronitis's'?

In the light of these remarks, I consider Markantonatou's (1992) view of compound formation to be superior to Kolliakou's (1995) assumption of pseudo-possessive genitives. Even more, Markantonatou's proposal complies with Alexiadou's (2001) theory.

4.6. Summary

In this chapter, I provided a corpus of Greek data, which I compared to the English data discussed in the previous chapters. My major aim was to examine derived nominals in the light of Alexiadou's (2001) account of nominalisation, as opposed to the work which has been done by a number of researchers. However, I also drew on Markantonatou's (1992) analysis of nominalisation in Greek when necessary.

Firstly, I established the relationship of Greek derived nominals with their source verbs focusing on transitive, ergative, and unergative verbs. I also presented the architecture of Greek noun phrases, in contrast to English noun phrases, distinguishing process nominals from result nominals in Greek. Secondly, I explored passivisation and genitive Case as well as θ-role assignment in Greek DPs, supporting Alexiadou's (2001) theory that process nominals involve functional projections, which play a crucial role in describing and explaining nominal patterns as adequately as possible. Following this, along with Markantonatou's (1992) proposal, I touched upon ambiguous nominal expressions in Greek in an attempt to give a syntactic explanation of their various interpretations.

Finally, I addressed the paradox of more than one post-nominal genitive in Greek, following Alexiadou's (2001) assumption that their co-occurrence is an instance of result nominals rather than process nominals.

Chapter 5

Conclusion

In this study, I discussed a number of proposals which attempt to account for the derivation of nouns from verbs. Although I carried out this discussion in the light of the general framework of the theory of Principles and Parameters (P&P), I explored nominalisation from different points of view taking into consideration the diversity of certain sub-theories. Admittedly, two or more distinct viewpoints typically differ from each other in one respect, but often converge in another. As a matter of fact, this conclusion is drawn specifically with regard to Grimshaw's (1990) and Alexiadou's (2001) theories of derived nominals, as I quote below from Alexiadou and Grimshaw (2008: 1):

> …, we reach the conclusion that, with respect to a core set of phenomena, the two theories are remarkably similar – specifically, they achieve success with the same problems, and must resort to the same stipulations to address the remaining issues that we discuss (although the stipulations are couched in different forms).

In chapter 2, I introduced the theory of Principles and Parameters (P&P), and I presented the core assumptions of its earlier stage, which is called Government-Binding (GB) theory. In particular, I explored how the principles of X-bar theory, Case theory and θ-theory apply to lexical as well as functional categories, and how they come into interaction with one another. My aim was to first consider the application of these principles to (lexical/functional) verbal categories as well as (lexical/functional) nominal categories. Then, I focused on the internal structure of noun phrases, viz. DPs, in English and Greek. In my research, it appeared step by step that the role of functional categories in syntax was gaining support. Interestingly, I found that the variations of abstract syntax could more flexibly be accommodated within more recent developments of P&P.

In chapter 3, I examined some theories of derived nominals. Firstly, I outlined the empirical and theoretical issues which are raised by a consideration of the distribution

and structure of derived nominals in English. Moreover, I also highlighted the need to both explain why derived nominals seem to license argument structure inconsistently and show how nouns are derived from verbs syntactically. To this end, I presented the major part of Grimshaw's (1990) diagnostic test, which helps disambiguate derived nominals, and I drew a distinction between two noun classes, namely process and result nominals.

Secondly, I introduced different approaches to accounting for the derivation of nouns. I especially focused on three different models, i.e. Grimshaw's (1990), Borer's (1993), and Alexiadou's (2001). According to the first model, process nominals license argument structure in contrast to result nominals. According to the other two models, process nominals include some sort of verbal projection in contrast to result nominals. Interestingly, I found that the verbal projection may be either lexical, notably a VP, or functional, notably a vP. Along the line of research by Grimshaw's and Borer's models, the lexical head (N^o) already has the grammatical specification [+N] when it enters syntax. Along the line of research by Alexiadou's model, the lexical head (L^o) enters syntax as an abstract root (√), which may, subsequently, be specified as nominal if it eventually merges with functional nominal nodes, i.e. Num/D. I adopted the latter approach.

In chapter 4, I embarked on a discussion of the derivation of nouns in Greek in juxtaposition with English. In particular, I considered the morphological derivation of nouns from varying verb classes in Greek, the internal structure of Greek DPs, and the distribution of derived nominals in Greek. In my research, I found that an account of Greek derived nominals in the light of the lexical approach was rather limited. In contrast, I found that an alternative account, which focuses on the derivation of nouns from various types of verbs, including ergative/unaccusative verbs, confirms the theory I had adopted in chapter 3. Furthermore, I investigated the differences between process and result nominals in Greek as opposed to English. I found an additional criterion on the basis of which a process nominal is distinguished from a result nominal in Greek.

While focusing on passive nominals, I once again compared the three theoretical models with respect to their descriptive and explanatory adequacy. Finally, I

discussed genitive Case in Greek nominal expressions. I explored Case assignment and realisation as well as θ-role assignment in an attempt to explain the differences between English and Greek data. Interestingly, I noticed that two post-head thematic genitives are not possible in Greek process nominals, but are permissible in Greek result nominals. By comparison of two different proposals, I found the solution to this problem in compound formation.

In this study, I have introduced two aspects of the relationship between the morphological processes and the syntactic processes during nominalisation, namely Distributed Morphology (DM) and Parallel Morphology (PM). I have presented certain analyses of derived nominals from the one aspect or the other, but I have argued in favour of Alexiadou's (2001) structural/configurational analysis. As I have found, Alexiadou's proposal best explains how English and Greek process nominals which are derived from transitive verbs, respectively differ from result nominals. This proposal also accounts for the syntactic derivation of Greek nouns which are derived from ergative/unaccusative verbs.

In English, ergative/unaccusative verbs, e.g. *break*, and *fall*, may yield a gerund, i.e. *breaking*, or a homophonous noun, i.e. *fall*. As far as English gerundive nominals are concerned, they are derived from verbs by means of affixation. Under Alexiadou's analysis, the suffix *-ing* is attached to the stem above vP and AspectP in English gerunds, like the suffix *-tion* is attached to the stem above vP and AspectP in English process nominals. As regards English nouns which take no suffix but are identical to verbs in their forms, the following questions are raised:

a. Are they derived from verbs by means of covert affixation (with an Ø-suffix to be attached)?
b. If they are considered to be derived nominals, which noun class, i.e. process or result, do they belong to? Do they attest to Grimshaw's (1990) diagnostics?
c. How can the derivation of such English nouns be described and accounted for in Alexiadou's (2001) system?

I shall leave these issues open for further investigation.

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