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The Comparison of Functional Categories in Nominal and Verbal Domains in English and Czech: with the Focus on Aspect and Countability

Doctoral Dissertation

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ANOTACE

Tato práce se zaměřuje na porovnání nominálních a verbálních kategorií v anglickém a českém jazyce. Hlavní důraz je kladen na analýzu vzájemného působení aspektu a počitatelnosti. Na základě argumentů diskutovaných v této práci je navrženo, aby byly do nominální a verbální projekce zahrnuty takové funkčních vrstvy, které výše uvedenou interakci umožňují.

Součástí této práce je důkladné porovnání dvou významných generativních gramatických modelů, konkrétně Distributivní morfologie a Exoskeletálního modelu, jež lingvisté jako Artemis Alexiadou a Hagit Borer využívají při svém mezijazykovém výzkumu, zejména v oblasti nominalizací.

Po důkladné analýze funkčních vrstev v nominální a verbální projekci tato práce předkládá dvě odlišné syntaktické struktury pro dva typy deverbálních nominalizací v češtině, které se nazývají N/T a B/K nominalizace. Rovněž je ukázáno, že tyto dva typy nominalizací lépe spadají pod ergativní analýzu nominalizací, tak jak to navrhuje Alexiadou (2001) a (2017d) ve svých pracích.

Dále je potvrzena hypotéza, která byla původně předložena lingvistkami Borer a Alexiadou, že nominalizace s argumentovou strukturou mohou být počitatelné. Tím je zároveň vyvrácen předpoklad, že nominalizace s argumentovou strukturou jsou pouze hromadná jména, jak předpokládala Grimshaw (1990). Počitatelnost nominalizací s argumentovou strukturou je umožněna na základě konceptu ohraničenosti, který formuloval Jackendoff ve své práci z roku 1991. Tento koncept vede k tomu, že může být ustanovena paralela mezi telickými a perfektivními událostmi a počitatelnými jmény tím, že oba zmíněné koncepty jsou ohraničené. Práce předkládá podmínky, za kterých je počitatelnost těchto nominalizací možná. Je to především nahrazování číslovek souborných a druhových číslovkami základními v nepřímých pádech a kontextech vyjadřujících vyšší počet. Dále je to použití N/T nominalizace v případech, kdy alternativní B/K nominalizace není k dispozici.

Všechna tato zjištění vedou k závěru, že předpokládaný paralelismus mezi verbální a nominální projekcí navržený Chomským (1970) a dále potvrzeným Abneym (1987) je správný.

ANNOTATION

This dissertation primarily focuses on the comparison of functional categories in nominal and verbal domains in English and Czech. The primary emphasis is placed on the interplay between Aspect and countability, particularly in the context of nominalizations. The arguments presented in this dissertation advocate for the inclusion of projections that facilitate this interaction.

The research involves a comprehensive analysis of two prominent generative grammar models proposed by respected scholars with extensive research in nominalizations: Artemis Alexiadou and Hagit Borer. After the detailed investigation of functional layers in nominal and verbal domains in Czech, this dissertation puts forward two distinct syntactic structures for two types of deverbal nominals in Czech, namely N/T and B/K nominals. It also shows that Czech nominalizations better comply with ergative patterns as proposed by Alexiadou (2001), (2017d).

Additionally, it confirms the hypothesis put forward by Alexiadou and Borer, asserting that Arguments structure nouns are countable, while refuting Grimshaw (1990)'s assumption that Argument Structure nominals are mass nouns. This confirmation is rooted in the parallelism observed between count nouns and telic and perfective events, which are characterized by their bounded nature, drawing upon Jackendoff (1991)'s concept of boundedness. The factors that lead to the countability of Czech Argument structure nominals are discussed, noting a decline in the usage of group and kind numerals in oblique Cases and in contexts that express larger numerals. All these findings lead to the conclusion that the long-standing presumption of parallelism between the verbal and nominal domains within the framework of generative grammar, as originally proposed by Chomsky (1970) and subsequently reinforced by Abney (1987), is substantiated.

DECLARATION OF ORIGINALITY

I herewith declare that the material contained in my dissertation entitled The Comparison of Functional Categories in Nominal and Verbal Domains in English and Czech: with the Focus on Aspect and Countability is original work performed by me under the guidance and advice of my faculty supervisor. The literature and sources are all properly cited according to the APA Style 2020.

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LIST OF ABBREVIATIONS

1	First Person
2	Second Person
3	Third Person
A	Adjective
ABS	Absolutive case
ACC	Accusative
ADJ	Adjective
AG	Agent
AGR	Agreement
AP	Adjective Phrase
AS	Argument Structure
AS-nominals	AS nominals (roughly Grimshaw's CENs)
ASN	Argument structure nominal
Asp_Q	Quantity Aspect
AUX	Auxiliary
B/K nominals	Czech nominals with the suffixes *-ba*/*-ka,* and zero derived nominals
CEN	Complex event nominal
CCS	Categorial Complement Space
CL	Classifier
COUNT	Countable
CP	Complementizer Phrase
D	Determiner
DAT	Dative
DivP	Divider Phrase
DM	Distributed Morphology
DP	Determiner Phrase
e	Open value
EP	Event Phrase
F	Feminine
F^sP	Shell Functional Projection
FUT	Future Tense
GEN	Genitive
GenP	Gender Phrase
HMC	The Head Movement Constraint
HUM	Human
IMPF	Imperfective
INF	Infinitive
INS	Instrumental
ITER	Iterativity
L-D	Lexical Domain
LF	Logical Form

Loc	Locative
M	Masculine
NT	Neuter
N	Noun
n	Nominalizer
NOM	Nominative
NP	Noun Phrase
N/T	Czech nominals with the suffixes *-ní*/*tí*
#P	Quantity Phrase
P	Preposition
PF	Phonetic Form
PF	Perfective
PL	Plural
POSS	Possessive
PP	Prepositional Phrase
PREF	Prefix
PRES	Present
PRT	Participle
QP	Quantifier Phrase
REFL	Reflexive
R-nominal	Referential nominal
RN	Result nominal
SEN	Simple event nominal
SG	Singular
S-O-Q	Subject of quantity
SP	Superlexical Prefix
TH	Theme
TP	Tense Phrase
UNCOUNT	Uncountable
UTAH	The Universal Theta-Assignment Hypothesis
V	Verb
v	Verbalizer
VP	Verb Phrase
XS	Exo-skeletal

1 INTRODUCTION: SURVEY OF CHAPTER CONTENTS

The primary focus of this dissertation is twofold: firstly, to propose a functional structure that adequately captures the unique characteristics of derived nominals in Czech, and secondly, to employ this structure and analyze the circumstances under which Czech deverbal argument structure Nouns can be made countable.

Previous studies of Czech in more recent frameworks (e.g. Panevová 2000; Karlík 2002; Dvořáková 2014) have extensively examined Czech derived nominals, focusing primarily on their morphosyntactic properties, but there has been a lack of in-depth syntactic analysis. While Veselovská (2018b)'s syntactic analysis of derived nominals is highly influential in terms of syntax, it does not specifically address individual functional projections with their features in detail or the connection between the verbal and nominal domains. The same holds true for two additional pieces of work operating within a generative framework: Havranová (2020)'s dissertation thesis, which explores nominalizations in Dutch English and Czech, and Čakányová (2022)'s article focused on the topic of nominalizations in Czech.

According to previous studies, Czech has two types of deverbal nominals traditionally divided into two classes:

Type I: has the ending *-ní/tí as in uče-ní* 'teaching'*, zkouše-ní* 'examining'
Type II: has a larger variety of suffixes including a zero suffix *výměr* 'measurement' but the most typical are *-ba*/*ka* as in *mal-ba* 'painting'*, stav-ba* 'building'

They both possess a hybrid nature, combining elements of both nominal and verbal properties. While both types can refer to events, only the Type I nominals have more obvious verbal characteristics and behave as argument structure Nouns. Given that these nominalizations involve both nominal and verbal layers, it is essential to initially analyze the verbal and nominal domains in depth and then scrutinize their interactions within the context of nominalization.

Since Grimshaw (1990) it has been claimed that argument structure nominals are mass and not countable. The similar arguments have been developed for Czech by Veselovská (2019) and Karlík (2019). However, more recent research by Alexiadou et al. (2010) and Borer (2013) presents evidence that contradicts this claim by exploring the correlation between Aspect and Number in argument structure Nouns. In this dissertation, I will develop a compatible framework to demonstrate that similar arguments apply to Czech argument structure Nouns.

In the second part of the study, I am going to analyze in more detail the countability of argument structure Nouns in Czech to investigate the interactions between nominal and verbal domains. I will show that countability within these structures has been influenced by both aspectual considerations (pertaining to the verbal domain) and the notions of countability (relevant to the nominal domain).

In the generative linguistic tradition, there has been a longstanding assumption of parallelism between these domains, drawing parallels between DP (Determiner Phrase) and TP (Tense Phrase) as proposed by Abney (1987). A key principle will be that when the projections are

parallel and consequently it becomes possible to identify a pathway within a derivation where one projection can substitute for the other. This, in turn, plays a role in the relationship between verbal and nominal structures, wherein an increase in verbal structure coincides with a decrease in the prominence of nominal structure.

The approach adopted to address the aforementioned questions will be rooted in generative grammar, which will serve as the theoretical framework for the analysis conducted. Within the realm of generative grammar, two influential models proposed by renowned researchers who have extensively studied nominalizations will be compared. These models include the work of Artemis Alexiadou, who utilizes the Distributed Morphology framework with a primary focus on Greek, and Hagit Borer, who employs the Exo-skeletal model and draws data primarily from Hebrew. In this study, the proposals put forth by the authors will be rigorously examined, specifically with regards to their applicability to Czech data. Additionally, recommendations will be formulated based on the findings.

The outline of the dissertation will be the following. The second and introductory chapter of this thesis will lay the foundation by presenting the fundamental principles of recent generative grammar. It will provide an overview of this linguistic framework and its relevance to the study of nominalizations. Additionally, the chapter will highlight the significant contributions made by influential authors in the field who have focused on the topic of nominalizations within the context of generative grammar. By exploring their works, the chapter aims to establish the theoretical background necessary for the subsequent analysis of derived nominals and their functional structure.

The main focus of the third chapter will be the introduction of two frameworks: Distributed Morphology and the Exo-skeletal model employed by Artemis Alexiadou and Hagit Borer respectively.

Subsequently, the fourth chapter will delve into the arguments put forth by these authors concerning the nominal domain within the context of their frameworks. Towards the conclusion of this chapter, a comparative examination of both approaches will be conducted, accompanied by their application to Czech data. Throughout this analysis, special attention will be given to the functional layers inside DPs associated with Gender and countability.

In the fifth chapter, I am going to describe and compare the functional layers of verbal domains first as proposed by Alexiadou and Borer and then apply the theories on Czech data. The primary focus of this chapter will revolve around the in-depth evaluation of aspectual issues.

The sixth chapter will describe the integration of the previously discussed domains within nominalizations, while also assessing their applicability to Czech. The chapter will also demonstrate that Czech nominalizations exhibit ergative pattern and are more passive-like or unaccusative, as proposed by Alexiadou (2017d).

Lastly, in the final chapter I am going to examine the circumstances under which Czech argument structure nominals can be made countable. This examination will involve correlating countability with Aspect, thereby shedding light on the intricate interactions between the verbal and nominal domains.

2 GENERATIVE APPROACH TO LANGUAGE AND CLASSIFICATION OF NOMINALS

In the following opening chapter, I will briefly introduce the main theoretical principles of the recent stage of the generative grammar framework which is the general approach adopted in this thesis.[1] Subsequently, I will follow by providing some insights of prominent generative linguists who have contributed to the study of nominalizations in English and Czech.

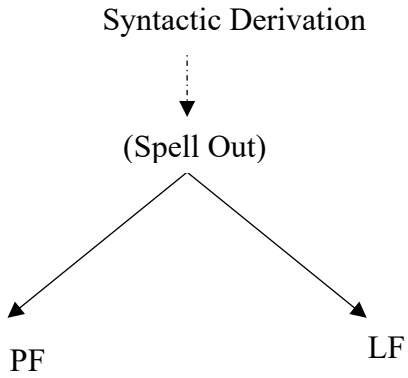
Generative grammarians explain complex linguistic phenomena by means of autonomous grammatical systems that enter into relation with other systems, e.g. perception, acoustics etc. This notion is known as the Modularity hypothesis and it was in detail advocated by Chomsky (1975). The modularity can be illustrated with the following sentence quoted by Newmeyer (1986):

(1) *The rat died that was eaten by the cat that the dog chased.*

Despite the fact that this sentence is grammatical, it is difficult to process by our perceptual system and it testifies in favor of at least partial independence of two modules.

The autonomous grammar module is also known as the *language faculty* and according to Chomsky (1965) it is innate and corresponds to some part in the human brain. What is more, it is itself modular and consists of sub-modules that are related to sound, structure and meaning. Although this model has been refined many times and I will discuss the details of its latest version in Chapter 3, it can be roughly represented in the following way:

(2) Generative model of grammar



In this model, the syntactic structure is computed by means of syntactic operations and its output is sent at spell-out to *Logical Form* and *Phonetic Form*. Logical form (LF) is a part of the derivation where syntactic structures are semantically interpreted. Phonetic form (PF) is the

[1] Generative framework of the 21st century comprises many not fully compatible branches represented by individual theoreticians. In this study, I will assume the basic chomskian background shared by most of them and for the specific analysis of nominalizations I am going to refer to the authors whose theories I found most influential and applicable.

level where structures are assigned a phonetic representation, which is then pronounced by the speaker.

The operations in narrow syntax (the level of derivation leading to LF and excluding PF) are typically performed on hierarchical structures and they are linearized later on PF. There are many tests which can prove this point, see Adger (2003, p. 52). I will illustrate it just with a cleft test:

(3) a. *Julie and Jenny arrived first.*
b. ***It was** Julie and Jenny that arrived first.*
c. ****It was** Jenny arrived Julie and first.*

The cleft takes a sequence of words and puts them after *It was* which can be used as evidence that some string of words is a constituent. This is not possible with other sequences of words as (3c) exemplifies.

Therefore, the syntactic structure is typically represented with a tree diagram. The syntactic structures are further organized into phrases which is guided by their selectional properties. So, we know that Verbs select objects (4a) and become Verb Phrases (VP) but they do not combine with other lexical Verbs (4b):

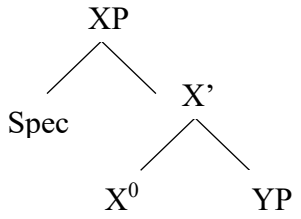
(4) a. *kissed Peter*
b. **kissed eat*

When the phrase has no further objects to select, it projects no further and becomes maximal. It can, however, be selected by other phrases as in (5) where the perfective auxiliary *has* selects VP but does not select the NP *Peter*.

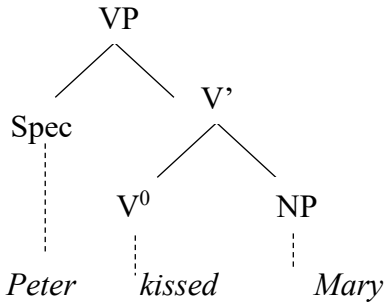
(5) a. ***has** kissed Peter*
b. ****has** Peter*

Furthermore, syntactic phrases are endocentric. They consist of heads and words in pre- and post-modification. The universal structure (6a) captures the fact that there are heads of phrases X^0 that combine with the complement YP. Together they constitute the intermediate projection. On the other hand, the highest level, the maximal projection, subsumes the intermediate projection and SpecX. The X, in turn, can be substituted for by syntactic categories such as N, V, A, P. This structure is called X-bar schema and was introduced in Chomsky (1970).

(6) a. Universal Phrase Structure



b. Verb Phrase[2]



When we say that the phrases are headed, we mean that the head is the most important part of the phrases. In our case in (5b), the item that is most important is the one that selects the object, namely the Verb *kiss*. Furthermore, while heads are obligatory, specifiers are usually optional. Complements are more complex. They are obligatory with some transitive Verbs (7a) but with intransitive Verbs they are not necessary (7c)[3]:

(7) a. **Peter kissed*
b. *Peter kissed Mary.*
c. *Peter ran (the race).*

Since the proposal of X-bar theory in *Remarks on Nominalizations* (Chomsky, 1970), there has been a quest for parallelism across syntactic domains. In that paper Chomsky points out that the verbal projection mirrors the nominal projections:

(8) a. *The enemy **destroyed** the city.*
b. *The enemy's **destruction** of the city.*

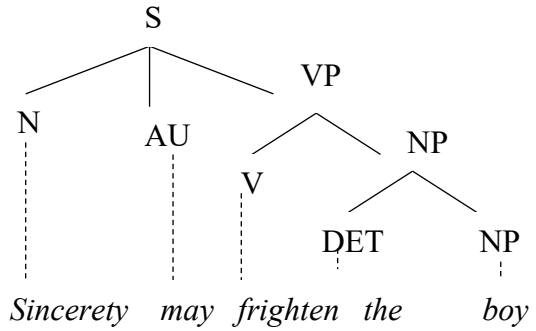
The NP *the enemy* is the subject and Agent in both (8a) and (8b) whereas *the city* is the object and the Theme in both examples. Chomsky builds subject-object asymmetry on the sentential level into Noun Phrases. For (8) it means that the object (*the city*) is the complement of the head *destroy/destruction* and the *enemy* is its specifier.

So far, we have neglected functional categories such as Determiner (D) or Tense (T/I/Aux). In early writings of Chomsky (1965) they were considered as marginal and only lexical categories (N, V, A, P) could be heads of phrases, see below:

[2] The structure is simplified. There is no Tense (TP) node represented but it can capture the main idea about Phrase Structure representation.

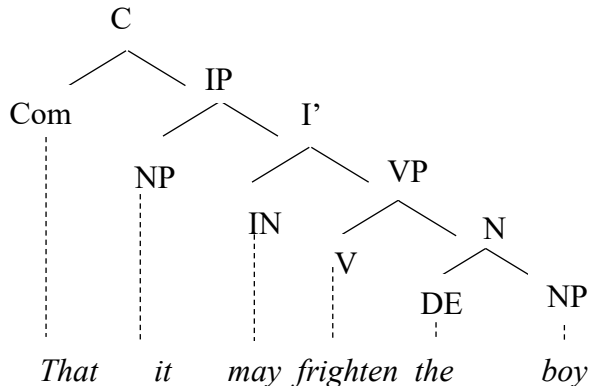
[3] The obligatoriness of NP arguments is more complex and will be discussed later in Chapter 5.

(9) AUX in Chomsky 1965



The structure in (9) exemplifies that Aux did not have any special status within the syntactic projection. Later, Stowell (1981) proposed that Aux (now labeled I) is the head of S and also added Complementizer node (CP) into the structure to account for elements introducing subordinate clauses.

(10) Stowell (1981) – Functional projection

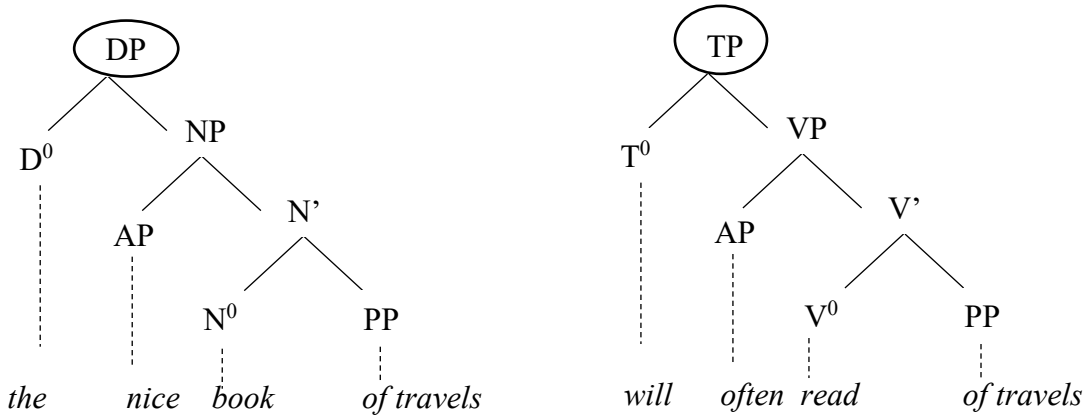


Just as Stowell (1981) argues that AUX/I is the head of its own projection selecting VP, Abney (1987) in his Ph.D. thesis *The English Noun Phrase in its Sentential Aspect* argues that Determiner is the head of its own projection along the nominal spine. Abney demonstrates that Determiner is the selector. Determiners, like Verbs as illustrated in (7), can take complements obligatorily (11a) or optionally (11b):

(11) a. ***The *** *(mother) was at home.*
b. ***That*** *(story) frightened the children.*

To represent the parallelism between nominal and verbal domain, compare the pictures in (12):

(12) Lexical heads N and V vs. functional heads T and D



Notice that both contain a lexical head category V or N and a functional category head above the phrases VP and NP.

Abney's (1987) work is influential not only because he proposes a nominal functional head but he also sets criteria that distinguish functional elements from lexical elements:

- Functional elements functionally select their complement
- Functional categories select unique complement
- Functional elements are closed class
- Functional elements are morphologically weaker, often affixes, clitics, sometimes null
- Functional elements are usually inseparable from their complement
- Functional elements lack descriptive content. Their semantic contribution is second order.

To provide a brief illustration of the aforementioned points, consider the following aspects. Firstly, in terms of unique selection, a CP (Complementizer Phrase) selects TP (Tense Phrase) instead of VP (Verb Phrase). This stands in stark contrast to a lexical head, which can select multiple items, such as a Verb selecting NPs (Noun Phrases) or PPs (Prepositional Phrases).

Secondly, closed class items in a language are relatively few in number. These include Determiners, auxiliaries, pronouns, and similar elements. In contrast, open class items like Nouns, Verbs, Adjectives, and Prepositions have a much larger number of members, often in the hundreds or thousands. New words continually emerge within the open class items, while closed class items remain relatively stable.

Finally, the semantic content of functional elements is impoverished. Take for example the auxiliary *will* and compare it with the Verb *kiss*. While the auxiliary can convey information about future relevance, it does not describe any action itself, as the lexical Verb *kiss* does.

Since Abney (1987), there has been proliferation of functional categories. Most frequently verbal categories such as Neg(ation) (Pollock 1989), Asp(ect) (Hendrick 1991) but several studies have shown that nominal structure is also more articulated. To name but a few, there has been the need for additional projections between N and D expressed by several authors, Ritter (1991) for Hebrew, Giusti (1991) for English and Italian, Veselovská (2001) for Czech.

Picallo (1991) argues on the basis of Romance languages for Gender, and Rappaport (2010) for Possessor Phrase in Slavic.

It is assumed that there is parallelism between domains but there might also been some patterns of parametrization. For instance, in English DP is similar to TP as argued by Abney (1987), while in other languages DPs are like CPs, e.g. Greek as pointed out by Alexiadou (2001) and Horrock & Stavrou (1987).

2.1 Parts of Speech

The aforementioned description highlights the significant implications of the generative approach on word categories or parts of speech. Traditionally, the classification of parts of speech has relied on multiple criteria. This can be illustrated by examining the description of Nouns in Czech provided by Štícha (2018, p.45). Štícha proposes several criteria for classifying Nouns, which can be rephrased as follows:

- Morphological
- Semantic
- Syntactic

From a morphological perspective, Nouns in Czech exhibit features such as Number, Gender, and Case. Semantically, they serve as references to people, animals, objects, and actions. In terms of syntax, Nouns primarily function as subjects or objects within a sentence. However, it is important to note that these criteria for classification might lead to the observation that the boundaries between word categories are not rigidly defined and appear to be fuzzy. The issue of precise boundaries will be especially important in the context of nominalizations which are hybrid categories and the question whether some expression is still a Noun or Verb is of utmost importance.

In contrast, the generative approach allows for a more fine-grained distinction. Since Chomsky's work in 1970, the prevailing view has been that especially the traditionally called "lexical" and also many functional categories are in fact complex clusters composed of features or feature complexes. This perspective emphasizes a division of labor between the two types categories (lexical and functional), which I will illustrate within the verbal domain. A lexical category, such as a Verb, carries substantial content and is responsible for assigning theta roles, as indicated by the category it selects. The following demonstrates this relationship:

(13) *Mary kissed Peter* V, [__NP]

This implies that *kiss* is a transitive Verb which requires NP complement. In a generative approach, we can simply say that the Verb carries an N feature which must be checked (see the explanation of the checking mechanism in section 3.1.1). Later, in LF the NP *Peter* will be assigned a theta role and interpreted as Patient. Functional categories, in contrast, have the task of conveying grammatical information such as Tense, agreement etc. Again, this information is expressed by means of features.

As my work is focused on deverbal nominalizations that are of hybrid category comprising nominal as well as verbal properties, I will be dealing in Chapter 4 and Chapter 5 with nominal and verbal functional projections and analyze the features associated with these layers. These features, in turn, can cluster within nominalizations which will be the subject of Chapter 6.

2.2 Classification of Nominals in English

Having suggested that nominalizations are of hybrid nature, it is important to analyze how different authors approach their description. Initially, we will closely examine the treatment of English nominalizations in generative writings. Subsequently, our attention will shift to the analysis of nominalizations in Czech. By undertaking this comparative investigation, we can gain insights into the distinct approaches and characteristics of deverbal nominalizations in these two languages.

The common denominator of all influential generative theories of nominalizations, e.g. Minimalism or Distributive Morphology is that the result object has the feature [+Nominal]. Nominalizations can denote events (14a) arguments (14b) adjuncts (14c):

(14) a. *collecting/clapping/walking/destruction*
b. *employer/teacher/fire-fighter*
c. *a coffee-grinder, a windshield wiper*

Although many of these Nouns may license arguments, e.g. *teacher* which seems to be inherited from the verbal counterpart *He teaches*, only names denoting events can realize both internal and external arguments:

(15) *Caesar's* ***destruction*** *of the city*

In this thesis, I will mainly focus on the Nouns denoting events. English has three types of such nominalizations at a superficial investigation:

(16)	a.	*The teacher's* ***examination*** *of the students*	**Derived nominal**
	b.	*The teacher's* ***examining*** *of the students*	**Mixed nominal**
	c.	*The teacher's /The Teacher* ***examining*** *the students*	**Gerund**

In this chapter, I will discuss the approaches to these types of nominals in different generative frameworks.

2.2.1 The Early Generative Approach- Robert Lees (1960)

The first generative linguist who systematically analyzed nominalizations in English was Robert Lees in his study *The Grammar of English Nominalizations* (1960). Lees noticed the similarity between the active sentence in (17a) and the corresponding nominal versus the passive sentence in (17b) and the corresponding nominal.

(17) a. *The enemy **destroyed** the city* → *the enemy's **destruction** of the city*
b. *The city **was destroyed** by the enemy* → *the city's **destruction** by the enemy*

Although Lees noted the differences between gerunds and derived nominals, as gerunds allow for auxiliaries and Adverbs (18c-d) but disallow articles and prenominal Adjectives (as illustrated in (18a-b)),

(18) a. **the **performing** the song*
b. **his beautiful **performing** the song*
c. *his **having performed** the song*
d. *his **having performed** the song beautifully*

whereas derived nominals (as depicted in (19)) exhibit the opposite pattern, he maintained the assumption that all nominalizations undergo a syntactic transformation from sentences. In other words, according to Lees, all nominalizations are deverbal and desentential.

(19) a. *the (beautiful) **performance** of the song*
b. **the having **performance** of the song*
c. **the **performance** of the song beautifully*

2.2.2 Chomsky (1970): The Impact of Remarks on Nominalizations

Chomsky (1970)'s seminal paper *Remarks on nominalization* was a reaction to the early syntactic approach of Lees (1960). Chomsky argued that nominals in (19) and (18) are not equal. In fact, he distinguished between three types of nominals in that paper, corresponding to the categories already illustrated: derived nominals (19), gerunds (18) and an additional type called mixed nominals.

He claimed that derived nominals have more nominal properties as opposed to gerunds that are clearly deverbal. Mixed nominals were assumed to have intermediate properties. Such a conclusion follows from the evidence presented in (19) and (18). Specifically, derived nominals can be modified by Adjectives and Determiners, take a prepositional complement and do not permit auxiliaries nor negation. The last point is visible in (20).

(20) **The <u>not</u> **refusal** of the offer*

Thus, unlike gerunds, derived nominals are derived as Nouns in the lexicon and are inserted as such in the deep structure.

A second point raised by Chomsky in favor of this hypothesis was that derived nominals do not exist in the same range of constructions as gerundive nominals do. I will illustrate it just with a few examples but see additional examples in Chomsky (1970):

(21) a. *John is certain to win the prize.*
b. *John's being certain to win the prize.*
c. **John's **certainty** to win the prize.*

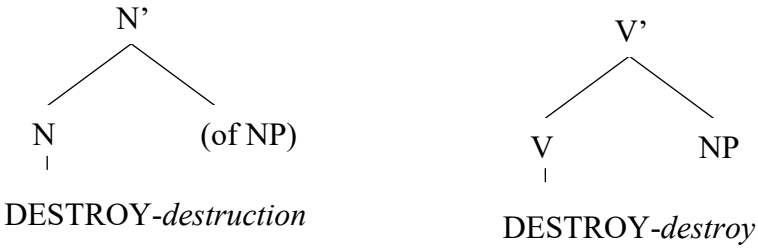
No Tough movement within NP

(22)	a.	*Carly gave Peter the book.*	**No Dative shift**
	b.	*Carly's giving Peter the book.*	
	c.	**Carly's **gift** (of) Peter (of) the book.*	
(23)	a.	*Mary looked the information up.*	**No Particle movement**
	b.	*Mary looked up the information.*	
	c.	*Mary's looking the information up.*	
	d.	*Mary's looking up the information*	
	e.	*Mary's **looking** up of the information.*	
	f.	**Mary's **looking** of the information up.*	

Unfortunately, the rule of Passive was considered as a counterexample to the claim that transformations do not apply in DN's, see example (17b). For this reason, Chomsky (1970) argued somewhat inconsistently that Passive applies in the nominal domain.

Chomsky (1970) does, however, note that DNs are related to their verbal correlates in terms of meaning and interpretation of complements. In order to capture this, he introduced X' theory within which the pair *destroy/destruction* is perceived as a category-less entry which can be inserted under the X^0, either N^0 or V^0 and thus acquire its categorial status. In turn, it is the syntactic context of the insertion that determines the phonological form for the entry:

(24) The relationship between *destroy/destruction* in Chomsky (1970)



DESTROY-*destruction* DESTROY-*destroy*

Notice that the complement is realized in the sisterhood relationship with X^0, thereby demonstrating the parallelism between the verbal and nominal domains. The nominal complement is also depicted here as optional which is the according to Chomsky (1970) the structural difference between Nouns and Verbs.

2.2.3 Grimshaw (1990)

Jane Grimshaw's highly influential study *Argument structure* has brought new light into the research of nominalizations. In her seminal work, she acknowledged Chomsky (1970)'s perspective that gerunds are transformed from sentences. However, she emphasized that derived nominals (DNs) do not constitute a homogeneous category, and her findings paved the way for reintegrating derived nominals within the realm of syntax.

In fact, she proposed that DNs can be divided into three main classes which she calls complex event nominals (CENs), simple event nominals (SENs) and result nominals (RNs). Only the former can license Argument structure (AS) while the latter two groups lack it. For

the purposes of this thesis, I will sometimes follow Borer (2003) and call them Argument Structure nominals (AS-nominals) and Referential nominals (R-nominals). The criteria for distinguishing between those two groups are the following:

(25)		**R-Nominals**	**AS-Nominals**
	a.	Non- θ-assigner, No obligatory arguments	θ-assigners, Obligatory arguments
	b.	No necessary event reading	Event reading
	c.	No agent-oriented modifiers	Agent-oriented modifiers
	d.	Subjects are possessives	Subjects are arguments
	e.	*By*-phrases are non-arguments	*By*-phrases are arguments
	f.	No implicit argument control	Implicit argument control
	g.	No aspectual modifiers	Aspectual modifiers
	h.	Modifiers like *frequent*, *constant* only with plural	Modifiers like *frequent*, *constant* appear with singular
	i.	Count Nouns	Mass Nouns

The diagnostics are exemplified for AS-nominals in (26) and for R-nominals in (27):

(26) a. *The doctor's (intentional)* ***examination*** *of the patient took a long time/*was on the table.*
b. *the frequent* ***collection*** *of mushrooms (by students)*
c. *the* ***monitoring*** *of wild flowers to document their disappearance*
d. *the* ***destruction*** *of Rome in a day*

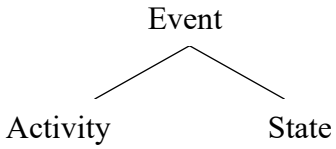
(27) a. *These frequent* ***destructions*** *took their toll.*
b. *the student's* ***examination/ exam*** *was on the table/* took a long time.*

Importantly, mixing of the properties of these nominalizations leads to ungrammaticality as shown in (28). So, for example the Noun *destruction* in (28c) requires an internal argument in the presence of an aspectual modifier *in a day*:

(28) a. **Caesar's frequent* ***destruction***
b. **the frequent* ***examination/exam*** *(by John)*
c. **the* ***destruction*** *in a day*

Grimshaw suggests that the remaining group of Chomsky's Mixed nominals can be best divided into referential nominals (R-nominals) and complex event nominals (AS-nominals). The AS of the latter AS-nominals has to do with their event structure. By event structure, she means a decomposition of a verb into aspectual sub-parts. For example, an accomplishment verb *x construct y* is analyzed as an activity in which some external Agent x engages in activity with the resulting state. This proposal is represented in (29):

(29) Event structure in Grimshaw (1990)



Grimshaw thus hypothesizes that AS-nominals are amenable to event structure analysis and hence capable of taking arguments. R-nominals, on the other hand, are without event structure and lack arguments. This distinction is contingent on the presence of an event argument (Ev) for the AS nominals vs. a referential argument (R) for the R-nominals.

Technically, the assignment of the Ev and R arguments is linked to properties of nominalizing affixes. Specifically, - *ING* (always) assigns Ev, Ø-nominalizers only assign R, and -*ATION* may assign either of them. These nominalizing affixes have the ability to assign external roles to the nominal, assuming that the original external argument has been suppressed. To illustrate this, let's consider the verb *observe* in (30a) along with its corresponding argument structure (AS) and the external argument represented by x. Moving on to complex event Nouns, like the example in (30c), we observe that an affix introduces an external role and combines it with the original AS of the verb. As a result, a complex event structure is formed by merging the AS of both elements.

(30) a. *observe*, V, (x,y)
b. -*ation* N, (Ev) or -*ation* N, (R)
c. *observation* N, (Ev)x(y)))
d. *observation* N, (R=X)

However, in Result nominals (30d), the affix assigns an external role without merging with the original AS of the verb. Consequently, the AS is not inherited from the verb, leading to nominals lacking obligatory arguments. For Grimshaw then, argument structure is a property linked to both Verbs and Nouns.

The method and general analysis proposed in Grimshaw (1990), including the criteria in (25), have been accepted and employed in great number of cross-language studies concerning derived nominals. Together with *the Remarks on Nominalizations*, Grimshaw's study undoubtedly represents another basic step in the generative approach to the phenomena of nominalization, categorial classification and the study of argument structure.

This notwithstanding, many more specific aspects of Grimshaw's model have been challenged and modified as the generative framework developed. The changes include the criteria (25 c, h, i) which is going to be relevant for the topics discussed in this dissertation. The criterion regarding agentive modifier seems to be weak because agentive modifiers can occur with expressions which are clearly not DNs, as seen in examples such as *deliberate strategy, deliberate fire*. Similarly, the existence of expressions such as *frequent/constant joy, frequent fire* weakens the criterion (25h).

Neither is it the case that the distribution of nominals can be accurately characterized solely based on the availability of pluralization. This particular criterion has been challenged by both Borer (2005b) and Alexiadou et al. (2010) and was originally discussed in Mourelatos (1978).

Mourelatos proposed that atelic CEN/ASNs are categorized as mass Nouns which consequently restricts their ability to pluralize and limits the usage of indefinite Determiners and numerals in English. On the other hand, telic nominalizations allow for pluralization and the use of indefinite Determiners and numerals. He provides examples to illustrate these distinctions:

(31) a. *three late* ***arrivals*** *of the train*
b. *a deliberate* ***capsizing*** *of the boat by Mary*

(32) a. **three deliberate* ***pushings*** *of the carts (by Mary)*
b. **a* ***painting*** *of the nativity (for hours) (by Jones)*

Also, the severance of the argument from the verb presents one of the problems. Additionally, the distinction between complex event nominals (CENs), which are derived from Verbs, and simple event nominals, which represent events but lack argument structure, remains unaccounted for.

The criteria in (25) will be dealt with more detail in Chapter 6 where I will discuss models of nominalizations proposed by Hagit Borer (2013) and Artemis Alexiadou, who challenge these criteria in various ways while still taking them as their starting point.

2.2.4 Emonds (2000); (2022)

A comprehensive analysis of the distinctive properties of nominalizations was conducted by Emonds (2000, 2022) within his *Three Level Insertion Model*. His study is concerned with the polyfunctionality of the English *-ing* morpheme, which not only appears in nominals derived from Verbs (our R-nominals and AS-nominals) but also in non-finite clauses (verbal gerunds and participles). Additionally, Emonds extends his analysis to include infinitives, another form of non-finite structures. Given the significance of understanding what kind of features are encompassed within structures exhibiting varying degrees of verbal characteristics, this section aims to elucidate the key findings derived from this investigation.

Within Emonds' Three Level Insertion Model, the Lexicon serves as a repository of purely semantic features, which are exclusively introduced at the initial stage of syntactic derivation and remain unused during syntax. In contrast, syntactic features originating from the Syntacticon can enter the derivation at three distinct hierarchical levels:

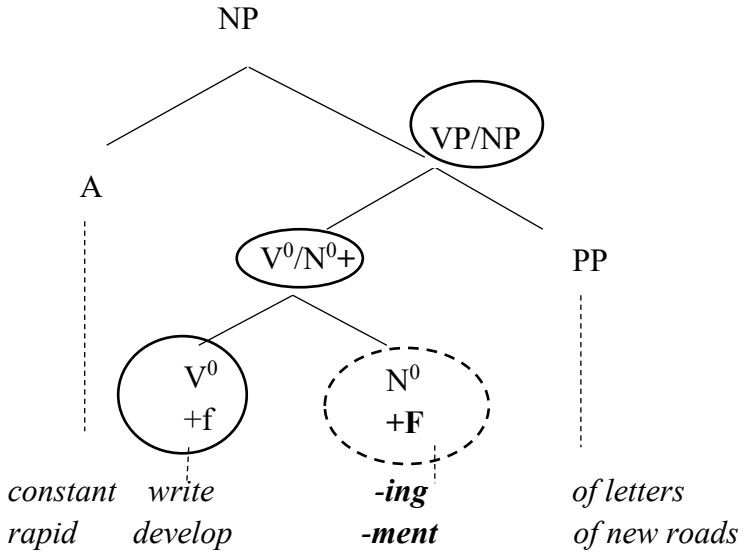
a) together with the semantic features at the very beginning – deep insertion
b) during the syntactic process - late insertion
c) after Spell Out - post syntactic (PF) insertion[4]

Having explained the features, we can demonstrate the derivation of nominals derived from Verbs. Among these, Grimshaw's result nominals, such as *writings* and *buildings*, represent the least verbal type, exemplifying a case of deep insertion of purely semantic features. The more

[4] PF is associated with purely syntactic features which play no role in LF. These can be alternatively realized features or lack of content features, see Emonds (2000; Ch.4).

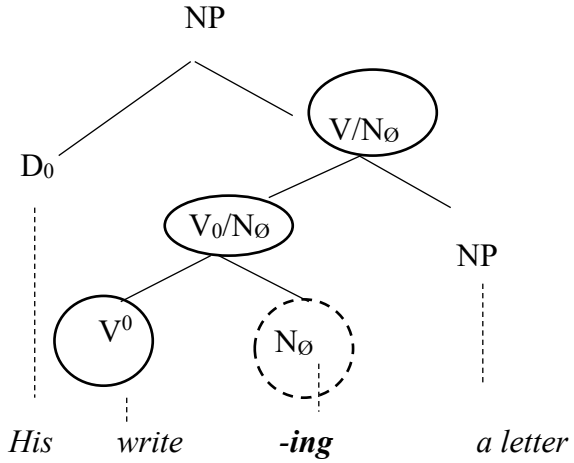
verbal complexes are the so-called complex event nominals as in (33) which start the derivation as Verbs and later/as late as syntax when the suffixes are added they become Nouns. Technically, the suffixes *-ing* and *-ment* can be listed as Ns that subcategorize within N^0 domain for V.

(33)



Finally, the most verbal structures are verbal gerunds in (34) features of which can be inserted late. Technically, the *-ing* suffix carries LF cancellation feature Ø which means that the category N of the suffix is uninterpreted. Gerunds thus go through the whole derivation as Verbs, are interpreted as Verbs and take on functions as NPs only externally.

(34)



Of particular importance is the distinction between the first two types of nominals, namely result nominals and complex event nominals, which are regarded as derivational, and the verbal gerund which is considered inflectional. Veselovská & Emonds (2016b) assert that the nature of derivational or inflectional morphology influences the selection of modifiers within syntactic structures. In the realm of nominalizations, it becomes apparent that the verbal gerund is

consistently derived as a Verb, with the *-ing* morpheme primarily determining the Noun category but not actively participating in the selection of modifiers. Consequently, verbal gerunds retain more verbal characteristics, such as lacking the *-of* marking for direct objects and employing adverbial modifiers rather than adjectival ones. In contrast, CENs undergo nominalization in the narrow syntax and thus readily accept Adjectives or *of*-phrases.

Similarly to gerunds in (35a), the *-ing* form in participles (35b) is inflectional and plays no role in licensing internal constituents:

(35)	a.	Gerund	*Mary considered [never spontaneously buying her son a shirt again.]*
	b.	Participle	*Companies [having opened us up new markets] will be rewarded.*

Both constructions contain VP but lack IP. This can be verified by several tests. To name but a few, subjects of gerunds are not in subjective case (36a). Participles as well as gerunds cannot be formed from non-agreeing modals (*can/dare/will*) that occur in I position (36b). Neither can they contain finite copulas (36c):

(36) a. **He not doing the laundry surprises me.*
b. **The company began daring not send refunds.*
c. ** Are being so much in bars upset her.*

Due to their identical internal structure, some researchers, such as Huddleston and Pullum in 2002, have considered gerunds and participles to be a single construction. However, despite this shared structure, participles and gerunds are classified as different categories: participles are categorized as Adjective Phrases (APs) while gerunds are categorized as Noun Phrases (NPs). This distinction is reflected in their distributional differences and usage patterns. While AP participles occur as complements (Verbs and Prepositions of time) (37a), attributes (37b) and adjuncts (37c), they never occur as subjects (no AP can be a subject).

(37) a. *Mary went on studying chemistry.*
b. *Some fast boiling water spilled.*
c. *We said good-bye to John feeling a bit ill.*

Gerunds, on the other hand can be complements of Prepositions (38a) and Verbs (38b) or subjects (38c) but cannot be adjuncts.

(38) a. *Despite her not knowing most of the answers, Pauline passed the test.*
b. *Mary considered never spontaneously buying her son a shirt again.*
c. *Carefully playing that sonata was a tribute to her teacher.*

Therefore, the intersection between these two groups lies in their complement functions. This section aims to clarify situations where participles are preferred over gerunds in these roles. Emonds describes four classes of Verbs and Prepositions which require participle *-ing*:

(39) a. Intransitive temporal aspect Verbs — *She might begin/continue/start/stop <u>eating such strong cheese.</u>*

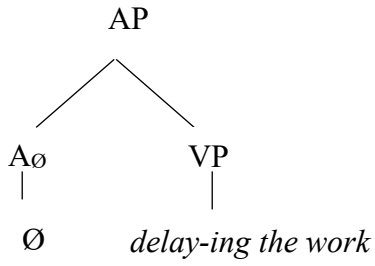
b. Prepositions of time (Subordinating conjunctions): — *He asked for a beer after/before/while <u>turning on the television.</u>*

c. Perception Verbs *(hear, feel, see, watch)* — *We watched her <u>burning the letters.</u>*

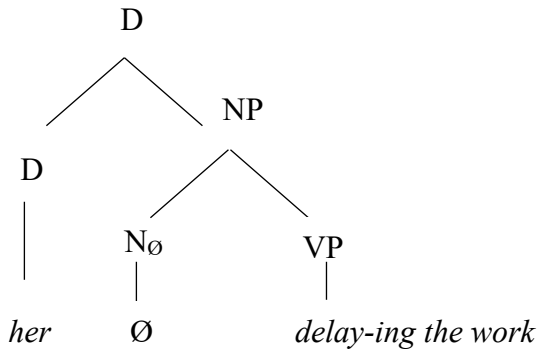
d. Transitive Verbs of apprehension — *The guard didn't/ notice/ observe/ record/ spot <u>Harry stuffing/ *stuff his pockets.</u>*

Structurally, Emonds (2022) proposes that the participial AP does not contain a subject, whereas gerunds embed them as can be seen in the structures below:

(40) a. Participle



b. Gerund



The grammaticality of certain structures can be attributed to the presence of the D projection in gerunds, whereas their corresponding participle structures with subjects are not considered grammatical:

(41) a. *They should discuss <u>their children's</u> renting a car.*

b. *The manager went on <u>(*his friend's/ *our/ *that</u>) drinking wine at lunch.*

As Verbs must have structural subjects, Emonds (2022) explains that participles can find them Verb-phrase externally rather than internally. Thus, in the structure (42) *Sue* is the external subject of participle AP:

(42) *[$_{DP}$ Sue$_i$] kept on/ resumed [$_{AP}$ [$_{VP}$ talking to herself$_i$]].*

The absence of a DP position gives participles an economic advantage over gerunds since they involve fewer phrases. This efficiency makes participles preferable in certain contexts over gerunds. Gerunds, nevertheless win in other contexts. To solve the puzzle when gerunds win, Emonds (2022) proposes the Anti-transitivity principle. I will briefly describe its main outcomes but see Emonds (2022) for some more details.

This principle states that if two heads within a construction containing three heads are Theta-Related, and a second pair is also Theta-Related, then the third pair cannot be Theta-Related. By heads we understand: a higher head which modifies the participle (X), the participial head

(Y) and subject (Z). Drawing inspiration from algebra, this can be likened to the Anti-transitivity of the immediate successor relation. Specifically, if Y is an immediate successor of X and Z is an immediate successor of Y, then Z cannot be an immediate successor of X.

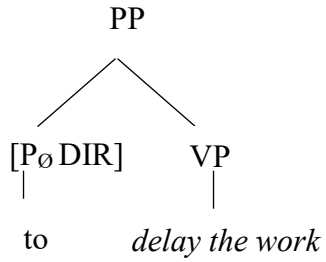
The Anti-transitive principle is respected in all cases where participles occur. This is because temporal aspect Verbs (39a) do not assign theta roles to their subjects, perception Verbs (39c) do not assign theta roles to their objects, participles in constructions with Prepositions (39b) are selected as Theta-Related by the Prepositions themselves rather than by the main Verbs. Similarly, in apprehension Verbs (39d), the participle is not Theta-Related to the main Verb but instead provides additional information about the direct object. In each of these cases, at least one pair within the triplets fails to maintain Theta-Relatedness, leading to the emergence of Anti-transitivity.

In other contexts, where the subject head might be Theta-Related from both Verbs, Anti-transitivity would be violated and it explains why some structure larger than participle must be used to ensure that the subject/object of the main Verb is also at the same time not the subject of the subordinate Verb. This is exactly the case below in (43):

(43) a. **The neighbors reminded Sam having promised the loan.*
b. *The neighbors reminded Sam$_i$ of [$_{DP}$ [$_{DP}$ Ø$_i$] [$_{NP}$ having promised a loan]].*

Most of what has been said above can be applied to infinitives but they are not the main focus of this dissertation. Hence, only a brief discussion will be dedicated to infinitives. Emonds (2022; Ch. 4) postulates a structure (44) for *to*-infinitives, where the P$_Ø$ exhibits a cancellation feature, resulting in the non-interpretation of P in LF (Logical Form). This construction reflects the historical origin of English *to* as a Preposition of direction. Čakányová (2018) puts forth the argument that the English *to* represents and, in unmarked structures, is interpreted as the mood IRREALIS. Consequently, its feature complex [P$_Ø$, DIR] should be connected to the feature I (=IRREALIS).

(44)



According to traditional grammar (Huddleston and Pullum 2002; Quirk 1985), infinitives may appear in similar positions as gerunds, namely in the positions of subjects and objects. We will see that these similarities are only misleading. While it is true that infinitives and gerund constructions can appear sentence initially in preverbal position, this does not apply to embedded clauses in (46) where infinitives are ungrammatical.

(45) a. *To find a job nearby would be a pleasant surprise.*

b. *Your being able to find work nearby would be surprising.*

(46) a. *I don't believe (that) [Mary avoiding sweets improves her health].*

b. **I don't believe (that) [for Mary to avoid sweets improves her health].*

This conclusion is predictable from the fact that gerunds are DPs and can be generated in all positions where DPs occur while infinitives are more verbal, more like VPs or CPs. Emonds puts forward that the initial infinitives are actually topicalized sentences. This can be illustrated by the structure in (47), where the topicalized CP is linked to an empty expletive DP through coindexation.

(47) [[$_{CPi}$ *To find a job nearby*] [$_{DPi}$ ∅] [$_{IP}$ *would be a pleasant surprise*]].

Somewhat illusory is the position of verbal clause (infinitive and finite clause) complements as in (48). This can be seen in more complex structures with indirect objects as in (49). The gerund always functions as a direct object DP and can be followed by an additional selected PP. However, verbal clauses are already situated at the end of the VP, which means that they cannot be followed by another complement PP.

(48) a. *Bill would prefer for Mary to stay a while.*

b. *Bill would prefer buying fewer foreign books.*

(49) a. *Bill preferred riding a bicycle to endless hitchhiking.*

b. **Bill preferred to ride a bicycle/ that we ride bicycles to endless hitchhiking.*

In terms of economy, infinitives are comparable to gerunds in containing the same number of phrases. However, when considering the number of words used, infinitives tend to be less economical than gerunds /participles. They have a word more than gerunds/participles: *(not) using a car* vs. *to (not) use a car*. The reason then why they win over the most economical participle in some verbal complements as in (50) is again the Anti-transitivity. Infinitives with obligatorily controlled lower subjects, denoted as Øi, indicate that there is no main clause DP that is simultaneously linked to the subordinate Verb:

(50) a. **John told/ urged my cousins consulting with each other.*

b. *John told/ urged my cousins$_i$ [$_{PP}$ [$_{DP}$ Ø$_i$] to [$_{VP}$ consult with each other$_i$]].*

A second factor that can override the preference for participles is when a selected complement needs a feature expressing Irrealis. Let's examine the structures identified by Emonds (2022) for certain semi-clause adjuncts:

(51) a. *The man to fix the sink is now on his way.*

b. *The man fixing the sink will soon be on his way.*

The infinitive in (51a) implies that the predicate is not yet realized which is expressed by Irrealis *to.* In contrast, the Realis implication (51b) is expressed by participle AP which participles typically convey.

Emonds' analysis covers much data concerning nominalizations and it is fully integrated into his theoretical model as summarized in Emonds (2000). Although I will not directly apply his framework in the following sections, I am going to consider his formal methodology and diagnostics.

2.3 Classification of Nominals in Czech

In the above sections, we have seen analyses of three types of deverbal nominals in English: verbal gerunds, mixed nominals, and derived nominals, as depicted in (16). These nominals possess varying degrees of verbal properties. We have outlined their distinctive characteristics, which will serve as a basis for comparison with Czech derived nominals in next parts of the dissertation.

Also, in the Czech language, one can observe a range of nominalization types. Just as in the case of English nominalizations demonstrated with example (14), nominalizations in Czech exhibit analogous semantic denotations. To be precise, these include names signifying events (52a), names representing arguments (52b), and names indicating adjuncts (52c).

(52) a. *sbírání/tlesknutí/procházka/chudoba* 'collecting/clapping/a walk/poverty'
b. *zaměstnavatel/učitel/trestanec/convict* 'employer/teacher'
c. *rozpouštědlo/vrtačka* 'dissolving agent/drilling-machine'

Again, many of these Nouns may license arguments, e.g. *učitel* '*teacher*' which seems to be inherited from the verbal counterpart *He teaches* but only names denoting events can realize both internal and external arguments:

(53) *maminčino* *sbírání* *hub*
mother$_{POSS}$ collecting mushrooms
'Mother's collecting of mushrooms'

In this thesis, I will be mainly focused on the Nouns denoting events. Following Chomsky (1970) and reflecting Grimshaw (1990), Karlík and Nübler (1998) propose that they can be further subdivided into Type I and Type II.[5]

Type I nominalizations are derived with the following suffixes:

suffix	**Verb**		**Nominalization**
-ěn/en	*znít*	'sound'	*zn-**ěn**-í*
-én/an	*malovat*	'paint'	*malov-**án**-í*
-t	*krýt*	'cover'	*kry-**t**-í*

Type II nominals comprise various suffixes including zero derived nominals:

[5] I will refer to the later version of this approach also in section 2.3.2.

suffix	**Verb**		**Nominalization**
-ba	*číst*	'read'	*čet-**ba***
-ka	*procházet*	'walk'	*procház-**ka***
-0	*lovit*	'hunt'	*lov*
-ost	*žádat*	'walk'	*žád-**ost***

According to Karlik and Nübler (1998) these two types can be distinguished from each other by several factors. I will exemplify only some of them:

a) Productivity: only type I can be formed from all Verbs:

Verb	**Type I**	**Type II**
být 'to be'→	*bytí* 'being'	0

b) Suppletion: only Type II is replaced by other forms:

Verb	**Type I**	**Type II**
pršet 'to rain'	*pršení* 'raining'	**pršba/ déšť* 'rain'

c) Backformation:

Verb	**Type I**	**Type II**
hřmít 'to thunder'	->*hřmot* 'roar'->*hřmotit* 'to roar'	->*hřmění* 'thundering'-> 0

In their accepted (non-)lexicalist framework, Karlik and Nübler (1998) expected that Type I nominals are syntactic transforms and Type II nominals have lexical basis. In this thesis I will label the two kinds of Czech nominalizations based on the phonetic realization of their suffixes illustrated in the above tables in the following way:

- the Type I nominals will be labeled as **N/T nominals**;
- the Type II nominals will be labeled as **B/K nominals**.

2.3.1 Veselovská (2018b)

In her studies, Ludmila Veselovská advocates generative approach within Czech linguistics. Besides analyzing many linguistic phenomena, she has dedicated her research to the study of nominalizations in her two articles: Veselovská (2001); (2018b). In these articles, she expands upon Emonds' (2000) Three Level Insertion model, which was introduced in section 2.2.4.

In line with Chomsky (1970)'s view, Veselovská acknowledges that English verbal gerunds which are missing in Czech undergo syntactic derivation. However, she argues that the Czech counterparts of mixed and derived nominals require further division, drawing upon Grimshaw (1990)'s insights. The latter group can be classified into two sub-groups: lexically derived (Grimshaw's result and simple event nominals) and syntactically derived (Grimshaw's complex

event nominals). I will sometimes use Borer (2013)'s term R-nominals and AS-nominals respectively.

First of all, the author shows that Czech derived nominals can be coordinated with prototypical lexical Nouns, see below (The examples will be presented on the scale from least verbal R-nominal to most verbal AS-nominal):[6]

(54)

R-Nominal			**AS-nominal**
kniha	*a mal-ba*	*a mal-ov-ání*	*a pře-mal-ovává-ní*
book	and drawing	and drawing	and re-painting

Other nominal environment is the complementation of Prepositions:

(55)

	R-nominal			**AS-nominal**
Protestovali proti	*knihá-m*	*malbám na zdi*	*psaní*	*pře-pis-ová-ní*
they protested against	books$_{\text{DAT.PL.FEM}}$	painting$_{\text{DATPL.FEM}}$	writing$_{\text{DAT.SG.N}}$	rewriting$_{\text{DAT.SG.N}}$

The example in (55) shows the nominals in Instrumental environment. Notice that standard Nouns in Czech are countable and Gender marked (both *malba* 'painting' and *kniha* 'book' are feminine). In contrast, nominalizers *–ěn*/*-en* + *í*, *-án*/*-an* + *í* (N/T nominals) are all unmarked neuter and have the same form with the exception of Instrumental. This feature deficiency is typical characteristics for AS nominals.

The Number deficiency, according to Veselovská (2018b), is also visible in (56) which shows that these nominals do not co-occur with the numeral *dvě* 'two' but are compatible with specific numeral typical for uncountable Nouns *dvojí* 'two$_{\text{KIND}}$'.

(56)

R-nominal		**AS-nominal**
dvě malby	*? dvě malování*	**dvě/dvojí přemalování*
two paintings	two paintings	two/dual re-paintings

After analyzing the nominal features, we can scrutinize the verbal properties of these nominals. One of the typical verbal characteristics is Aspect. The following examples not only tolerate Aspect sensitive adjectival modification *častý* 'frequent' but also exhibit sensitivity to aspectual Prepositions:

[6] This terminology is employed in Borer (2013).

(57)

R-nominal			**AS-nominal**
**častá židle*	*? častá malba*	*časté malování*	*časté přemalování*
frequent chair	frequent painting	frequent painting	frequent re-painting

(58)

R-nominal			**AS-nominal**
**při židli/*po židli*	*při/po opravě*	**při/po opravení*	*při/*po opravování*
during/after chair	during/after repair	during/after repair	during/after repair

As far as transitivity is concerned, there is a distinct tolerance with respect to complementation. Typical R-nominals disallow complementation but AS nominals do require it and if they contain aspectual prefixes, then the complementation is obligatory:

(59)

R-nominal			**AS-nominal**
*dopis (*textu)*	*psaní (textu)*	***pře**-psaní ? (textu)*	*pře-pis-ová-ní ?? (textu)*
letter ($text_{GEN}$)	writing ($text_{GEN}$)	rewriting ($text_{GEN}$)	rewriting ($text_{GEN}$)

Next argument for the presence of verbal properties is demonstrated in example (60). The short clitic reflexive pronoun *se* 'oneself'' that is standard with Verbs is compatible with AS nominal but incompatible with R-nominals.

(60)

R-nominal		**AS-nominal**	**V**
**obraz se*	**malba se*	*namalování se*	*namalovat se*
picture oneself	painting oneself	re-painting oneself	to (re)paint oneself

Before considering Instrumental Agents in Czech, it is necessary to mention, that they are not seen as a satisfactory proof that passive transformation took place. Instrumental Agents are rather perceived as adjuncts with zero Preposition. Despite that, instrumental Agents are permissible only with verbal elements:

(61)

R-nominal		**AS-nominal**	**V**	
**dopis*	*?psaní*	*/přepisování*	*/přepisován*	*některými studenty*
letter	writing	rewriting	rewritten	by some students

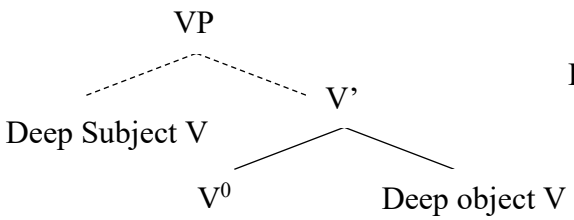
Structurally, Veselovská (2018b) explains nominalizations by means of the Three Level Insertion model developed by Emonds (2000). In this model, the categorial head (N) consist of two syntactic heads: a lexical verbal base (V) and a nominalizing suffix (N). There are three levels where the grammatic element N_0 can enter derivation:

A. Initial Numeration
B. Syntax (pre-Spell Out)
C. PF

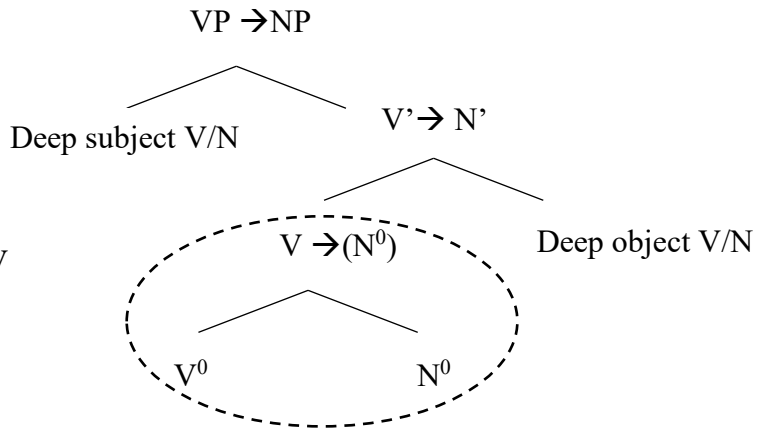
We can imagine this process as chronological and the amount of "verbalness" of the structure will depend on how far the Verb can project. If the insertion of morpheme N^0 takes place early, that is from the beginning of the numeration, then the nominalization will have a nominal head at all levels during the derivation. This is our picture (62a) where the dotted line might be missing and the verbal head can be replaced by D. This would be the case of Grimshaw's result and simple event nominals, our R-nominal.

(62) Insertion of grammatical morpheme N^0 nominalizer

a) Before adding the suffix



b) After adding the suffix



If the insertion of N^0 morpheme takes place late, then the head of the projection in the deep structure is the Verb V_0. The Verb could project some verbal functional heads, e.g. Aspect. This would be the case of AS-nominals. Lastly, the nominalizing morpheme can be inserted into the structure post-cyclically, that is after all transformations have been terminated. For example, English gerunds are formed in this way where V^0 is the head during the whole derivation *cycle*, which explains why Accusative Case can be combined with English gerunds. This was already described in section 2.2.4 discussing Emonds' model.

In Czech, no equivalents of English verbal gerunds can be detected. The combination of POSS and ACC is ungrammatical:

(63) a. **Nesnáší* <u>*moje*</u> ***pře-čt-e-n-í*** <u>*knihu*</u>
he hates my reading the book$_{ACC}$
'He hates my reading the book'

b. **Obdivuje* <u>*moje*</u> ***čt-e-n-í*** <u>*knihu*</u>
wonder my reading the book$_{ACC}$
'He wonders my reading the book'

Veselovská (2018b)'s approach is very useful because it can capture the characteristics of mixed nominalizations, namely the fact that derived nominalizations in Czech inherit some properties from Verbs but are still nominal. I will apply her criteria but it will be further needed to describe features within nominalizations in more detail and combine the criteria in order to

get more fine-grained distinctions. This is due to the fact that nominalizing affixes are homophonous and can exhibit both the event reading (64a) as well as the result reading which denotes an entity (64b).

(64) a. *(*Tři)* *(*modré)* ***ps-a-ní*** *dopisu* *trvalo dlouho.*
three blue writing leterr$_{GEN}$ took a long time
'The writing of the letter took a long time.'

b. *Tři* *modré* ***ps-a-ní*** *(*dopisu)* *ležely na stole.*
three blue writing$_{PL}$ leterr$_{GEN}$ lay on the table
'Three blue pieces of writing were on the table.'

2.3.2 Karlík (2019)

Another Czech linguist who deals with nominalizations is Petr Karlík who analyzed nominalizations within the Lexicalist Framework, i.e. inspired by Chomsky (1970). After the above-mentioned study by Karlík and Nübler (1998), Karlík in his nominalization papers (2007b), (2007a), (2008), (2019) applies the same tests as Veselovská (2018b) and reaches the same conclusion that some nominalizations in Czech are syntactically derived while others are lexically derived. Moreover, Karlík (2019) proposes the following generalization: N/T nominals that are syntactically derived behave as complex event nominals and can become result nominals, B/K nominals behave as simple event nominals and can become result nominals (see Grimshaw's terminology). According to Borer's terminology, B/K nominals can be categorized as AS-nominals with the potential to transform into R-nominals. In contrast, B/K nominals correspond to R-nominals.

The following examples are inspired by Karlík's articles but some additional modifications of mine illustrate the contrast. Unlike N/T nominals in (65a), B/K nominals classified as SENs (65c) can never be negated. B/K nominals can, nevertheless express some eventivity related to duration as the verbal complex *trvat* 'take a long time' signals. The examples (65b) and (65d) provide an argument that both N/T and B/K nominals can become result nominals and consequently do not tolerate negation neither can they express duration.

(65)	a.	***Balení/ne-bal-e-n-í***	*svačiny*	*do*	*sáčku*	*se mu vymstí*	CEN
		Packing/ non-packing$_{(IMPF).NT}$	breakfast$_{GEN}$	into	bag	cause him troubles	
		'Packing/non-packing of breakfast into bag will cause him troubles.'					
	b.	***Balení/ *ne-bal-e-n-í***	*léků*	*leželo na stole/*trvalo dlouho.*			RN
		package/ non-package$_{(IMPF).NT}$	pill$_{GEN.PL}$	lay on the table/took a long time			
		'A package of pills was on the table.'					

c.	***čet-ba/*ne-čet-ba***	*knih*	*trvala dlouho*		SEN
	reading/ non-reading$_{F.SG}$	book$_{GEN.PL}$	took a long time		
	'Reading of the books took a long time.'				
d.	*obsáhlá*	***čet-ba/ *nečet-ba***	*ležela na stole/ *trvala dlouho*		RN
	extensive	reading/ non-reading$_{F.SG}$	lay on the table/ took a long time		
	'The extensive reading was on the table.'				

Furthermore, as already demonstrated in Veselovská (2018d), B/K nominals can never be reflexive (66c), similarly to result nominals (66d).

(66)	a.	*Petrovo*	***hol-e-n-í***	***se***	*trvalo dlouho*	CEN
		Peter$_{POSS}$	shaving$_{(IMPF).NT}$	self	took a long time	
		'Peter's self-shaving took a long time.'				
	b.	*Petrovo*	***hol-e-n-í***	***(*se)***	*leželo na stole/ *trvalo dlouho*	RN
		Peter$_{POSS}$	shaving$_{(IMPF).NT}$	self	lay on the table/took	
		'Peter's shaving was on the table.'				
	c.	*Petrova*	***mal-ba***	***(*se)***	*trvala dlouho*	SEN
		Peter$_{POSS}$	painting$_{F.SG}$	self	took a long time	
		'Peter's painting took a long time.'				
	d.	*Petrova*	*pestrobarevná*	***mal-ba (*se)***	*ležela na stole/ *trvala dlouho*	RN
		Peter	colorful	painting$_{F.SG}$ self	lay on the table/ took a long time	
		'Peter's colorful painting was on the table.'				

It is not possible to deduce Aspect from B/K nominals. In contrast, N/T nominals are aspectually sensitive. Notice that prefix *-při/-pří* is contained in both nominals but its length changes. More will be said about this phenomenon in Chapter 5.

(67)

a.	*Petr*	*začal*	*se* ***stav-ě-n-ím/*při-stav-ě-n-ím/při-stav-ová-ním***	*domu*	CEN
	Peter	started	with building$_{(IMPF).NT}$/ $_{PF}$building$_{NT}$ /$_{PF}$ building$_{IMPF.NT}$	house	
	'Peter started with building/ the extension/ the extension of the house.'				

b.	*Peter*	*začal*	*se* ***stav-bou/pří-stav-bou***	*domu.*	SEN
	Peter	started	with building$_{F}$/re-building$_{F}$	house	
	'Peter started with building/the extension of the house.'				

Interesting are also other aspectual features. B/K nominals do not allow the so called superlexical prefixes:

(68) a. ***na***-*běh-á-n-í* *kilometrů*
pref.running$_{NT}$ kilometer$_{PL.GEN}$

b. *krátké* ***po***-*sp-á-n-í*
short pref.sleeping$_{NT}$

c. ****ná***-*běh* *kilometrů*
pref.running$_{M}$ kilometer$_{PL.GEN}$

d. *krátký* ****po***-*spánek*
short pref.sleeping

Neither can B/K nominals express iterativity:

(69) a. *zpív-á-**vá**-ní*
singing$_{ITER.NT}$

b. *huč-í-**vá**-ní*
humming$_{ITER.NT}$

c. **zpěv-**vá***
singing$_{ITER.M}$

hukot-vá***
humming$_{ITER.M}$

Also, B/K nominals do not co-occur with Adverbs:

(70) a. *?**čte-n-í*** *té detektivky* *rychle* *je skoro hřích*
reading$_{(IMPF).NT}$ the detective story$_{GEN}$ quickly is almost a sin
'Reading of the detective story quickly is almost a sin.'

b. ****čet-ba*** *té detektivky* *rychle* *je skoro hřích*
reading$_{F.SG}$ the detective story$_{GEN}$ quickly is almost a sin

On the basis of these investigations, Karlík (2019) suggests two structures for N/T and B/K nominals:

(71)	a.	functional vP [vP [root]]]	N/T nominals
	b.	[nP [root]]	B/K nominals

This means that lexically derived B/K nominals do not contain any layers associated with verbal projections. They are derived from the root and nominal suffix. Syntactically derived nominals, on the other hand, have at their disposal some larger portion of verbal structure, it might include some aspectual heads. The question is what licenses AS and eventivity if no functional projections are associated with B/K nominals. Karlík (2019) claims that eventivity as well as argument structure of SEN of B/K nominals are contained in the root. I will refine these issues in section 6.4.1 when analyzing Czech nominalizations in more detail.

Karlík (2007) also poses the question whether nominalizations could be passivized structures. Although he admits that nominalizations share with passive participles and passive Adjectives identical material (*-n*/*-t*), he does not find empirical support for this hypothesis. The morpheme (*-n*/*-t*) is used for nominalizations from unaccusatives (72a), unergatives (72b), argumentless Verbs (72c) as well as reflexives (72d) which do not normally form passive:

(72)	a.	*blednutí*	**blednut*	b.	*běžení*	**běžen*
		fading$_{NT}$	*fade$_{PRT}$		running$_{NT}$	run$_{PRT}$
	c.	*sněžení*	**sněžen*	d.	*umývání se*	**umýván se*
		snowing$_{NT}$	snow$_{PRT}$		washing self	wash$_{PRT}$ self

Moreover, according to Karlík (2007), the data from binding theory do not support this conclusion either. If syntactically derived nominals possessed a passive structure, then a genitive DP with an interpretation of A2 (internal argument) in the subject position should have an analogical interpretation as a DP with an A2 interpretation of passive participles:

(73)	a.	***kritizování***	$_{A2}$ *učitele*		*žákem*	
		criticizing$_{NT.(IMPF)}$	teacher$_{GEN}$		pupil$_{INS}$	
		'criticizing of the teacher by student'				
	b.	****kritizování***	$_{A2}$*učitele$_i$*	***svým$_i$***	*žákem*	
		criticizing$_{NT.(IMPF)}$	teacher$_{GEN}$	REFL	pupil$_{INS}$	
		'criticizing of the teacher by his own pupil'				
	c.	* $_{A2}$*učitelovo$_{i\ .}$*	***kritizování***	***svým$_i$***	*žákem*	
		teacher$_{POSS}$	criticizing$_{NT.(IMPF)}$	REFL	pupil	
		'criticizing of the teacher by his own pupil'				
	d.	*Učitel$_i$*	*je*	***kritizován***	***svým$_i$***	*žákem.*
		teacher$_{NOM}$	AUX.$_{BE}$	criticize$_{PRT}$	REFL	pupil$_{INS}$
		'The teacher is being criticized by his own pupil.'				

As we can observe, this is not the case for either postnominal genitives or prenominal genitives. The anaphoric reflexive *svým* is not bound by its antecedent in (73b); (73c). This can be contrasted with the passive structure in (73d).

Also, prenominal genitives with an interpretation of A1 (external argument) in nominalizations do not display typical subject-like properties. It is well-known that a subject can bind anaphors, as shown in (74a). However, neither the prenominal genitive in (74c) nor the prenominal genitive in (74d) is coreferential with the reflexive *svůj* '*self*'. The latter is a genuine Noun, indicating that prenominal genitives of nominalizations exhibit certain patterns with genuine Nouns in some cases.

(74) a. *Petr*$_i$ ***kritizuje*** ***svého*$_i$** *učitele*
Peter$_{NOM}$ criticize$_{3.SG}$ REFL teacher$_{ACC}$
'Peter criticizes its own teacher.'

b. $_{A1}$ *Petrovo*$_i$ ***kritizování*** ***svého*$_i$** *učitele.*
Peter$_{POSS}$ criticing$_{NT.(IMPF)}$ REFL teacher$_{GEN}$
'Peter's criticizing his teacher'

c. *? Petrovo*$_i$ ***pobíhání*** *ve* ***své*$_i$** *pracovně*
Peter$_{POSS}$ running$_{NT.(IMPF)}$ in REFL office
'Peter's running in in his own office'

d. **Petrovo*$_i$ ***křeslo*** *ve* ***své*$_i$** *pracovně*
Peter$_{POSS}$ chair in REFL office
'Peter's chair in his own office'

Therefore, Karlík (2007) argues that analyzing derived nominals as passive structures is not sufficient from a descriptive point of view.

Petr Karlík's analyses of Czech nominalizations creatively integrates the semantic aspects of Grimshaw (1990) study.[7] His usage of roots and categorial heads *n/v* at the same time reflects the development of generative grammar with respect to the categorial classification.

2.4 Chapter Summary

To summarize this chapter, I introduced the core concepts of generative grammar used for the analysis of the phenomena of nominalizations, demonstrating the classification of nominals in English and Czech as used in the relevant literature. I showed that English exhibits three types of deverbal nominalizations: derived nominals, gerunds, and mixed nominals with intermediate characteristics. While Chomsky (1970) initially viewed gerunds as derived from sentential structures and derived nominals were confined to the lexicon, Grimshaw (1990) reintroduced some types of derived nominals into syntax and further refined their classification.

Referring to previous studies, I demonstrated that the Czech language does not nominalize higher verbal complexes in the same way as English verbal gerunds. It has, nevertheless, two groups of deverbal Nouns as described by Karlík (2019) and Veselovská (2018b). They both agree that Type I: N/T nominals are syntactically derived, behave as complex event nominal and can become result nominals, Type II: B/K nominals behave as simple event nominals and can become result nominals (see Grimshaw's terminology). These two groups will be the subject of our study in the next chapters.

Given that this study will focus on recent proposals by two authors, namely H. Borer and A. Alexiadou, who have been deeply engaged with nominalizations, it becomes essential to

[7] Petr Karlík's concept of argument structure reflects his original proposal of *Modified Valency Framework* that looks at constructions from the perspective of valency frames as it is described in Karlík, (2002), (2003), and (2004).

introduce their frameworks and terminology in the subsequent chapter. This preparatory step is necessary before elaborating on their specific proposals within the context of nominal and verbal domains, as well as the interplay between these domains in the realm of nominalizations.

3 COMPARING THE FRAMEWORKS

In this Chapter, I will introduce two frameworks and the associated terminology used by Artemis Alexiadou and Hagit Borer. Firstly, I will provide a more general comparison between the model of Distributed Morphology employed by Alexiadou and the *Minimalist model*, which represents the latest line of inquiry in generative grammar. It is worth noting that the Minimalist approach is to a greater or smaller degree shared by most authors working in the generative framework. Therefore, I will first outline the minimalist operations, such as Merge, Agree, and Move, that can be performed within this model and its varieties. Subsequently, in section 3.2, I will examine Borer (2005)'s *Exo-skeletal model*, which uses some specific terminology and concepts divergent from the more general generative models.

3.1 Minimalist Program and Distributed Morphology

The generative model of grammar, as presented in Chapter 2, has undergone several revisions, with the Minimalist model representing its most recent version. In this section, I will provide a brief comparison between the Distributed Morphology (DM) model utilized in the works of Artemis Alexiadou and the more general architecture of the Minimalist program.

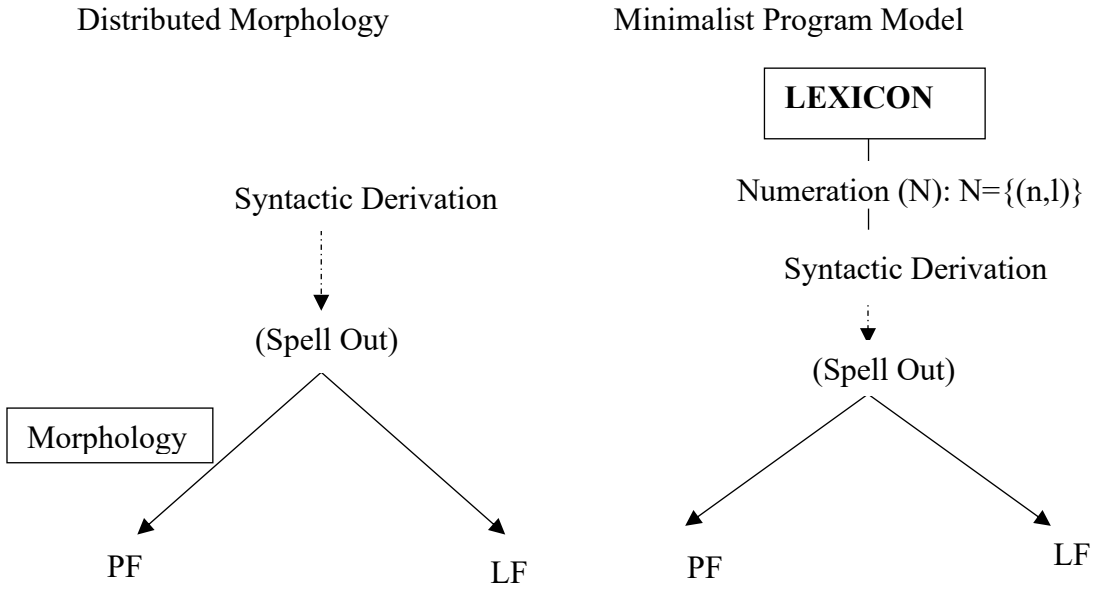
Both theories, developed around the same time in the early 1990s, are influential within generative framework. Notably, they share a common understanding regarding the structure of grammar, with the syntactic component preceding phonology and semantics, as depicted briefly already in (2) and in more detail in (75) below. Furthermore, there is a substantial agreement between the two branches of the generative framework in terms of the operations they employ, including Agreement, Merge, and Movement. These operations will be further explored in the subsequent sections.

The main divergence between the two theories is related to the treatment of the lexicon as a repository of language specific lexical entries. The Minimalist Program model, based on Chomsky's Minimalist Program (Chomsky 1995) is illustrated in (75) below on the right. In this model, there is a concept of language specific *Lexicon* which includes the clusters of sound and meaning features introduced at the onset of syntactic computation. The presence of arguably universal grammatical features and their linking to the language specific ones is a matter of discussion.

On the other hand, the DM model, schematically illustrated in (75) on the left, takes a different approach by eliminating the traditional notion of a Lexicon as the starting point of derivation. It replaces it with three separate concepts: (a) the initial list of grammatical features provided by Universal Grammar (which drive the syntactic derivation), (b) Vocabulary comprising language specific morphemes and (c) the Encyclopedia providing semantic concepts. In the DM model the linking of the three substitutes for the Lexicon is the matter of current discussion and in the scheme below they are in fact not explicitly represented.[8]

[8] I am leaving aside the possible distinction in graphical representation which may result in the usage of distinct labels: T-model and Y-model.

(75) The DM model vs. Minimalistic Model, (Source: Embick and Noyer (2005)



Within the present-day DM model, word formation follows syntactic rules such as Merge, Move, and Agree, which bear significant resemblance to the principles governing syntax. [9] The units that undergo these syntactic operations are referred to as morphemes. These morphemes correspond to terminal nodes in the tree diagram and can be classified into two types: Abstract morphemes and Roots, as depicted in table (76):

(76) Abstract morphemes vs. Roots

	Phonological features	**Syntactic-semantic features**	**Classification:**	**Example**
Abstract morpheme	X	✓	Functional category	[Past], [Plural], [Def]
Roots	✓	X	Open class category	√CAT, √OX

While abstract morphemes consist of syntactic-semantic features drawn from a set made available by Universal Grammar, Roots do not possess any grammatical features and are language specific combinations of sound and meaning. This distinction aligns with the differentiation between functional categories and open class categories, such as Nouns (N), Verbs (V), and Adjectives (A). It means that the learner of language has to memorize roots such

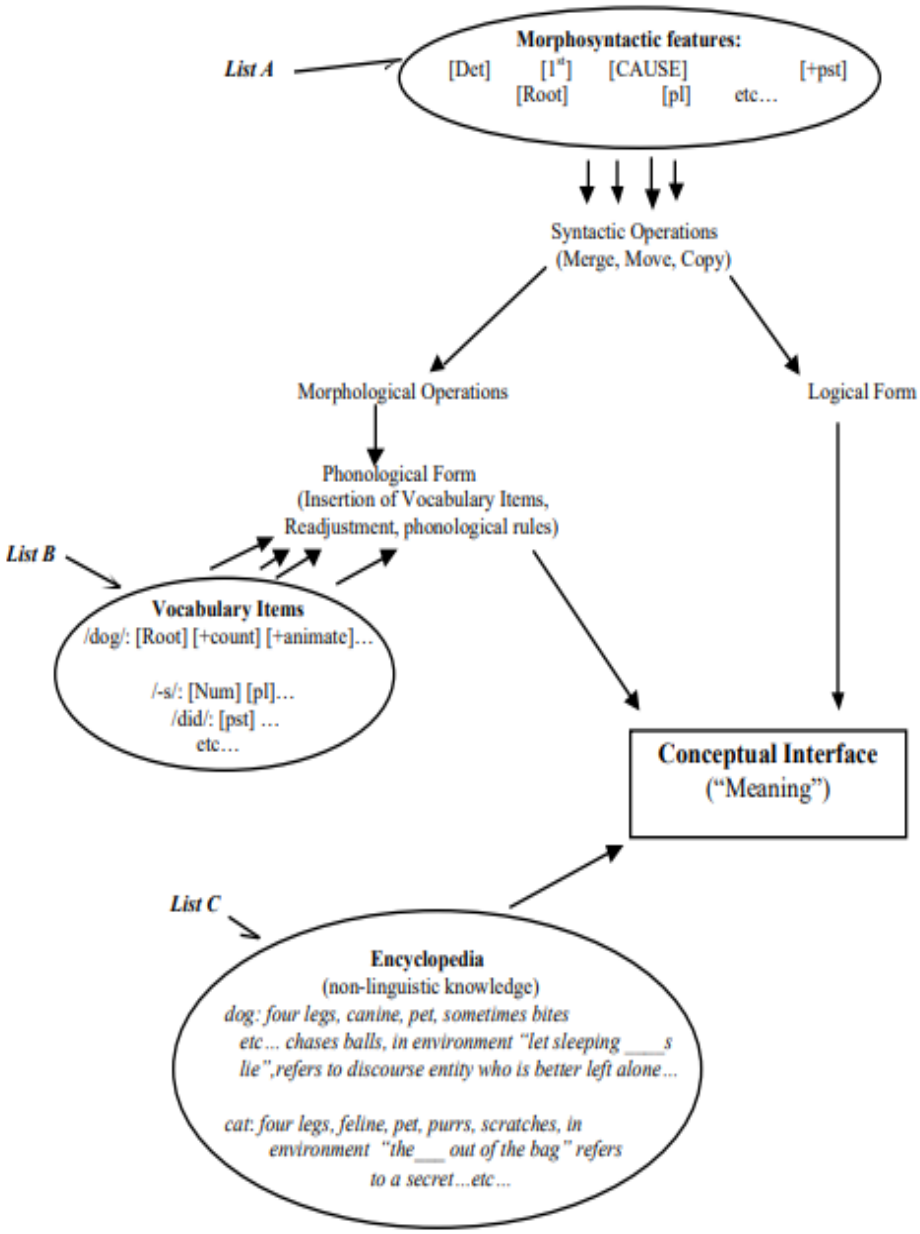
[9] The reader may compare the DM model with the model introduced by Emonds (1991,2000) and mentioned in section 2.2.4. This model is called the *Three Level Insertion Model* and similarly to the DM Model it rejects the autonomy of morphology with respect to syntax. In this model, purely semantic features are introduced from the beginning of the derivation but are syntactically inert. For the purpose of this study the advantages of one or the other models are rather scholastic.

as √*CAT* as well as be aware of the fact that abstract morphemes such as [Plural] are active in their language.

Once the syntactic operations are complete, there is a point at which the derivation splits between PF (Phonetic Form) and LF (Logical Form). At the PF level, certain morphological operations apply. Some of them take place before *Vocabulary insertion* (e.g. Lowering/Merger), while others occur after this stage. Further details about Lowering/Merger will be discussed later in this section.

Vocabulary insertion serves as a mechanism for supplying phonological features to abstract morphemes. For instance, the [Plural] feature associated with the Number head will be phonetically realized as the regular exponent/-z/. This process of Vocabulary insertion is called *Spell-Out*. Towards the end of the derivation, specifically after the output from PF/LF, there exists the opportunity to access a repository of specialized meanings known as the *Encyclopedia*. This component is also the locus of e.g. idioms. The whole process described above can be seen in picture (77):

(77) The DM Model of derivation – detailed version as in Harley, Noyer (2000, p. 2)



Additionally, assuming that syntax provides the input to semantic interpretation, in any present-day generative model including DM, it is vital to recognize a distinction between *interpretable* and *uninterpretable* features introduced in their first version by Chomsky in his early minimalist paper (see Chomsky 1995). According to this distinction syntax has the ability to manipulate both types of features, but only interpretable features have relevance to semantic interpretation. For instance, features like Tense [+/- Past] or Aspect [+/-Perfective] fall into the category of interpretable features. On the other hand, uninterpretable features, like e.g. the EPP feature, which triggers subject movement to SpecT, must be checked before reaching the

interfaces, otherwise the computation crashes. As for their phonetic realization, both kinds of features can but need not be represented overtly by some kind of morphemes.

The more recent linguistic theory suggests that the classification of features is to be made more complex. Namely that the features cannot be uniquely and universally categorizable as either interpretable or uninterpretable. Instead, a specific feature may be language specific and moreover it is interpretable in one position but not in another. These proposals will be discussed in more detail in the following section.

3.1.1 Minimalistic Operations: Merge, Agree, Move

In this section I will define three types of syntactic operations that lay at the core of Minimalistic program developed by Noam Chomsky: Merge, Agree, Move. These were integrated to most of present-day generative frameworks including the Distributed Morphology. A more detailed explanation of this concepts is based on representative studies dealing with the phenomena which represent the general accepted state of arts.

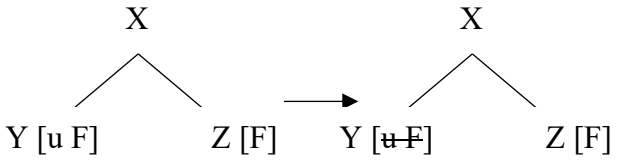
- **Agree:** Feature sharing under c-command (Pesetsky and Torrego, 2007)
- **Move:** Agree and Merge: It is a combination of operations where Move is preempted by Merge. (Chomsky, 2000)
- **Merge:** The structure building operation which takes two syntactic objects A and B and forms the new object G={A,B} (Chomsky, 1999)

For the operation Agree, I am referring here to the version put forward by Pesetsky and Torrego in 2007. First of all, we need to distinguish feature checking/ sharing under Agree from feature checking under sisterhood. The latter is defined in the following way:

(78) **Checking under Sisterhood:**
An uninterpretable c-selectional feature F on a syntactic object Y is checked when Y is sister to another syntactic object Z which bears a matching feature F.

To see how checking under sisterhood works, look at the mechanism in (79) described in Adger (2002):

(79) Checking under Sisterhood



In the Minimalist framework, an uninterpretable feature F present on a syntactic element Y needs to undergo a checking process by entering into a syntactic relationship with another feature elsewhere. This checking mechanism is particularly employed for categorial selectional features. To illustrate this, let's consider the Verb *kiss* which requires an object that is a Noun.

We can say that the verb bears a categorial selectional feature N feature. These categorial features help determine the categories that can merge with a particular element. For example, the sentence **kiss say* is ungrammatical because the verb *kiss* cannot merge with the category of *say*.

For checking under Agree, I will follow Pesetsky and Torrego (2007)'s mechanism of Agree:

(80) Agree mechanism as in Pesetsky and Torrego (2007):

(i) An unvalued feature F (a probe) on a head H at syntactic location α (Fα) scans its c-command domain for another instance of F (a goal) at location β (Fβ) with which to agree.
(ii) Replace Fα with Fβ, so that the same feature is present in both locations.

While the initial part of the definition remains consistent with Chomsky's work in 2000 and 2001, Pesetsky and Torrego (2007) present a different perspective on agreement. They propose that agreement is primarily driven by valuation rather than interpretability. [10]

In our previous discussion, we mentioned that the concept of interpretable and uninterpretable features is relevant for their interpretability in semantic domain. Now, we can observe that features can also have a separate dimension of being valued or unvalued. In Pesetsky and Torrego's framework, certain features originate from the lexicon as unvalued and require a value from a valued instance of the same feature found on another element. Subsequently, Pesetsky and Torrego (2007) argue that valuation and interpretability are independent of each other. This is different from Chomsky (2001) who views valuation and interpretability as mutually dependent. To compare the proposals, let's first consider the original one by Chomsky (2001):

(81) **Valuation/Interpretability Biconditional** (Chomsky 2001, p. 5)
A feature F is uninterpretable iff F is unvalued.

Chomsky's mechanism of Agree is illustrated in the example (82) with Tense feature. Here the head T has an interpretable Tense feature [+PAST]: iT[past]. (I indicate interpretability and uninterpretability with *i* and *u* written to the left of the feature). The head little *v* contains an uninterpretable (inflectional) feature u[unval]. When T merges with *v*, the Tense feature on T agrees with that in *v* and the latter is thereby valued: uv[past]. In other words, *v* receives a Tense value from T. This operation is called *checking by valuing*.

[10] Pesetsky and Torrego (2007) assume a feature-sharing theory of agreement in which the matching feature(s) of the probe and the goal are unified into a single feature. Thus, a feature that undergoes Agree has more than one instance and Agree takes two (or more) occurrences of a feature (e.g., Number on subject DP, T and V-v) and turns them into two (or more) instances/locations of a single feature (e.g. a single feature of Number shared by DP and T-V-v) before the uninterpretable instances delete.

(82) a. *Marie missed John.*
b. iT[past] . . . u v[unval] → iT[past] . . . uv[past]

Yet, if unvalued features need to be deleted by the time of Transfer to the interfaces, there is no way to know which features need to be deleted (here it is the originally unvalued feature of *v*) as they are both valued by the time of Transfer. Because there is no link established between features, syntax cannot inspect the feature and see whether the valuation of the feature F2 is due to F1 or conversely.

To solve the problem, Pesetsky and Torrego (2007) propose that valuation and interpretability should be taken as independent. As a result of this separation, we expect four sorts of features. On the left we have the uninterpretable features, on the right the interpretable ones. The features in bold are the types of features not present in the original Chomsky's proposal.

(83)

u F val	**= uninterpretable valued**
u F [ ]	= uninterpretable, unvalued

i F val	= interpretable valued
i F [ ]	**= interpretable unvalued**

Moreover, in line with Chomsky's 2001 proposal, Pesetsky and Torrego assert that unvalued features function as probes, but differ in allowing interpretable and unvalued features to act as probes (which were absent for Chomsky).

Let's apply Pesetsky and Torego (2007)'s Agree mechanism to our example (82). Now, Tense on the Verb is valued in the lexicon but it still remains uninterpretable throughout the derivation. This feature specification allows the finite Verb to serve as a goal. The Tense feature on the T head, on the other hand, is interpretable but unvalued and therefore it acts as a probe, see below:

(84) a. *Marie missed John.*
b. iT [unval] . . .u v [past] → iT[past] . . . uv[past]

The situation above thus exemplifies the two types of features that were disallowed in Chomsky's proposal.

In the original Chomsky's feature taxonomy, in addition of having the property of interpretability, features also have a second property, usually known as *strength*. The prominent characteristic of strength is its ability to initiate movement operations. Compare the example in (85a) with a negative sentence that involves a negative *not* and a complete selection of auxiliaries and a modal in (85b):

(85) a. *She has **not** been reading the book.*
b. *She might **not** have been reading the book.*

In (85a) the negation *not* precedes the auxiliary, whereas in (85b) *not* follows the modal. To account for these different word order patterns, the first auxiliary *has* in (85a) must have moved to T which is the locus of modals.

Pesetsky and Torrego (2001) put forward the proposal that features have movement properties associated with them. These properties are called EPP (originally the abbreviation referring to the Extended Projection Principle). The EPP characteristic is a trait of a property rather than the feature itself. Technically, this difference is important because Agree is defined as feature sharing and in the EPP case, nothing is shared, EPP is simply parasitic on Agree.

To envision the scenario described in (85), we must consider it as a two-step process. First, there is an agreement between T and a following functional head Perf, resulting in the interpretable unvalued inflectional feature on T being valued. Subsequently, through the process of Agree, the EPP feature on T becomes activated, leading to the movement of the auxiliary to T:

(86) a. iT[][EPP]….uPerf [Perf] → iT[Perf] u[Perf]
b. iT[][EPP]…..uPerf [Perf] → iT[Perf] [Perf]

To conclude this part, while Chomsky (2001) ties valuation and interpretability, arguing that all and only uninterpretable features are unvalued, Pesetsky and Torrego (2001) divorce valuation and interpretability which results in a broader range of possible features. I will utilize Pesetsky and Torrego's modified proposal, it will become especially useful in section 4.2.2 where I will discuss Gender features.

3.1.2 Postsyntactic Processes in the DM model

In the DM model, the division of labor between syntax and morphology becomes evident when we consider how the syntactic structure produced by syntax is then interpreted/ realized by morphology. In this section, I will outline the post-syntactic morphological processes to explain the output of syntax. Specifically, I will primarily focus on *syntactic Lowering/Merger* and morphological agreement. The DM model encompasses also various other post-syntactic processes such as Local Dislocation and Fission, which are not going to be discussed here in more detail.

Given the assumption that syntax serves as the input for semantic interpretation, it follows that those semantic features, which correspond to interpretable features, must necessarily be present in syntax. In the mapping to the Phonetic Form (PF), interpretable features are not deleted. Therefore, the features like e.g. Tense or phi- features which are all interpretable and valued can be target of PF operations.

Let's begin with the concept of Lowering/Merger, focusing on the Tense feature in English. It may seem puzzling that we can observe Tense inflection on Verbs, such as in the sentence *John loved Mary*, if the uninterpretable feature on V is deleted. This becomes even more intriguing when we consider that, unlike in French, English Verbs are known not to raise to T in narrow syntax, as proposed in Emonds (1978). The following examples illustrate the contrast between French and English: the distribution of the negation *pas* and *not* shows that the Frech Verb *aime* can precede it as in (87b), while the English Verb *love* (88) cannot get to the position in front of *not*.

(87) a. *Jean n'a pas **aimé** Marie*
John has not loved Mary
'John didn't love Mary. '

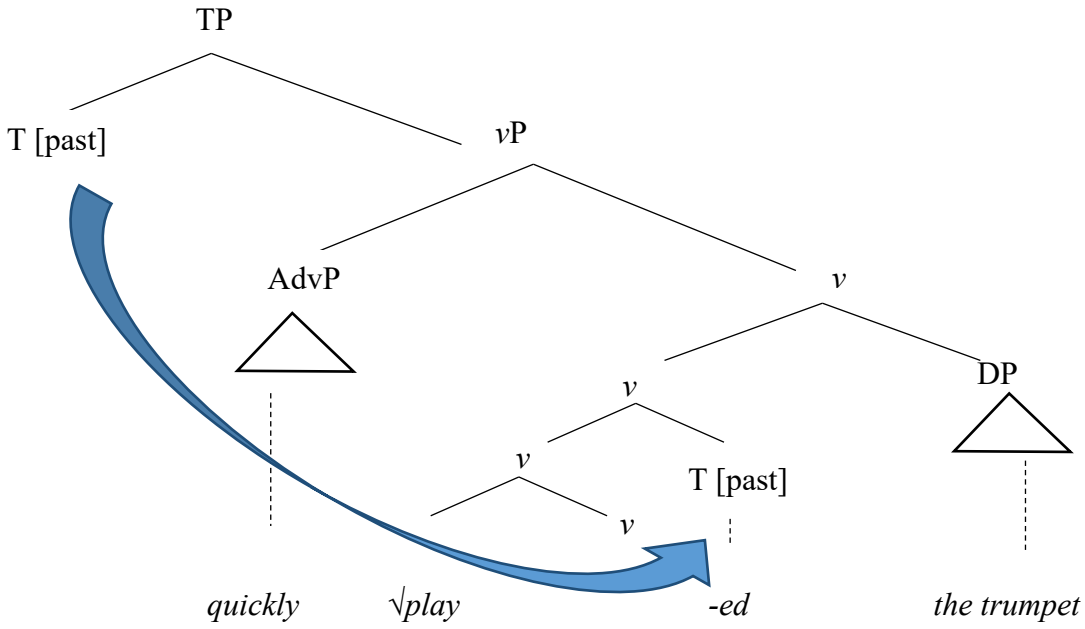
b. *Jean **n'aime** pas Mary*
John loves not Mary
'John doesn't love Mary. '

(88) **John **loves** not Marry.*

Reformulating the Affix Hopping of Chomsky (1957), Embick and Noyer (2005) state that in English the morphology signals lowering of the features of T to V post-syntactically.[11] This process involves the adjunction of a head to another head, and it is worth noting that these heads do not have to be linearly adjacent. In other words, the presence of an intervening adjoined Adverb, such as *loudly* in example (89), does not hinder the process of T lowering to *v*. The effects of such feature movement to the right can be schematically illustrated as below.

(89) *Mary loudly play**ed** the trumpet.*

(90) Lowering/Merger as in Embick and Noyer (2004, p. 24)



Next, we will discuss the concept of *morphological agreement*. Note here that Agree and agreement are not synonymous. While Agree is a syntactic operation, agreement pertains to the surface morphological properties of the inflectional system. In DM, agreement is specifically

[11] The same operation is called Merger in Halle and Marantz (1993). Merger like head-to-head movement (e.g. movement of English auxiliary Verbs to T) joins two terminal nodes but keeps them independent. Thus, the newly emerged word will consist of separate morphemes.

confined to the PF level involving assignment of *AGR nodes* and the copying of information onto these nodes. Furthermore, Embick (1988) assumes that verbal and nominal agreement patterns do not have to be the same. To account for this, two types of AGR nodes are proposed which contain different feature sets:

(91) AGR1: Person, Number
AGR2: Number, Gender

When an element combines with T, it will show the AGR1. Otherwise, it will agree with the AGR2 feature set. The categories that can receive AGR nodes are also specified:

(92)

AGR Node	**NO AGR Node**
Tense	Verbs
Determiners	Prepositions
Nouns	Adverbs
Adjectives	Particles

The process is described in Embick and Noyer (2005) for Latin Verbs and in the following sections I will apply it to Czech Verbs which contain a root, Tense and agreement morpheme:[12]

(93) **√ROOT – T - AGR**

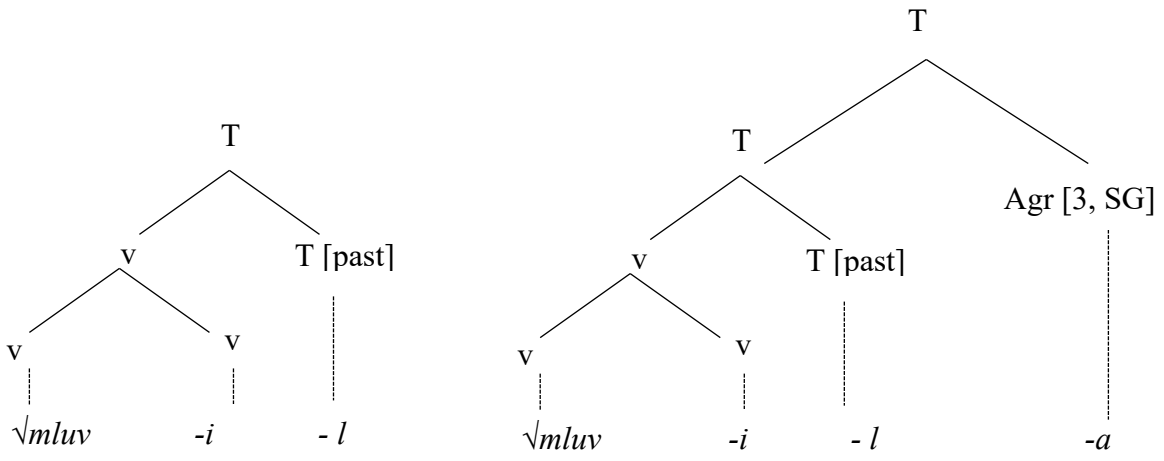
a. *Ona* *mluvi-l-a.*
She$_{3.SG}$ speak$_{PAST.3.SG}$
'She spoke.'

b. *Oni* *mluvi-l-i.*
They$_{3.PL}$ speak$_{PAST.3.PL}$
'They spoke.'

The agreement morphemes *-a*, *-i* in (93) - which are added at PF - are called *dissociated morphemes*. The addition of these morphemes follows a step-by-step process. First, AGR node is inserted at PF and adjoined to T. Second, the information about person and Number from DP are copied into AGR, see the process below:

[12] The Czech examples in (93) are perhaps more complex than suggested here because they plausibly contain also some null morphemes at the T level. For details see Veselovská, L. & Emonds, J.E. (2016a) and Veselovská (2022). I will not go into details here.

(94) a. The structure without agreement b. The structure with agreement



To the best of my knowledge, the process of feature copying and its restrictions have not been thoroughly investigated in Embick and Noyer (2005). In this study the authors do not provide explicit conditions on feature copying. In the earlier study of the agreement Halle and Marantz (1993) argue that these processes are local and adhere to hierarchical structure.

A more specific proposal of nominal agreement can be found in Norris (2014), who proposes that locality is based on domination. His approach involves both syntactical and morphological component. In the syntax, features are said to percolate from the nominal spine into the Determiner Phrase (DP). In the postsyntax phase, the percolated features present on the DP are then copied into inserted AGR nodes. Norris (2014) defines these two principles as follows:

(95) **Feature Percolation Principle:**

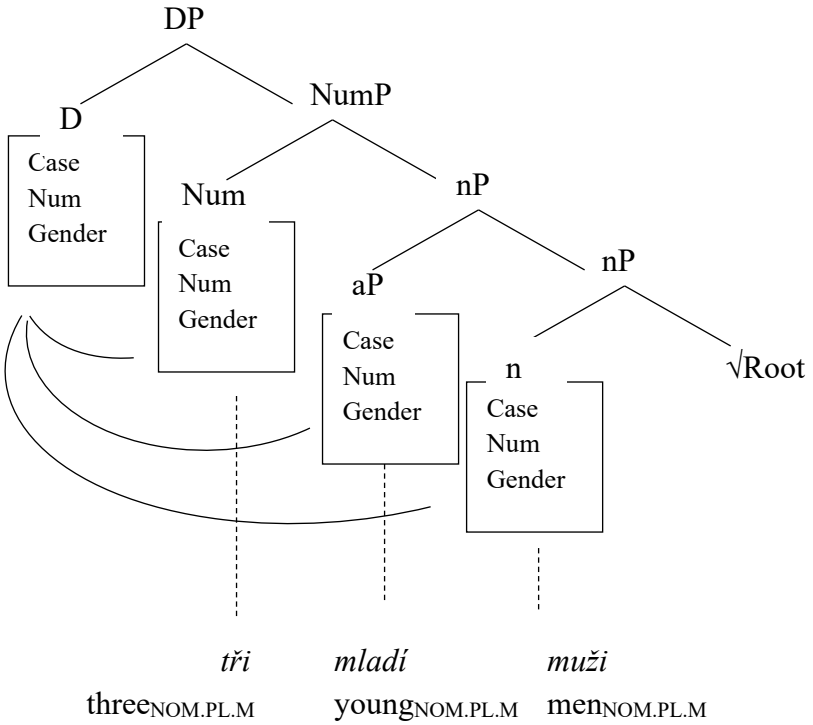
a. All projections of a head X^0 have the feature-value pairs that X^0 has
b. Let [F:val] be a valued feature on XP
   Let Z^0 be a head lacking the feature [].
   Let X^0 and Z^0 be members of the same extended projection (i.e. both [+N])
   When Z^0 merges with XP, projecting ZP, ZP also has the value feature [F:val]

(96) **Feature Copying (concord)**: For every unvalued feature [F:] on an Agr node ZAgr, copy the value from a projection XP iff...

a. XP has a value for [F:] ([F:α])
b. XP includes ZAGR,
c. There is no YP such that YP has a value for [F:], YP dominates ZAGR, and XP dominates YP (i.e., copy the closest value)

The proposed mechanism for morphological nominal agreement at the Phonetic Form (PF) level, as outlined by Norris (2014), can be represented by the structure shown in (97).

(97) Nominal agreement at PF



3.1.3 Word-formation– Prefixes and Suffixes

Word formation in Distributed Morphology (DM) involves a traditional process of *head movement* which is the subject of The Head Movement Constraint (HMC) originally proposed by Travis (1984). The following definition is from Chomsky (1986).

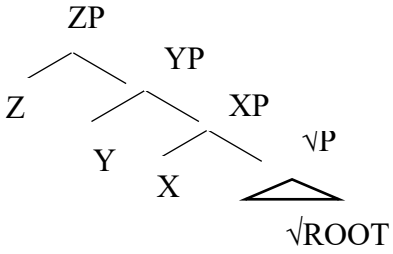
(98) **Head Movement Constraint** (Chomsky 1986, p.71)
Movement of a zero-category b is restricted to the position of a head a that governs the maximal projection g of b, where a theta-governs or L-marks g if a is not C.

In Baker (1988) HMC is reduced on a variety of the Empty Category Principle, i.e. related to the requirement on proper government of the trace of the removed element.

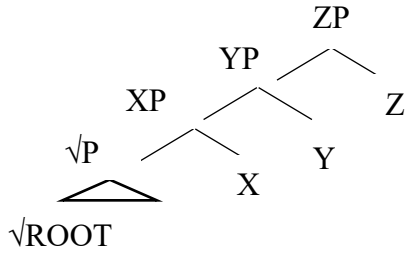
(99) **Head Movement Constraint** (Baker, 1988, p. 53)
An X^0 may only move into the Y^0 which properly governs it.

In the present day DM the head movement entails moving a head to its immediately dominating head, and subsequently moving the resulting complex to the next immediately dominating head. Assuming a structure represented as (100), the ordering of suffixes in a complex head would follow the pattern of √Root-X-Y-Z, as shown in (100b). On the other hand, the structure √Root-Y-X-Z would not be permissible.

(100) a. Assumed projection before the movement



b. Complex structure after the head movement



In the framework of DM, prefixes are considered on par with suffixes, allowing for the potential linearization of any of the elements X, Y, and Z as either prefixes or suffixes. Consequently, head movement within DM is capable of generating various linear orders, such as Z-Y-X-√ROOT or Z-√ROOT-X-Y, among others. This leads to the relaxation of left adjunction in head movement as the head was typically positioned to the right. The constraint of no tangling[13] remains, however, operative and the structure such as X-√Root-Z-Y would not be grammatical.

Notice that the ordering of affixes in complex words mirrors basically the ordering of functional heads in syntactic structure. This phenomenon is known as the Mirror Principle (Baker, 1988).

3.2 The Specifics of the Exo-skeletal Model: Borer (2005a)

Hagit Borer, a prominent figure in generative linguistics, has authored multiple books that present innovative ideas within the field. Among her notable works are three books in which she proposes an Exo-skeletal model in different linguistic domains: nominals, event structure, and morphology. In this section, I will provide an overview of Borer's terminology, framework, and her arguments for nominal functional projections as presented in her book, *In Name Only.*

To start with, the division of labor between the lexicon and syntax has long been recognized in linguistic theories. On one end of the spectrum, there are approaches that associate a linguistic structure with specific linguistic items. In such views, lexical items encompass various properties, including syntactic, semantic, and morphological aspects, such as information about argument structure (e.g. the number of the arguments that the Verb takes can be specified for a particular verb), syntactic category, and syntactic projection environment. These approaches, characterized by a *detailed lexicon that incorporates multiple properties*, can be referred to as endo-skeletal.

In contrast, H. Borer develops an alternative model known as the Exo-skeletal model. In this model, linguistic structures are relatively independent of the specific items that occur within them. Instead, the items themselves contain only a minimal amount of information. This approach is motivated by the observation that the properties of certain items can be overridden by the syntax. To illustrate, let's consider the prototypical Noun *siren* in verbal *contexts*:

[13] An assumption that limits the number of possible linearizations by assuming that branches in a tree will never cross each other.

(101) a. *The factory horns **sirened** throughout the raid.*
b. *The factory horns **sirened** midday and everyone broke for lunch.*
c. *The police car **sirened** the Porsche to a stop.*
d. *The police car **sirened** up to the accident site.*
e. *The police car **sirened** the daylight out of me.*

Source: Borer (2005a, p. 8)

According to Borer (2005a), it is not necessary to assign five distinct uses to the verb *siren* in various contexts, such as intransitive (101a), transitive (101b), etc. Instead, these items are inserted into a structure that is interpretable through coercion by that structure.

In Borer (2005a)'s model of grammar, there are *two* main syntactic components: the *functional lexicon*, which includes derivational affixation, and the *Encyclopedia*.

Borer's Encyclopedia serves as a reservoir of *listemes*, which are devoid of a specific syntactic category. These listemes are roughly equivalent to roots in the DM Vocabulary as described by Marantz (1997). Unlike DM Vocabulary, which contains the roots possibly not specified for any phonological information at all, and unlike the DM Encyclopedia, which is a list of semantic concepts, the listemes in Borer's Encyclopedia have both semantic a phonological index. Although each listeme carries a fixed semantic concept with it throughout the derivation, it is barred from interfering into syntactic computation and is revealed at the end of the computational process.

According to Borer, at the beginning of the derivation process, a subset of lexemes is selected from the Encyclopedia to form the *conceptual array*. This subset is then inserted into the *lexical domain*, abbreviated as L-D as shown in (102).

(102) [$_{\text{L-D}}$ *sink, boat, dog*]

The functional lexicon comprises two types of grammatical formatives: independent grammatical formatives called f-morphs (e.g., *the*, *will*) and head features (e.g., past Tense *-ed*). Some grammatical formatives can merge with the lexical domain (L-D) and project in turn functional structures. These functional structures categorize the L-D they dominate.

To illustrate Borer's model of derivation, let's consider the example of the past Tense and focus on the abstract head feature <pst>, equivalent to [+PAST] discussed in the preceding section. The merge of <pst> and L-D would give rise to the following output:

(103) [$_{\text{T}}$<pst> [$_{\text{L-D}}$ *sink, boat, dog*]]

This merging in (103) will make the L-D a VP with the head in T. Subsequently, one listeme may merge a copy and obligatorily raise to T and become its head. The path of this derivation is depicted in (104):

(104) [$_{\text{T}}$[$_{\text{v}}$ *sink*] <pst> [$_{\text{VP}}$ [$_{v}$~~*sink, boat, dog*~~]]] (*sank*)

Of course, any lexeme from the conceptual array in L-D can choose to merge a copy in T and all the representations in (105) are felicitous:

(105) a. [$_T$ [$_v$ *boat*] <pst> [$_{VP}$ [$_v$*sink, ~~boat~~, dog*]]]
b. [$_T$ [$_v$ *dog*] <pst> [$_{VP}$ [$_v$*sink, boat, ~~dog~~*]]]

Borer (2005a, p.31) writes that "it only remains to be hoped that some post-derivational phonological area will be capable of dispensing a well-formed phonological representation". In the study itself no more information is given for the exact execution of this process and it leads to a massive overgeneration of structures which is the main drawback of this model, acknowledged by the author herself.

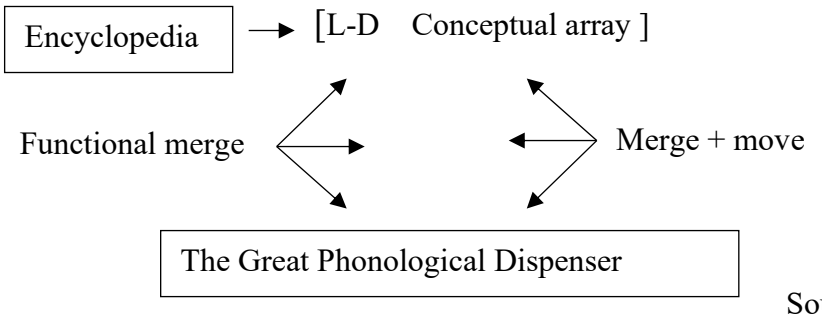
We can now continue with the derivation with an f-morph *will* as in future Tense. Again, the f-morph *will* will merge with an L-D. Since *will* functions as a T element[14], it enables the categorization of the L-D as a VP. In this scenario, head movement is not needed and in case of *will*, it is in fact blocked.

(106) [$_T$<*will*, fut> [$_{L\text{-}D}$ listeme-1 listeme-2 listeme 3]]

In addition, Borer states that the f-morphs can be bound and free. For example, the English progressive marker *-ing*, is considered an f-morph rather than an abstract head feature. It requires the support of a stem and involves the movement of an L-stem. Categorizing suffixes such as *-ation* are also subsumed under bound f-morphs.

To provide a schematic representation of the syntactic derivation in Borer's Exo-skeletal model, we can depict is using the following diagram:

(107) Exo-skeletal model



Source: Borer (2005a, p.33)

We can now turn to a more comprehensive exploration of functional structure within the Exo-skeletal model. In this model, functional heads possess open values that necessitate the assignment of range through various means. The open value is not entirely unrestricted, it is associated with a categorial label that constrains the class of elements capable of assigning range to it. To illustrate this concept, consider the Quantity Phrase, which functions as a nominalizer and is headed by an open value marked categorically as #. The range for the open value in the Quantity Phrase can only be assigned by quantity expressions, not by Tense. The syntactic representation of this configuration is provided in (108).

[14] See the discussion below in (108) for the explanation of how functional elements with the same semantic specification work and assign range to functional heads.

(108) $[_{\#}P\ \langle e\rangle\#\ [_{NP}\ ]\ ]$

In the given representation (108), the symbol <e> denotes an open value, and the subscript # indicates its categorial membership. Specifically, in the context of English, this open value can be assigned range by an f-morph such as *most*, *much*, *two* and so on.

In addition to direct range assignment, which involves both an assignment by an f-morph and a head feature, there is another mechanism known as *indirect range assignment.* This type of range assignment can occur either through specifier-head agreement or with the help of an Adverb of quantification. Let me illustrate the latter type with definiteness spreading as described by Borer (2005) for English.

(109)	a.	$[_{DP}\ [_{DP}$ *the dog's* $\langle e\rangle_{d}$ $[_{NP}$ *ear*$]\ ]$	definite
	b.	$[_{DP}\ [_{DP}$ *a dog's* $\langle e\rangle_{d}$ $[_{NP}$ *ear*$]\ ]$	indefinite

As demonstrated in example (109), the Possessor is situated in SpecDP and can exhibit either definite or indefinite properties. Consequently, it has the capability to assign range to $\langle e\rangle_{d}$, on the condition that it enters into a specifier-head relationship with it.

Now, we can proceed to discuss the second type of indirect range assignment, which involves the use of an Adverb of quantification:

(110) a. Adverb $_{Q}\ [_{\#\ P}\ \langle e\rangle_{\#}\ [_{NP}\ N]\ ]$

b. $[_{DP}\ \langle e^{i}\rangle_{d}\ [_{\#\ P}\ \langle e^{i}\rangle_{\#}\ [$*hummingbirds*$]$ *often*^{i} *breed in the summer*.
(under the reading where most hummingbirds breed in the summer)

An Adverb of quantification can bind $\langle e\rangle_{\#}$ in DP. The rationale behind calling it indirect is clear. It is not specified in the functional lexicon as range assigner for a particular open value. Additionally, indirect range assignment does not require movement of the L-head, although it does not prevent it either.

3.2.1 S-Functors and C-Functors

In her later work, *Taking Form* (Borer, 2013), the author focuses on nominalizations. She introduces the distinction between two types of the so-called functors: S-functors and C-functors. *S-functors* subsume range *assignors*, such as Determiners or past Tense markers, which correspond to f-morphs and abstract head features, respectively.

C-functors, on the other hand, involve derivational morphemes like *-able*,*-ment*, and *-tion*. Chapter 6 specifically addresses the topic of nominalizations, with a particular emphasis on C-functors.

The distinction between S-functors and C-functors is closely tied to the differentiation between inflection and derivation. Therefore, before explaining the rationale behind the distinct treatment of these two types of functors, it is necessary to explore Borer's approach to inflection and the motivation behind it.

Borer (2013) states that neither inflection nor derivation can be solely characterized by the predictability of form based on function. To illustrate this, let's begin with inflection and take

for example the plural as shown in (111). It is evident that the forms used to indicate plural are clearly distinct:

(111) a. *table* → *table-s*
b. *goose* → *geese*

In a similar vein, when considering derivation, whose main function is to determine a categorial label, it does not ensure predictability of form:

(112) a. *torture* → *tor-ment*
b. *destroy* → *destruct-tion*

In contrast to inflection, derivation is not as erratic when it comes to determining the function based on form. While the inflectional morpheme *-s* in English can serve multiple functions such as indicating plurality, case, or verbal inflection, the derivational affix *-tion* predominantly attaches to words with the category V (verb), with only a few exceptions where the base morphemes may lack a clear category, as seen in examples like *nation*.

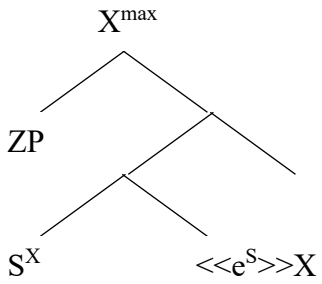
However, if we restate the function as abstract function, then inflection is more regular than derivation. The combination of a Verb (V) with the past Tense marker (PAST) is not only predictable from a syntactic perspective but also carries semantic predictability. In contrast, the combination of a Verb with the derivational affixes *-ation*, *-ance* or *-able* do not possess the same level of semantic predictability.

Having discussed the properties of inflection and derivation, let us return to the definitions of C-functors and S-functors, which include both inflectional and derivational morphemes. S-functors are responsible for determining the *relationship* between a semantic range and a syntactic position that contains an open value, where the semantic range is realized. For example, the numerals *three* or *four* are S-functors that assign range to a syntactic position marked by #, which stands for Quantity. Their semantic relatedness is reflected in the fact that they are operators ranging over the same open value. [15]

C-functors, on the other hand, function as *modifiers* within the structure. As a result, the heads of extended projections appear in pairs, where one member projects and provides an open value, while the other member (the S-functor) supplies the assigned range for that value. This relationship is schematically represented in (113). In this head pair, the open value e acquires the value S (by assumption the semantic range S). Besides, it acquires a categorial label (X) which is for Borer (2013, p.38) "a syntactic way of encoding the fundamentally semantic common determinator of the array of S-functors that may assign range to it".

[15] More details on this can be found in Section 4.1

(113) The head-pair



The syntactic function of the C-functors is associated with the projection of a categorial node and the selection of a specific *Categorial Complement Space* (CCS) corresponding to categories such as N, V, A, and P. While C-functors may have a semantic function, it is not always necessary nor sufficient for their role in syntax. To exemplify this, the C-functor [V] *-able* projects the category A and defines its CCS as V.

3.2.2 Prefixes and Suffixes

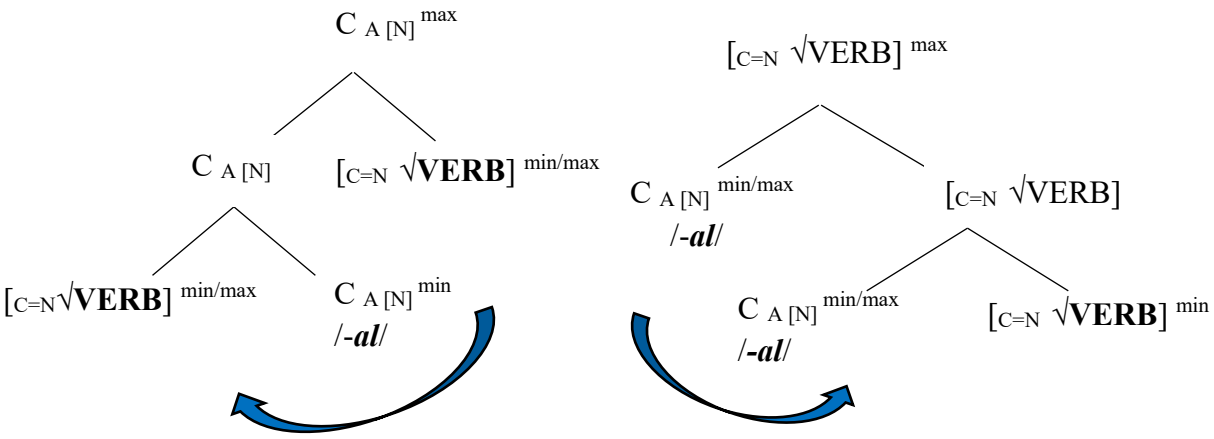
In contrast with the DM, Borer (2013) assumes that prefixes and suffixes have a different syntactic status. While prefixes are instances of min/max and cannot project, derivational suffixes (C-functors) are (non-maximal) min which forces them to project. To fully understand their role in the syntactic structure we must explain two additional conditions on movement. Borer stipulates that moved constituents are always linearized to the left of their merger target in English. Moreover, there is a Uniformity Condition proposed in Chomsky (1995):

(114) **Chain Uniformity Condition**: A chain is uniform with regard to phrase structure status. (p. 253)

The direct entailment of this maxim is that whatever re-merges and is linearized to the left may not project.

Consequently, derivational suffixes will never move, for any such movement would, by definition, force them to be a maximal, non-projecting instantiation. This is depicted in structure (115b) and further described in Borer (2013, p. 299). Derivational suffixes are, however, instances of (non-maximal) min, effectively forcing them to project as (115a) shows.

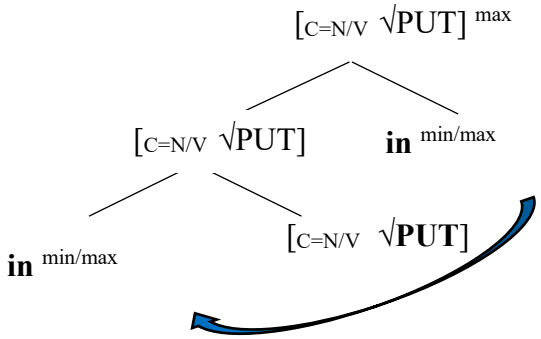
(115) a. *verb-al* b. **al-verb*



The movement of heads within extended projections, on the other hand, is possible because in those cases heads re-merge and then re-project. I will not go into detailed description and the reader can refer to Borer (2013, p.298) for more information.

Another instance of head movement that conforms to Uniformity is possible with prefixes. These are instances of min/max, can move and incorporate to the left giving the resulting structure in (116) for the Noun/verb *input*, as was depicted in Borer (2013, p. 300):

(116)

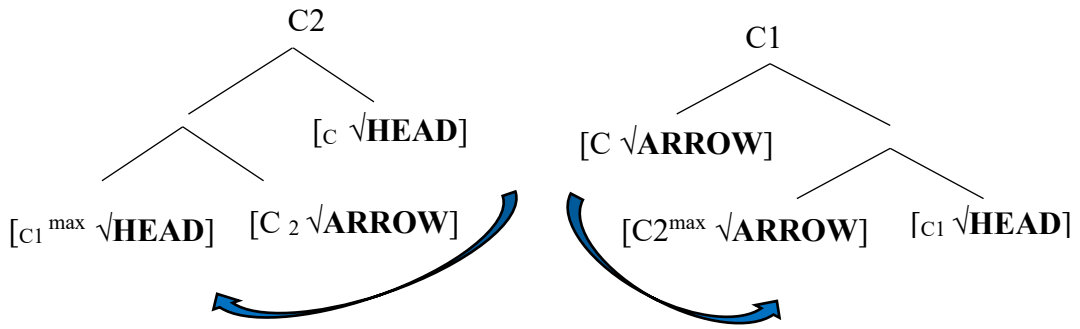


Also, the instances of min/max must move because otherwise the elements would be in symmetrical c-command relationship and violate Kayne's original LCA (1994) proposal for asymmetrical c-command condition in linearization.

Consequently, the right-headedness in Borer results from the nature of C-functors and leftward condition on linearization. Right- headedness can be also applied to English compounds where one of the roots moves and becomes a maximal category while the unmoved root projects and is thus a head.[16]

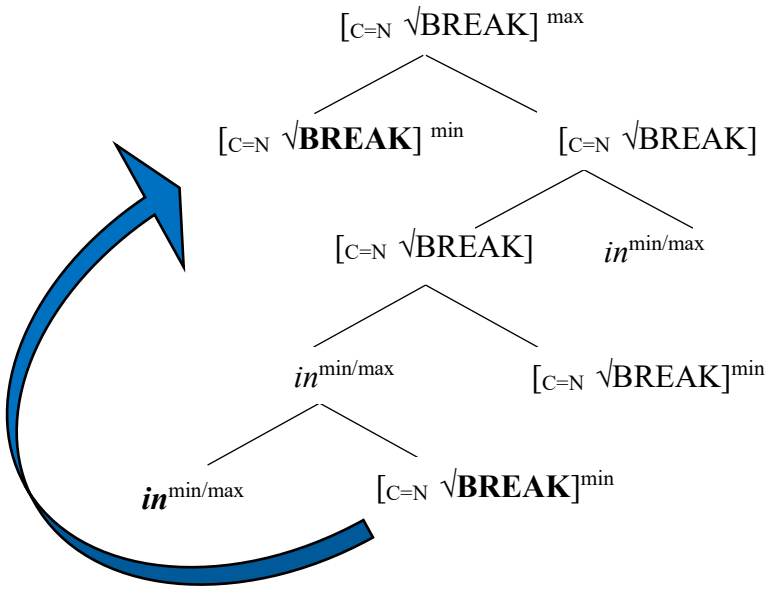
[16] The phenomenon of Right headedness has been known since seminar works of Lieber (1983), and Williams (1981). While Williams (1981) proposes the well-know Right hand head rule for the domain of morphology, Lieber (1983) assumes with her Feature percolation mechanism that affixation in morphology is symmetric (to account for cases such as [V *en* [A *dear*]], [V *en* [A *noble*]]) and compounds are asymmetric with arrangement of their heads on the right. See the criticism of these proposals in Emonds (2013) who claims that the default right-headedness can be applied both in morphology and syntax, especially in domains which are non-free. In

(117) a. *head-arrow* b. *arrow-head*



Lastly, to derive the structures of forms such as *break*-in, *blackout*, it is necessary to take the structure in (116) formed by the incorporation to give rise to the additional movement of [C √**BREAK**]min as in (118).

(118) The structure for the form *break-in*



This additional step is necessary because Prepositions/particles are non-projecting heads and must move. By the movement they would be linearized to the left and we need to derive the structure where they are on the right.

To conclude this part, we have seen that prefixes and suffixes have a different treatment in Borer's XS model than in the DM model where prefixes and suffixes are treated on a par. Moreover, the left adjunction for prefixes in the DM model is relaxed which eliminates the

free domains, which compounds are instances of, the ordering is derived from the stress placement. Consequently, contra Borer (2013) some primary compound in English can be left-headed. For example, in (i):

(i) *Put the supplies* [PP *back* [P *downstairs /inside/upstream*] *when you can*.

additional derivational steps for the form such as *break-in* as in (118). I will return to this issue when discussing Slavic prefixes in section 5.4.2.1.that are capable of inducing telicity.

3.2.3 Meaning and Content

According to Borer (2013), meaning construction consists of two components. The first of these corresponds to Frege's *Bedeutung* and what Borer terms as *Semantic meaning* which is built of non-spelled out representations and computed from fundamentally abstract properties of functors and syntactic structures. In contrast, Borer's *Content* corresponds to Frege's *Sinn* and is not grammatically constructed but rather grammar defines a domain into which Content can be inserted from a distinct cognitive domain. It is matched with structures on the basis of spell-out and is thus sensitive to phonological realization.

Extremely expressed, Borer adheres to some version of the T-model where Content interacts with PF and Semantic meaning with LF. Insofar as, for example*, many students ate the potatoes* has semantic meaning, it is by virtue of having syntactic structure as well as functors such as *many*, *the* which are oblivious not only to the phonological representation but also to the Content of *potatoes*. The Content *potato*, on the other hand is oblivious to the fact that it is a direct object or plural. We note now that both the construction of meaning requires a conjoined set of representations.

Having explained the terminology ('nuts and bolts') of the Exo-skeletal model, in the next chapter I am going to concentrate on the realization of the framework applied in the nominal domain.

4 NOMINAL FUNCTIONAL PROJECTION

In this chapter, I am going to concentrate on the analyses of a nominal functional projection. I will introduce and discuss the two contrasting models I described in the preceding chapter, i.e. the concept proposed by Hagit Borer and Artemis Alexiadou. In spite of the fact that they both share a background in generative grammar, the two linguists have developed more or less independent frameworks that both deserve a more thorough examination. While summarizing the basic concepts the authors apply for the analysis of the nominal projection, I will concentrate on the structural levels related to Number feature(s). Then I am going to utilize these theoretical frameworks to analyze the Czech data. In this regard, I will complement my findings with the insights provided by a Veselovská and Karlík as mentioned in sections 2.3.1 and 2.3.2.

4.1 Borer: Nominal Functional Projection

In her book, *In Name Only*, Borer (2005a) proposes the following layers for nominal functional projections:

(119) $[_{DP}\ \langle e\rangle_{d}\ [_{\#P}\ \langle e\rangle_{\#\ (DIV)}\ [_{CL^{max}}\ \langle e\rangle_{DIV(\#)}\ [_{NP}]]]]$

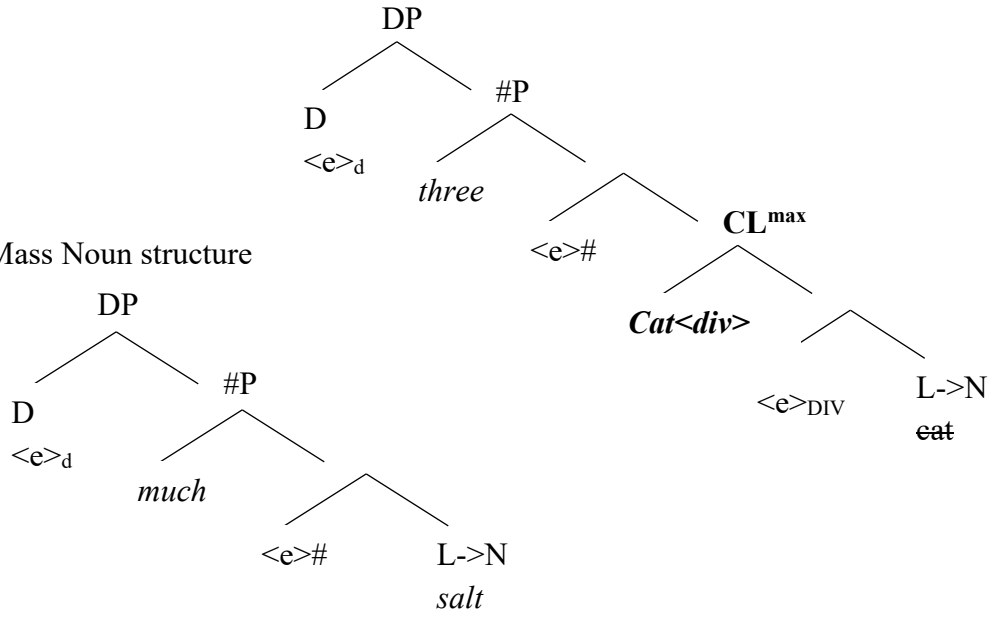
The ordering of these layers can be seen in picture (120) below. It starts with the *Classifier Phrase* (CL^{max}) which is the layer where division of mass Nouns is carried out. It hosts plural and feeds the projection of the *Quantity Phrase* aka Number Phrase (#P) with Numerals and Quantifiers. The DP (*Determiner Phrase*) is associated with definiteness. In the upcoming section, I will provide a detailed discussion of each of these components.

4.1.1 The Classifier Phrase: Mass vs. Count and Numerals (# P)

As for the traditional concept of a possible nominal feature of Countability, according to Borer's (2005a) perspective, the explanation for the mass/count distinction should not be sought in the inherent denotation of Nouns, as *all* Nouns are inherently mass. The transformation of Nouns into count Nouns occurs through the projection of specific syntactic structures.

As depicted in graph (120) taken from Borer (2005a), the primary difference between mass Nouns and count Nouns lies in the absence of a Classifier in the Classifier Phrase (CL^{max}). This projection plays a crucial role in dividing the mass entity, enabling it to establish a relationship with the count system. The feature in the graph below is an abstract head feature on a moved N-stem which is spelled-out as a plural marker *-s*.

(120) a. Count Noun structure



b. Mass Noun structure

The assumed advantage of this system is that mass/count languages are structurally parallel to existing classifier languages. In English, the Classifier is instantiated by the plural Number marker. Borer (2005a) argues that plural inflection can be viewed as a form of classifier inflection, given its complementary distribution with Classifiers in Chinese. She claims that there is, in fact, no language where they coexist in a single structure although both plural and Classifier may be present as two different strategies in a language.

We can imagine a dividing function, which is to say, the assignment of range to $<e>_{DIV}$, as the superimposition of an infinite set of webs, or *reticules* on a mass denotation. These reticules include various configurations: a reticule without any divisions, reticules without complete cells, or reticules which create cells that do not correspond to a canonical singular. The #P counting function (which is to say, the assignment of range to $<e>_{\#}$ by a counter) then selects the reticule which matches the properties of a particular Determiner. For example, the cardinal *three* will select a reticule with three cells while the Determiner *zero* will choose the reticule without any cells.

As previously mentioned, the absence of CL^{max} results in the emergence of a mass nominal. Since it remains undivided, it cannot be subjected to counting by Numerals. However, it can still be subjected to quantification[17]:

(121) a. **three salts*
b. *much salt*

When there is no plural morpheme *-s*, no division of stuff can be performed and the ungrammaticality results:

[17] *Three salts* in (121)(a) is grammatically possible with a different interpretation, namely *three packs of salt.* This is due to the coercion which is easily achieved for listemes. In contrast, expressions that are marked syntactically such as *much wine* are hard to be coerced into count expressions.

(122) **three cat*

A Noun which is divided by plural can be further quantified:

(123) a. *several boys*
b. *a few boys*

These Quantifiers in (123) as well as the Quantifier *much* from (121b) appear in the same position as numerals.

Consequently, as we have seen, Quantifiers in Borer (2005) are classified with two dimensions, [± COUNTER] and [± DIVIDER]. While *counters* assign range to $<e>_{\#}$, *dividers* assign range to $<e>_{DIV}$. Some Quantifiers are portmanteau elements and can have both functions.

Turning now to the issue of singular. In Borer (2005a)'s framework singular is realized by an indefinite article such as *a* in the phrase *a cat*. In cases where the Noun appears in its bare form without a division, the indefinite article serves the dual function of both a divider and a counter. The indefinite article then originates in CL^{max} and subsequently undergoes movement to #P.

Upon closer examination, it becomes evident that bare plurals are not derived from singular forms. Rather bare plurals follow from the plural morpheme *-s* which functions as a divider. Furthermore, bare plurals lack the projection of #P and therefore have non-quantity interpretation. Due to their undetermined quantity as depicted in structures (124) both bare plurals and mass Nouns fail to show telicity of the event (125).

(124) a. $[_{DP} <e>_{d} \ ([_{\#P} <e>_{\#}) \ [_{CL}{}^{max} \ cats \ <e>_{DIV} \ [_{NP} \ \sout{cats}]]]$
b. $[_{DP} <e>_{d} \ ([_{\#P} <e>_{\#}) \ [_{NP} \ salt]]]$

(125) a. *Mary drew **circles** the whole afternoon/*in five minutes.*
b. *Mary ate **rabbit** the whole afternoon/*in five minutes.*

After presenting an overview of how the mass-count distinction can be mediated structurally, we can proceed to the higher level in the nominal projection which is the Determiner Phrase (DP).

4.1.2 The DP layer

The DP layer in Borer (2005a) is associated with definiteness only. The indefiniteness is not determined at the D level, but rather at the #P level. The author argues that the so-called *strong Quantifiers* (see (127)) have the ability to raise to D and assign a range to $<e>_{d}$[18]. In contrast, *weak Quantifiers* (see (127)) and *Numerals* raise to D optionally, resulting in the ambiguity

[18] The DP is headed by an open value which needs to be assigned range. The subscript d indicates the affinity with the category D.

between what Borer (2005a) calls a strong and a weak reading. Let me provide an illustration, as quoted in Borer (2005a) of the strong reading for the weak Quantifier *a* (p.145):

(126) *Each teacher overheard the rumor that **a** student of mine had been called before the dean.*

In this particular reading in (126), there is a specific student of mine such that each teacher overhead the rumor that he was called before the dean. In this interpretation, the use of a student is akin to referring to a specific individual, similar to how one would interpret a proper name or a definite description.

The division of Quantifiers into these two classes is depicted below:

(127)	Strong Quantifiers	the, demonstratives, universal Quantifiers (*each, every, all, both*, (*some*, *any*, *no)*
	Weak Quantifiers	*a, Numerals, many, few, much, little, several*

This division actually reproduces Jackendoff (1977)'s observation about two closed class of modifiers of N. The fact that some element can co-occur while other are mutually exclusive, see (128), led Jackendoff (1977) to group the D words (Borer's strong Quantifiers) together.

(128) a. **the every boy*
b. *the three cats*
c. **the all boys*
d. *the little bread*

Structurally, raising of weak Quantifiers to D is described in Borer (2005a) as in (129):

(129) a. $[_{DP}$ *one/a* $<e>_{d}$ $[_{\#P}$ ~~*one/a*~~ $<e>_{\#\,(DIV)}$ $[_{CL}{}^{max}$ ~~*one/a*~~ $<e>_{DIV(\#)}$ $[_{NP}$ *meat/boy*$]]]]$
b. $[_{DP}$ *ten/few* $<e>_{d}$ $[_{\#P}$ ~~*ten/few*~~ $<e>_{\#}$ $[_{CL}{}^{max}$ *meats/boys* $<e>_{DIV}$ $[_{NP}$ ~~*meat/boy*~~$]]]]$

Another question that needs to be addressed is how the $<e>_{d}$ is licensed within the structure when the reading is weak. The $<e>_{d}$ needs to be licensed because it functions as mediating predicates and arguments. The author brings attention to observations made in Italian where nominal expressions functioning as arguments have to be introduced by a lexically filled D (as noted by Longobardi, 1994):

(130) a. *(Un/Il) grande amico di Maria mi ha telefonato*
'A/The great friend of Maria telephoned me.'

b. *Gianni e Amico di Maria*
'Gianni is a friend of Maria's.'

c. *Maledetto tenente!*
'Damn lieutenant! '

The expressions in (130b) and (130c) are not arguments and rather serve only as a predicate and an expletive respectively. Therefore, D do not need to be filled.

The situation becomes more complex when it comes to Nouns which can be in a bare form in argument positions. This is especially true for mass Nouns and bare plurals:

(131) a. *Cats are great.*
b. *Bread is on the table.*

Interestingly, such Nouns are ungrammatical in preverbal contexts in Italian (132a) but they are acceptable when used in postverbal positions (132b), see some examples taken from Borer (2005a, p. 65):

(132) a. **Acqu viene giu dalla colline*
'Water comes down from the hill.'

b. *Viene giu acqua dalle colline.*
'come down water from the hills'

To put the pieces together, we can conclude that unlike singular expressions, bare mass Nouns and plurals have a null Determiner. Nevertheless, preverbal positions in Romance languages are not lexically governed. Consequently, these null-Determiner nominals may only receive an existential interpretation in postverbal position in Italian.[19] Generic interpretation is not available in Romance languages for bare nominals.

Structurally, Borer (2005a) proposes that $<e>_d$ can be bound in either of two different ways. Firstly, it can be bound by *Existential closure* which is contingent upon the c-commanding domain of the verb and results in an existential reading (133a). Secondly, it can be bound by the Generic operator GEN with a generic reading in (133b):

(133) a. I ∃ [$_V$ *raised*] [$_{DP}$ $<e^i>_{d...}$[*cats/a cat/ three cats/several cats/some cat(s)*]
b. GEN^i [$<e^i>_d$[$_{\#\ P}$ $<e^i>_{\#}$ *cats*]]]… [*eat mice*]

In the example (133a), the phrase *cats* is interpreted existentially, conveying the meaning that there are some cats, and they are located on the roof. On the other hand, in (133b), the phrase *cats* is interpreted generically, expressing the idea that for any typical cat, it eats mice. Both existential closure and generic operators have the status of (covert) Adverbs, licensed by the discourse. Notice also that the GEN not only binds $<e>_d$ but also $<e>_{\#}$ which consequently excludes a generic reading for nominal expressions that are modified by an f-morph such as a *cat, three cats* etc.

[19] English subjects are subject to existential closure due to lowering or some similar operation.

Now, we have an answer to the puzzle regarding weak Quantifiers not raising to D but still functioning as an argument. We have seen that the Existential operator and the Generic operator can take over this job by turning predicates into arguments.

We also need to resolve why (134a) is grammatical but (134b) is not:

(134) a. *the cat*
b. **the a cat*

Borer (2005a) claims that the complementary distribution between indefinite and definite article is not due to their competition for D, but rather their competition for #P. She also posits that the definite article functions as " a discourse anaphor of sorts, which picks up its reference from a previously established discourse antecedent " (p.161). In her theory, this implies that *the* inherits the mass-count properties of its antecedent which can force or alternatively bar the projection of CL^{max}. When the Noun is mass, Borer (2005a) describes the structure as in (135):

(135) [$_{DP}$ <e>$_{d}$ *the* [$_{\#P}$ ~~*the*~~ <e>$_{\#}$ [$_{NP}$ *salt*]]]

In the case of the singular count restriction, the definite article *the* inherits the properties from singulars which are by definition dividers and counters:

(136) [$_{DP}$ *the* <e>$_{d}$ [$_{\#P}$ ~~*the*~~ <e>$_{\#\,(DIV)}$ [$_{CL}{}^{max}$ ~~*the*~~ <e>$_{DIV(\#)}$ [$_{NP}$ *cat*]]]]

When the restriction is count and non-singular, there is little reason to assume that the definite article inherits the dividing properties of its antecedent. Instead, it behaves more like *several* which is only a counter. In this case, the structure involves the head feature on the moved head:

(137) [$_{DP}$ *the* <e>$_{d}$ [$_{\#P}$ ~~*the*~~ <e>$_{\#}$ [$_{CL}{}^{max}$ *cat*. <e>$_{DIV}$ [$_{NP}$ ~~*cat*~~]]]]

4.1.2.1 Head vs. Specifiers

If the definite article is a range assigner to <e>$_{\#}$, it raises the question of how to explain the grammaticality of constructions like (138), where other Quantifiers are capable of assigning range to <e>$_{\#}$ as well.

(138) *the three/many medals*

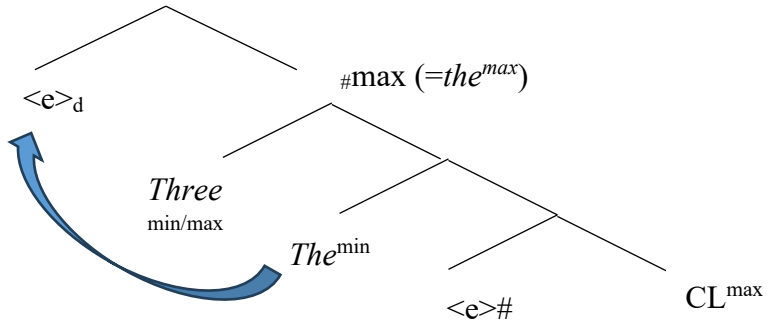
According to Borer (2005a), while definite and indefinite articles must be heads[20], other Quantifiers might be heads or specifiers. In the case of the definite article, it inherits the

[20] See Emonds (2012) for a different view. He puts forward several arguments to show that unlike D, the complement of Q passes some tests for maximal projection. This is visible in (ii):

(ii) a. *Try to sell* [$_{FP}$ [$_{FP}$ *these two big beds*] and [$_{FP}$ *few antiques*]
b. (Not interpreted as) *Try to sell these few antiques.*

quantificational properties of its specifiers through Spec-head agreement. By inheriting the quantificational qualities from the specifier, no double marking of <e>$_{\#}$ arises, see below.

(139) Head vs. Specifiers



(Source:Borer, 2005a, p.171)

Nevertheless, *the* continues to be the first and foremost range assigner to <e>$_{d.}$ In the case of the example provided, *the* merges as a head while *three* as a specifier. Subsequently, it can move and assign range to <e>$_{d..}$ The ungrammaticality of (140), when *the* occurs with strong Quantifiers, then follows from their competition for the D slot.

(140) **the each /every boy*

Finally, let's compare Borer (2005a) with Chierchia (1998) regarding their views on mass Nouns. Chierchia (1998) argues that mass Nouns are inherently plural, while Borer (2005a) proposes that mass interpretation of Nouns arises from a default setting associated with the absence of dividing structure. One of the arguments which Borer presents against the plurality of mass Nouns is the impossibility of interpretive coercion. For example, the Noun *rabbit* can be interpreted either as count or mass. However, when the Noun is grammatically marked as plural, such as *rabbits*, it cannot be coerced to a mass interpretation.

(141) a. **There is **rabbits** in my stew.*
b. *There is **rabbit** in my stew.*

Borer (2005a) argues that when we analyze the findings from coercion in the context of Chierchia's framework, it leads to the conclusion that there exists a distinction between lexical marking and grammatical marking of plurality. If there truly existed a fundamental difference between lexical and grammatical marking of plurality, it would not align with the behavior of Pluralia tantum words. Pluralia tantum are Nouns that are inflectionally plural but semantically

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c. *We didn't buy* [$_{QP}$ *many* [$_{NP}$ *books on culture*] *or* [$_{NP}$ *guides for tourists*]]

If D were a functional head its complement (Q+ NP) should constitute a maximal projection and coordinate, and yet D in (iia) is not understood as modifying the second conjunct. In contrast, complements of Q in (iib) do.

singular, such as *trousers* or *scissors*. Despite their inflectional plural marking, these Nouns cannot be coerced into a mass context:

(142) *My trousers tear (*s) easily.*

The above observations make Borer (2005a) conclude that the mass/count distinction cannot be attributed solely to the listemes (roots) themselves.

4.1.3 Gender

Borer (2005a) accepts the traditional view that Gender is a syntactic feature and since roots cannot have any syntactic features, it follows that Gender must not be on the root. The author, however, does not suggest any specific proposal about the location of Gender.[21]

Nevertheless, Borer (2005a) does mention Gender agreement in the context of N to D movement in Hebrew, where the definiteness feature on N triggers movement (2005a, p. 223). In this context, the Quantifier in (143) agrees with the head N in terms of definiteness, Number, and Gender.

(143) *ha.prax.im* *ha.rab.im*
the.flowers.$_{M}$ the.many/much.$_{PL.M}$
'Many flowers'

Borer (2005a) provides an explanation for this process by noting that the Quantifier in Hebrew does not have inherent quantificational properties, much like the definite article in English. As a result, it does not assign range to <e>$_{\#}$. Instead, the abstract head feature <def> together with its supporting L-head can move. This movement is expected to trigger specifier-head agreement in terms of Gender, Number, and definiteness. The entire process initially described in Borer (2005a, p. 223) for the example (143) can be visualized in (144):

(144) [$_{DP}$ *praxim*. <def> <e>$_{d}$ [$_{\#P}$ *ha*$_{AGR}$. *rabim* [$_{\#P}$ ~~*praxim*~~.<def> <e>$_{\#}$ [$_{CL}$ ^{max} ~~*praxim*~~ <e>$_{DIV}$ [$_{NP}$ ~~*perax*~~]]]

4.1.4 Borer's Proposals and the Czech Nominal

In this study, I will adopt certain proposals put forward by Borer (2005a) as discussed in the previous sections. Specifically, I will accept Borer's hypothesis that Nouns initially exist as mass entities and require division in order to be quantified. Consequently, I will incorporate Borer's CL^{max} projection, with some modifications. However, I will not assume that plural serves as a dividing element and I will explore this issue further when introducing Alexiadou's

[21] The widely-accepted proposal concerning Gender in a generative framework can be found in Ritter (1993). Since then, the syntactic models have been entertained in which Gender and Number are represented separately. Ritter argues that in languages where Gender is grammatically relevant, e.g. Hebrew, Gender is a feature on N and Number is a separate projection because it serves as a landing site for movement. In Romance languages where the syntactic class is relevant, this property is a feature on Number.

framework, which distinguishes different types of plural. Additionally, I will adopt Borer's ideas regarding root categorization and the distinction between weak and strong Quantifiers. Finally, I will not assume that the presence of abstract head features needs to be accompanied by N-to-D movement.

4.2 Alexiadou: Nominal Functional Projection

Artemis Alexiadou is a widely accepted author known for her extensive work which includes numerous cross-linguistic articles and books. One notable publication that provides a comprehensive overview of nominal projection is the book *Noun Phrase in the Generative Perspective*, which was co-authored by Alexiadou in 2007 along with other researchers. The cross-linguistic perspective on the nominal projection can be found in her article about nominalizations in Alexiadou (2020).

In her analysis of nominals, Alexiadou combines insights from Borer (2005a) on countability and Kramer (2015) on the morpho-syntax of Gender. To further explore the topic of Gender, Alexiadou provides decisive arguments about Gender in two of her articles from (2004) and (2017b). As these issues were not analyzed in depth in Borer (2005a), this will help us deal with this issue in Czech where Gender is expressed overtly on Nouns and agreeing modifiers. The issues concerning countability and Number are described in four articles: Alexiadou (2017a), (2019a), (2019b), (2021). Determiners are discussed in the (2014a) book *Multiple Determiners and the Structure of DPs*.

In her approach to nominal projection, Alexiadou adopts the framework of Distributed Morphology (DM), as outlined in section 3.1. The specific assumptions she made regarding nominal projection will be presented in the following section. The proposed layers for nominals functional structure in Alexiadou (2020) are the following:

(145) $[_{DP}\ [_{\#P}$ (quantity) $[_{DivP}$ plural marking $[_{nP}$ Gender [Root]]]]]

Roots combine with the nominalizer *n* which carries Gender information. Plurality is realized under DivP. The layer of quantity introduces counting function and facilitates the realization of Numerals. The Definiteness is associated with the D layer. Adjectives can appear between DP and *n*P and on *n*P itself.

4.2.1 Root categorization in DM

Alexiadou's approach is rooted in Marantz (1977)'s DM where roots need to be categorized by immediately adjoining categorial nodes. The nominalizer and verbalizer for nominal and verbal functional projections respectively can be seen below:

(146) Root categorization

The nominalizer carries Gender and inflectional class in languages that have such features.

4.2.2 Gender

As can be seen in structure (145), there is no separate functional projection for Gender in Alexiadou (2020). Rather she argues that Gender is a feature on the nominalizer *n*. In Alexiadou (2004) she presents arguments against positing a distinct functional projection for Gender and emphasizes that Gender is primarily relevant as a syntactic feature. These arguments will be further explored in the following section. Then, the different values associated with the Gender feature will be discussed and the ways in which Gender can be incorporated into syntactic derivation will be explained.

Alexiadou (2004) claims that the introduction of a separate functional head is justified if it fulfills two main criteria. Firstly, it should have a syntactic effect, such as participating in agreement or serving as a landing site for movement. Secondly, it should have an impact on interpretation and pronunciation, involving the semantic and morphological interfaces.

As far as the syntactic activity is concerned, Gender is in striking contrast with Number which is the landing site for movement. This line of this argumentation is advanced in Ritter (1992) who suggests that Gender marking is derivational and involves affixation in the lexicon. On the other hand, Number is considered to be inflectional and requires head movement.

Similarly with semantic effects, Number features have clear semantic effects as they determine whether the Noun is interpreted as singular of plural. On the other hand, Gender does not have consistent interpretation associated with biological sex. This might be possible in some languages, e.g. in Tamil where feminine Nouns refer to human females, masculine Nouns to human males and neuter to non-human entities. However, other languages, assign grammatical Gender to inanimate Nouns. For example, the Czech word *židle* ‘chair ’ is classified as feminine Gender.

In literature, there have been some attempts to introduce a separate functional projection for Gender, e.g. in Picallo (1991). She argues that Gender has an effect at the interpretative component (LF). She also observes that Catalan Nouns are inflected for Gender:

(147) a. *el* *gos-* ∅
the$_{M}$ dog$_{M}$

b. *els* *goss-o-s*
the $_{M.PL}$ dog$_{M.PL}$

c. *la* *goss-a*
the$_{F}$ dog$_{F}$

d. *les* *goss-e-s*
the$_{F.PL}$ dog$_{F.PL}$

Source: Picallo (1991, p. 280)

However, Alexiadou (2004) argues that the presence or absence of post-stem vowels in Nouns expresses *inflectional class* rather than Gender. The members in this class share nothing more than the property of having a particular *class marker* and the choice of vowel does not correlate with Gender. Words can have feminine *a*-vowel and trigger masculine agreement.

Nevertheless, Gender remains relevant for agreement, which takes place at least at the phonetic form (PF) level. Alexiadou (2004) analyzes Romance languages (Spanish, Italian) and Greek and Hebrew and identifies a common feature among them regarding Gender. Specifically, she observes that in these languages, Adjectives agree with Nouns in terms of Gender. Recall the adjectival agreement process in Norris (2014). First, the phi-features percolate to DP and then in PF they can be copied to AGR nodes. This, will justify its inclusion among *syntactic* features.

If Gender is not projected as its own functional category, it must be associated with another head that can accommodate the Gender feature. Ritter (1992) proposes that Gender is located on the Num head. She observes that in certain languages, Number and Gender are expressed by portmanteau morphemes. This phenomenon is also present in Czech where it is not always clear whether suffixes on Czech Nouns express Number, Case or Gender, see the examples below:

(148)

PLURAL

	NEUTRUM		**MASCULINE**		**FEMININE**	
NOM	*měst-A*	*moř-E*	*muž-I*	*stroj-E*	*růž-E*	*žen-Y*
	city$_{NT.PL}$	sea.$_{NT.PL}$	men$_{M.PL}$	machine $_{M.PL}$	rose$_{F.PL}$	women$_{F.PL}$

SINGULAR

NOM	*měst-O*	*moř-E*	*muž*	*stroj*	*růž-E*	*žen-A*
	city$_{NT.SG}$	sea$_{NT.SG}$	man $_{M.SG}$	machine $_{M.SG}$	rose$_{F.SG}$	woman $_{F.SG}$

The portmanteau morphemes, however, according to Alexiadou (2004) cannot serve as conclusive evidence for the co-occurrence of Gender and Number on a single functional head. In the framework of Distributed Morphology, there is the concept of a *Fusion* operation, which allows for the fusion of two functional heads into a single morphological node. Consequently, Alexiadou (2017b), following Kramer (2015), assigns the location of Gender features to the nominalizer *n*. The analysis proposed by Kramer (2015) will be further discussed and examined in detail in the upcoming section.

4.2.2.1 Semantic vs. Grammatical Gender

Kramer (2015)'s cross-linguistic analysis captures the distinction between semantic and grammatical Gender. Whereas semantic Gender is based on some semantic property, e.g. male/female, animate/inanimate, arbitrary/grammatical Gender is assigned without reference to any semantic property. According to Kramer (2015) each Gender (masculine, feminine) has an interpretable and an uninterpretable version of its feature. In this analysis, *natural (semantic)*

Gender is considered an interpretable feature on the nominalizer *n*, while *arbitrary (grammatical)* Gender is regarded as the uninterpretable version of the same feature on *n*.

Kramer (2015) also supposes that arbitrary Gender is valued and does not need to be checked neither enter into Agree relation. She explains this by the fact that it is unvalued features that cause a crash while uninterpretable valued features are simply ignored by the semantics, see the discussion regarding the types of features and their checking in section 3.1.1. In that section it was proposed that valuation and interpretability can be independent and in fact Pesetsky and Torrego (2007) have questioned in their footnote 15 the assumption that uninterpretable features must be checked/deleted/eliminated before the syntax- semantics interface.

Alexiadou (2017b) provides further analysis on the class of [+HUMAN] Nouns. According to her view, Nouns that enter Gender alternation are necessarily [+HUMAN], while [-HUMAN] Nouns tend to exhibit more stability. The findings of Alexiadou (2017b) are supported by the behavior of human Nouns in ellipsis, which allows for a classification into three distinct classes.

To begin, let us examine the variation within Class I of [+HUMAN] Nouns in elliptical contexts. Notice that in (149a) the masculine Noun is capable of licensing feminine ellipsis. However, the reverse is not true, as seen in (149b) where the feminine Noun cannot license masculine ellipsis.

(149) **Class I**

a. *O Petros ine kalos dhaskalos ala i Maria ina mia kakia*
the Peter is good$_M$ teacher$_M$ but the Maria is a$_F$ bad$_F$
'Petros is a good teacher but Maria is a bad one.'

b. **I Maria ine kali dhaskala ala o Petros ine enas kakos*
the Maria is good$_F$ teacher$_F$ but the Peter is a$_M$ bad$_M$
'Mary is a good teacher but Peter is a bad one.'

Source: Alexiadou (2017b, p. 14)

Alexiadou (2017b) argues that the above phenomenon can be explained by the presence of derivational Gender morphology in feminine Nouns, which cannot be overridden by ellipsis. On the other hand, the default inflection of masculine Nouns allows for such licensing.

In contrast to the Class I group of Nouns, the Class II Nouns exhibit a different pattern. In this case, neither element can serve as an antecedent for ellipsis in relation to the other:

(150) **Class II**

a. **O Petros ine kalos adherfos, ala i Maria ine mia kakia.*
the Peter is good$_M$ brother$_M$ but the Mary is a$_F$ bad$_F$
'Petros is a good brother but Maria is a bad one (sister).'

b. **I Maria ine kali adherfi, ala o Petros ine enas kakos.*
the Mary is good$_F$ sister but the Peter is a$_M$ bad$_M$
'Maria is a good sister but Petros is a bad one (brother).'

Source: Alexiadou (2017b, p. 14)

For the second group of Nouns, Alexiadou (2017b) proposes that they are *inherently* marked for Gender and formed in a similar manner as the feminine Nouns in Class I, that is on the basis of derivational affixes.

In addition, there is a third type of Nouns in Greek where either element can antecede each other.

(151) **Class III**

a. *O Petros ine kalos jatros, ala i Maria ine mia kakia.*
the Peter is good$_M$ doctor$_M$ but the Mary is a$_F$ bad$_F$
'Petros is a good doctor but Maria is a bad one (doctor).'

b. *I Maria ine kali jatros, ala o Petros ine enas kakos.*
the Mary is good$_F$ doctor but the Peter is a$_M$ bad$_M$
'Maria is a bad doctor but Petros is a bad one.'

Source: Alexiadou (2017b, p. 15)

In the case of the third class of Nouns, Alexiadou (2017b) proposes that Gender is assigned structurally in the nominalizer *n* through agreement with a human referent in D.

To repeat the facts that have been discussed. We have identified three classes of human Nouns with Gender features that are not equal (although they can be phonetically identical):

- Class I (*dhaskal-**a/os*** 'teacher$_{F/M}$'): Feminine [iGENDER] surfaces as derivational affix, masculine is the default inflectional Gender on *n*.
- Class II (*adherf-**os/i*** 'brother/sister'): All [iGENDER] located on *n*.
- Class III (*jatros* 'doctor$_{F/M}$'): Structural assignment via *n* and D agreement

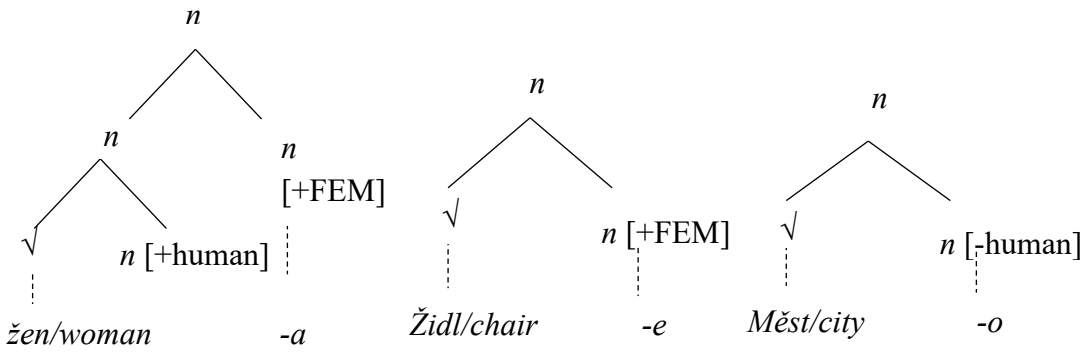
Alexiadou (2021) adopts the following feature specification developed by Markopoulos (2018) for Greek who associates [+/-HUMAN] dimension with interpretable Gender features and [+/-FEM] to uninterpretable Gender features:

(152)		Adapted from Alexiadou (2021, p.11)	
	a.	n [+human, +feminine]	➔ FEMININE
	b.	n [+human, −feminine]	➔ MASCULINE
	c.	n [+human]	➔ MASCULINE
	d.	n [-human]	➔ NEUTER
	e.	n	➔ NEUTER
	f.	n [+feminine]	➔ FEMIMINE
	g.	n [−feminine]	➔ MASCULINE

Structurally, in the case of Nouns such as *woman* with the features [+HUMAN] and [+FEM], they will be introduced into the structure with two *n* heads. The *n* head with the feature [+HUMAN] will select the root √woman, and then the *n* head with the feature [+FEM] will select for the *n* head with the feature [+HUMAN]. On the other hand, Nouns with grammatical

Gender will have only one *n* head, either with the feature [-HUMAN] or [+/-FEM]. These different 'flavors' of the *n* head can be seen as follows:

(153) Flavours of *n* head (Adapted from Markopoulos, 2018)



In this system, there are two possibilities for neuter defaults. Either it can be a plain head which is completely underspecified for humanness. Alternatively, neuter defaults can arise when non-human Nouns are *underspecified* with respect to the feature [+/-FEM]. Markoupoulous (2018) shows that [-HUMAN] Nouns are deverbal Nouns and refer to inanimate objects, it is therefore reasonable to assign them the feature [-HUMAN].

A similar kind of underspecification can also be observed in the masculine Gender. The masculine Gender of a human Noun may derive from either a *n* [+HUMAN] [-FEM] or a *n* [+HUMAN] head. This distinction captures the different behavior exhibited by Nouns like *aðerfós* 'brother' and *ðáskalos* 'teacher' in elliptical structures in Greek.

4.2.3 Outer vs. Lexical Plurality

Alexiadou (2020) respects the arguments presented by Borer (2005a) regarding the Division and Number layers. However, she introduces further distinctions within the category of Plural. She distinguishes between *outer* plurality and *lexical* plurality. Lexical plurality is instantiated by Pluralia tantum Nouns such as *scissors*, and it is located on the nominalizer *n*. On the other hand, outer plurality can be further divided into the dividing function and counting function of plural. The dividing plural corresponds to Borer's concept of division in the Classifier CL^{max}, where the mass stuff is divided in order to be counted in NumP (#P). In Borer's framework, plural is not simply a multiplication of singulars, and it can create divisions that do not align with a canonical singular form, see Borer's (2005a, p. 120) example below:

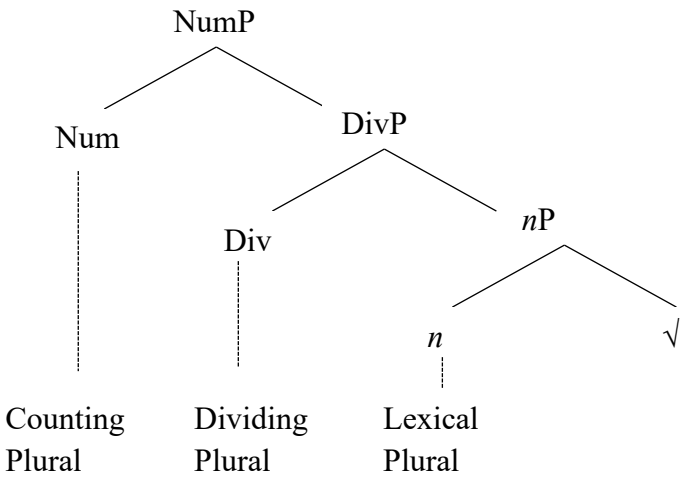
(154) *My kid sister drew* ***circles*** *(all morning) (*in half an hour).*

The interpretation of (154) is consistent with the fact that no single circle has been drawn. It also triggers *atelic* effects. The counting plural, on the other hand, is a multiplication of singulars.

The concept of the three types of a plural and their different syntactic positions is assumed to be represented in the structure below. Notice that in contrast to Borer in the above scheme

(120) where plural morpheme in English is positioned in the Classifier Phrase (Alexiadou's DivP), Alexiadou (2021) establishes two structural positions for English plural morpheme *-s*, namely NumP and DivP.

(155) Structural positions of plurals



More linguistic data that support the division into Counting and Classifying plurals can be found in Mathieu (2014). He calls counting and classifying plurals as exclusive and inclusive plurals respectively. He correlates exclusive plural with cardinals, particularly in his analysis of plurals of singulatives in Arabic. In Arabic, collective Nouns need to be turned into individuals before they can be pluralized. Singulative morphology is in DivP while plural morphology is in NumP. Importantly, while exclusive plural can be interpreted as two and more, inclusive plurals as one or more entity. This aligns with the interpretation illustrated in (154), where *circles* can be understood as instantiating a particular object type.

The exclusive/counting and inclusive/dividing plurals are represented for English below and are taken from Alexiadou (2019a, p. 126-127).

(156)	a.	*Mary saw horses.*	Exclusive
	b.	*Every guest who brought presents left early.*	Inclusive

If we allow the possibility of double realization of plurality, we might wonder why we do not come across occurrences like the following:

(157) **international waters-s*

In her article, Alexiadou (2021) puts forth the argument that the absence of double realization of plurality can be attributed to the principle of economy. Additionally, she claims that English appears to have only lexical plurals in the nominalizer *n* and dividing plurals in DivP, while the inclusive reading of counting plurals may arise through pragmatic reasoning.

4.2.4 The DP layer

The feature [+/-Def] is standardly related to the category D which is the natural host of the article. For Alexiadou (2007et al), the functions of this category are as follows:

- Assigner of argumental status to its complement NP (see Abney 1987)
- Grammatical category which in some languages grammaticalizes the semantic notion of definiteness

The argumentative status of articles has been previously briefly addressed in section 4.1.2, demonstrating that articles are not optional elements within phrases, as proposed in Jackendoff (1977)'s approach. To reiterate this claim, consider example (158) where singular count Nouns typically cannot occupy thematic positions (such as being subjects or objects of Verbs) unless they are subordinated to an article.

(158) a. **He found cat on the doorstep*
b. **Cat arrived last night.*

In English, DPs marked as definite can serve various semantic and pragmatic functions, including anaphoricity, familiarity, identifiability, uniqueness, referentiality, general knowledge, and situational contexts. While these notions are relevant, they are not the focus of my study here and I recommend further reading in Alexiadou et al. (2007) for a more comprehensive exploration of these concepts. In this thesis, definiteness appears to be taken as a superordinate term comprising these distinct semantic/pragmatic concepts associated with it.

4.3 Language Specifics vs. Language Universals

In the introductory chapter, we have established that proponents of generative grammar adhere to the notion of an autonomous grammar module that is innate. By introducing the extended nominal projection within the frameworks of Hagit Borer and Artemis Alexiadou, we can further discuss what aspects are expected to be universal and what aspects are language-specific.

Both authors argue that the extended projections are fixed and universally available in all grammars. This includes the functional layers within these projections, such as DP or NumP/#P, and their relative merge positions. For instance, D is expected to merge above NumP/ #P and not above other layers. However, not all projections need to be present in every language, as some languages may be underspecified in certain projections. The absence of certain functional elements within a language's grammar can have significant implications for interpretation. This is evident in the case of Quantifiers, as demonstrated in previous section, particularly with Quantifiers like *much*. These Quantifiers lack a dividing function which hinders their ability to count discrete entities. However, despite this limitation, they still retain the capacity to express quantification

On the other hand, language-specific effects arise due to specific options related to language-specific items or morphemes. As will be demonstrated in section 4.5.3, cardinal numbers serve as dividers in Hungarian but not in English.

4.4 Summarizing the Distinctions between Borer and Alexiadou and Considering Czech data

In this part, I will present a comparison between Borer's and Alexiadou's model for nominal functional projection and identify the relevant arguments for analyzing the Czech data that will be the subject of the following section.

To begin with, the table that outlines the labels used in both Borer's and Alexiadou's models for nominal functional projection is provided below. This will help us identify the corresponding elements in each framework:

(159)	**Alexiadou (2020)**	**Borer (2005a)**
	DP	DP
	#P/ NumP	#P
	DivP	CL
	n	
	ROOT √	ROOT √

Below, in this section, each projection will be discussed separately again, beginning with the categorization of roots and then moving on to higher levels within the structure.

Regarding the categorization of roots, Alexiadou's approach builds upon Marantz (1997)'s Distributed Morphology (DM) framework, which emphasizes the need to categorize roots. In this framework, categorial nodes are directly attached to roots as the graphs below illustrate:

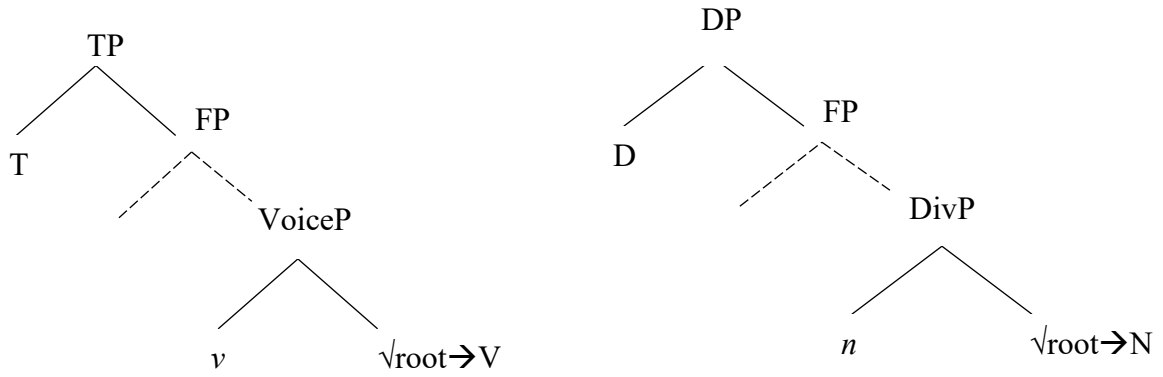
(160) Root categorization in DM

In contrast to Alexiadou's approach, I will adopt Borer (2005a)'s perspective, which argues that the categorizer *n* or *v* in Alexiadou's framework is superfluous. According to Borer, the bottom of the projection does not need to be categorized, and the categorization as N or V can be achieved through merging with additional nominal or verbal functional projections, such as D or T. This means that the lexical projection can be categorized through the functional structure itself. However, Borer does not exclude the possibility of categorization through derivational nodes, and she introduces the concept of C-functors, as described in section 3.2.1.

Also, roots in DM are not assigned a specific syntactic category and remain category-less in the syntactic structure. In contrast, Borer's framework categorizes roots as V-equivalent in

syntax through their merger with either the Extended projection or C-functors. This mechanism is visible in the schemes in (161) below.

(161) Root categorization in Borer (2005a)



The next projection could be Gender which is by some authors, e.g. Ritter (1993) considered as closest to the root. Neither Alexiadou nor Borer include a separate projection for Gender in their respective models. Borer does not elaborate Gender in depth and does not specify the locus of a Gender feature. On the other hand, Alexiadou (2020) proposes that Gender is a feature associated with the nominalizer *n*. In my analysis, I will diverge from both authors and argue for the inclusion of separate Gender projections in Czech. However, I will draw on Alexiadou (2017b)'s insights and diagnostic tools to examine the behavior of [-HUMAN] Nouns in elliptical contexts and utilize her featural descriptions of Gender [+/-HUMAN], [+/-FEM].

As far as mass-count distinction is concerned, Borer (2005a) argues that Nouns initially exist as mass and then undergo division to become countable. She introduces the Classifier phrase (CL) and Number phrase (#P) projections to account for these two functions. Alexiadou (2020) adopts this view but labels these projections differently, referring to the Classifier as DivP and the Number phrase as NumP. In addition to this, Alexiadou (2019a) introduces the concept of various positions for plural. In Borer's framework, plural is located in the Classifier phrase and serves a dividing function. However, Alexiadou identifies a different type of plural called counting plural, which represents a multiplication of singulars. As a result, counting plural is located within the Number phrase. This distinction between the two types of plural is exemplified in (162).

(162) a. *Mary drew **circles**.*
b. *Mary saw **horses**.*

The example (162a) is compatible even with the interpretation where no single circle has been drawn. On the other hand, the example in (162b) implies the presence of more than one *horse*. Alexiadou (2019a) argues that it is necessary to have a unified position for plurals. In her analysis, she proposes that English has a dividing type of plural located in DivP, while the other type of plural is the result of pragmatic reasoning. The structural position of counting and dividing plural was depicted in syntactic tree (155).

I will take over the structural descriptions for mass-count nominals, acknowledging the need for a unified position for plurals in languages. In the context of Czech nominalizations, I will argue that the data support the notion that plural is located in the QP. To support this claim, I will utilize Jackendoff (1991)'s concept of boundedness and suppose that the plural function can introduce unboundedness even in structures that are already bounded in the projection of DivP. Additionally, I will propose that modeling the representation of plural based on the category of boundedness is more advantageous, as it extends beyond the nominal domain and can be applicable in verbal and other domains as well.

For the DP layer, both Alexiadou and Borer anticipate that the DP layer is the assigner of argument status to its complement NP and serves as the position for articles. While the precise implementation for the DP layer is outside the scope of this thesis, I will not discuss it in much detail. I will follow Borer's analysis that Determiners can have a portmanteau function, serving as both Quantifiers, dividers and markers of Definiteness. This means that some Determiners can obligatorily raise to D while other have the option to do so. This is corroborated by the data in (163), which has previously been observed by Jackendoff (1977):

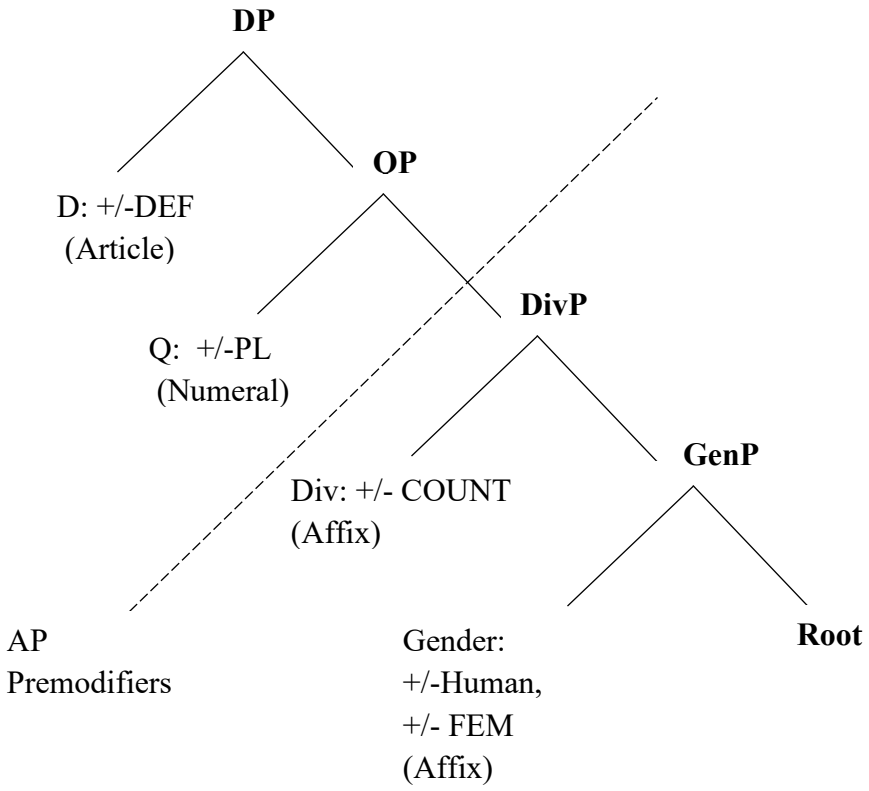
(163) a. **The every boy*
b. *The three cats*

Lastly, Borer envisaged the operation of N-to-D movement, which involves the simultaneous projection of the abstract head feature and the movement of the listeme. Thus, the projection of a plural feature is accompanied by partial N-to-D movement. Alexiadou works in a different framework and the projection of head features need not be tied with movement. According to Alexiadou, plural is simply a feature on the terminal node. I also share the view that partial N-to-D movement is not fully justified for Czech, and I will provide further details on this topic in section 4.5.5.

4.5 Nominal Projection in Czech

Following the theoretical discussion in previous chapters and based on Czech data, I am proposing the structure for a Czech nominal projection as in the following scheme (164). In the scheme below I also include the assumed feature content and give examples of possible entries.

(164) The nominal projection in Czech



,

The features that are associated with individual projections are the following:

- **The GenderP** is related with the features [+/-HUMAN], [+/-FEM].
- **The DivP** layer introduces properties related to boundedness and turns the undivided mass Nouns into count Nouns.
- **The QP** in turn deals with features [+/- PL] and is realized by Numerals, Quantifiers and Plural.
- **the DP** layer functions as the locus of definiteness
- Pre-modifying **Adjectives** can be introduced to the left of the root in the specifiers of functional projections but their specific position relative to DivP is uncertain. In Czech, there is no clear distinction in the positioning of Adjectives with respect to Gender and countability, as indicated in the diagram (164) with a dotted line for premodifiers.

Having outline the syntactic structure in Czech, I will deal with each individual functional projections in the Czech separately. At the end of the section, I will elaborate some processes within the Czech nominal projection, namely covert and overt N-to-D movement.

4.5.1 Gender Projection

The notable distinction in the Czech model proposed in (164) and the models used by Borer and Alexiadou - as they were discussed in the preceding chapters - is the absence of a categorizing nominalizer projection. In my proposal its function can be taken over by GenderP.

Given that the nominalizer *n* in the Alexiadou (2020)'s projection contains the feature of Gender, one may wonder whether the inclusion of a separate GenderP projection in Czech is motivated and meaningful. I am listing the reasoning for my proposal below.

The main argument in favor of taking Gender a separate functional projection is the role of the feature in the system. The systematic relevance of Gender for nominalizing the structure can be seen in various instances where it not only nominalizes roots but also other categories, i.e. Verbs, Adjectives. For example, German derived nominals with certain verbal layers are feminine. However, this is not an argument easily used for Czech where such examples have default neuter:

(165)	a.	*zniče-ní*	*města*	b.	die	*Zerstör-ung*	*der Stadt*
		destruction$_{NT}$	city$_{GEN}$		the$_{F}$	destruction$_{F}$	city$_{GEN}$
		'destruction of the city'					

As the analysis of the *-ní*/*tí* nominals in Veselovská (2001) and Karlík (2019) demonstrate, the default neuter in Czech as in (165a) often indicates that the structure is more verbal than other deverbal nominals. The less verbal nominalizations with the *-ba*/*ka* suffixes as in (166) have a marked feminine. This proves that the feature of Gender is contributing to the categorizing of the root.

(166)	a.	*stav-ba*	*stavět*	b.	*kres-ba*	*kreslit*	
		construction$_{F}$	to construct$_{INF}$		drawing$_{F}$	to draw$_{VERB}$	

As for deadjectival Nouns, we can find examples such as (167). These are usually also feminine and share the root with Adjectives:

(167)		**ADJ**	**➔ NOUN**			**ADJ**	**➔ NOUN**	
	a.	*krás-ný*	➔ *krás-a*		b.	*slabý*	➔ *slab-ost*	
		beautiful$_{ADJ}$	➔ beauty$_{F}$			weak$_{ADJ}$	➔ weakness$_{F}$	

Another argument in favor of Gender dominating immediately the root is the close proximity of Gender morphology to the Noun itself. For example, English as well as Czech Noun *actr-ess-es* 'her-eč-ky' where feminine suffix *-ess*/ *eč* is closer to the Noun than the plural suffix *-es/ky*.

A significant aspect of Gender in Czech is its relevance for the choice of the nominal Case paradigm. Moreover, it is overtly present in the Czech fused agreement morphology.

In the nominal domain Gender is overtly reflected on agreeing premodifiers (168a) and postmodifiers (168b) (Adjectives, possessive pronouns and Determiners) agree with the Noun in the same morphology including the Gender feature. Gender is also overtly visible in the morphology of participles, especially in the very productive preterite participle as in (168c).

(For the space reasons I omit the other agreement features of Number and Case in the glosses below).[22]

(168)

a. *ta/ ten/to* *krásná/krásný/krásné* ***kočka/ stůl/ dítě***
that$_{F}$/that$_{M}$that$_{NT}$ niced_{F}/ nice$_{M}$ /nice$_{NT}$ **cat$_{F}$/ table$_{M}$/child$_{NT}$**
'the beautiful cat/table/child'

b. ***kočka/ stůl/ dítě*** *stejně krásná/krásný/krásné* *jako ta/ ten/ to*
cat$_{F}$/ table$_{M}$/ child$_{NT}$ equally niced_{F}/ nice$_{M}$ /nice$_{NT}$ as that$_{F}$/that$_{M}$that$_{NT}$
tvoje/ tvůj/ tvoje
your$_{F}$/your$_{M}$/your$_{NT}$
'the cat/table/child as nice as the yours'

c. ***kočka/stůl/dítě*** *zmizel-a / -0 / -o*
cat$_{F}$/ table$_{M}$/child$_{NT}$ disappered$_{F/M/NT}$
'the cat/table/child disappeared'

Given the free constituent order in Czech, the fused agreement morphology inside both the nominal and verbal domains makes Gender a feature of vital importance for the analysis of the syntactic relations.

4.5.1.1 Grammatical vs. Semantic Gender

Czech Gender has also an impact on interpretation and it can be divided into grammatical and semantic Gender. The semantic Gender pertains to [+HUMAN] Nouns and reflects the biological sex.[23]

Apart from the Nouns high in animacy, the grammatical Gender in Czech is not intrinsically related to any specific (semantic) feature. It is a formal feature which assigns words to particular declension types. [-HUMAN] Nouns can then be masculine, feminine and neuter. To illustrate this, the word *Mary* would be interpreted at LF as feminine due to her biological Gender while the word *židle* 'chair' would be feminine too, although this feature does not carry any specific interpretation.

Alexiadou (2017b) observes that human denoting Nouns reveal the most mismatches between form and meaning. Let's consider the classes of [+HUMAN] Nouns in Czech based on their behavior in elliptical contexts, as described in section 4.2.2. Applying this analysis to Czech, we find that Czech has only the first two classes as seen in (169) and (170). Examples belonging to Class III, which are grammatical in Greek, are not possible in Czech (171).

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[22] Czech is inflecting language and agreement can be found inside both nominal and verbal domain. The Czech examples, if containing all features of each lexical entry in the gloss, would be very long. Moreover, the labels of some features and feature clusters may be theoretically controversial. Therefore, in the glosses, I am going to provide only the features relevant for the present discussion.

[23] I am leaving aside many lexical entries denoting young HUMANs and other animates – like *děcko/dítě* 'child', *děvče* 'young female', or *hříbě* 'colt', *kotě* 'kitten' – which are assigned a neuter Gender. The way (and reason) for the underspecified Gender here is beyond the scope of this work.

Class I

(169) a. *Petr je dobrý učitel, ale Marie není dobrá*
Peter be$_{AGR}$[24] good$_M$ teacher$_M$ but Mary not be good$_F$
'Petr is a good teacher but Mary isn't a good one.'

b. **Marie je dobrá učitelka ale Petr není dobrý*
Mary be good$_F$ teacher$_F$ but Peter not be good$_M$
'Mary is a good teacher but Peter isn't a good one.'

Class II

(170) a. **Petr je dobrý bratr, ale Marie není dobrá*
Peter be good$_M$ brother$_M$ but Mary not be fine$_F$
'Petr is a good brother but Mary isn't a good one.'

b. **Marie je dobrá sestra ale Petr není dobrý*
Mary be good$_F$ sister$_F$ but Peter not be bad$_M$
'Mary is a good sister but Peter isn't a good one.'

Class III

(171) a. **Petr je dobrý doktor, ale Marie není dobrá*
Peter be good$_M$ doctor$_M$ but Mary not be good$_F$
'Petros is a good doctor but Maria isn't a good one (doctor).'

b. **Marie je dobrá doktor, ale Petr není dobrý*
Mary be good$_F$ doctor but Peter not be good$_M$
'Maria is a bad doctor but Petros isn't a good one.'

The data presented in (169) – (171) can be interpretated in such a way that the feminine Nouns in Class I and both masculine and feminine in Class II must have derivational Gender morphology, while the masculine Nouns in Class II show in fact a *default* inflection. This is evident from the fact that derivation cannot be overridden by ellipsis whereas inflection can.

I interpret the outcomes of the above discussion into the analysis in the following way: the derivative morphology will be represented by the head GenderP [+HUMAN, +/-FEM] while the inflectional default morphology will correspondent to the head with features GenderP [+HUMAN]. I will further elaborate the class of default masculine Gender in the next part as they exhibit form-meaning mismatches.

[24] For the space reasons I am not going to mark the subject-predicate agreement features in my Czech examples. The so-called verbal agreement features of Person and Number are in Czech marked by a morpheme on the initial part of the possibly analytic predicate, while Gender (and Number) are features overtly realized on the following 'adjectival' participles. Those interested in exact distribution of agreement features in Czech can see Veselovská (2022).

4.5.1.2 Form-meaning mismatches

In this section I am going to analyze the form-meaning mismatches exemplified in (172) below. Notice that here the Noun exhibits grammatical agreement with Adjective but only semantic agreement with the pronoun:

(172) *Ona* *pracuje* *jako* *zkušený* *doktor.*
She$_{F.3.SG}$ work$_{3.SG}$ as experienced$_{M}$ doctor$_{M}$
'She works as an experienced doctor.'

According to Landau (2016), these mismatches arise precisely when the Gender value on N is unspecified. As previously illustrated the Noun *doctor* 'doctor' belongs to the Class I of Nouns where it exhibits default masculine Gender on the nominalizer *n* (our GenderP). Typically, the Gender feature on D and the Gender feature on *n* are part of the same Agree chain, D and *n* cannot undergo Gender feature evaluation independently. However, in the case of default values, the agreement cannot be established and the computation proceeds as if no element were there.

Landau (2016), in fact, divides DP into three zones:

- Zone A shows *syntactic* agreement;
- Zone B may contain *semantic* agreement. Finally,
- zone C is where *external* agreement takes place.

Importantly, the cut-off point in the DP is the Number head. Elements above this head are unable to access the phi-features of the Noun. This can be illustrated with a Russian example, where the higher Adjective agrees in semantic Gender, while the lower one agrees in formal Gender:

(173) *?U menja očen* *interen-aja* *nov-yj* *vrač*
by me very interesting$_{NOM.\mathbf{F}.SG}$ new$_{NOM.\mathbf{M}.SG}$ doctor$_{NOM.\mathbf{M}.SG}$
'I have a very interesting new (female) doctor.'

As for the external agreement, Landau (2016) states that D is the only head accessible for agreement from outside. Since D mediates only semantic agreement, then the semantic agreement between the pronoun and Noun in our example (172) is explicable.

These examples also conform to Corbett's (2006, p. 235) hierarchy that states that "*For any controller that permits alternative agreement forms, as we move rightwards along the Agreement Hierarchy, the likelihood of agreement with greater semantic justification will increase monotonically (that is, with no intervening decrease).*"

We can represent the Agreement hierarchy graphically in (174):

(174)	attributive adj/art	predicative adj	relative pronoun	personal pronoun
	← Formal agreement … Semantic agreement →			

Applying the Agreement hierarchy to Czech data, we can observe that only pronouns, such as the one in the previous example (172), which are further from the target Noun are accessible to semantic agreement, other elements display grammatical agreement:

(175)	a.	**Šikovná*	*doctor*	*provedl*	*operaci.*	**Attributive Adj**
		skillful$_{F}$	doctor$_{M.3.SG}$	carried out$_{3RD.SG.M}$	the operation	
		'A skillful doctor carried out an operation.'				
	b.	**Tento*	*doctor*	*je*	*šikovná.*	**Predicative Adj**
		this$_{M}$	doctor$_{M.3.SG}$	be$_{3RD.SG.M}$	skillful$_{F}$	
		'This doctor is skillful.'				
	c.	**Tento*	*doctor,*	*která*	*nás léčil.*	**Rel. pronoun**
		this$_{M}$	doctor$_{M.3.SG}$	who$_{F}$	took$_{3.SG.M}$ care of us	
		'This doctor who took care of us.'				

After examining various types of Nouns, we can finally put together the Gender licensing in Czech and summarize the options in (176).

(176) Gender features in Czech

[+human, +feminine]	➔ FEMININE (Class I)	e.g. *žena* 'woman'
[+human, −feminine]	➔ MASCULINE (Class II)	e.g. *muž* 'man'
[+human]	➔ MASCULINE (Class II)	e.g. *doktor* 'doctor'
[-human]	➔ NEUTER	e.g. *město* 'city'
	➔ NEUTER	e.g. *stavění* 'construction'
[+feminine]	➔ FEMIMINE	e.g. *růže* 'rose'
[−feminine]	➔ MASCULINE	e.g. *stůl* 'table'

The [+/-HUMAN] dimension is associated with *interpretable* Gender features while the [+/-FEM] dimension is linked with *uninterpretable* Gender features. We can see that the situation described in table (176) is similar to the situation in Greek, where there are two defaults for masculine and neuter Gender.

Similar analysis for Czech can be found in Veselovská (2018a) where the feature [+/-HUMAN] and its location either on N or D can account for the Czech three-way Gender system. She also argues that animacy is not a relevant grammatical feature of Nouns but it is just a semantic interpretation attributed to Noun based on the position of the feature: the Gender feature located in the low position (N) results in the interpretation of +HUMAN while the high (D/Case) position of the Gender feature is interpreted as -HUMAN.

To conclude this section – I propose that the overall function of the Gender feature in Czech, especially as a part of the complex fused morphology of the system of agreements, can be used as argument in favor of taking Gender a separate functional projection. It is often not linear order but the above agreement morphology reflects the underlining syntactic structure in Czech. This, I believe, provides a solid reason for designating the functional head responsible for noun categorization—specifically, the Gender functional head.

4.5.2 Division Projection (Countability)

I accept the idea proposed by Borer and Alexiadou (see sections 4.1 and 4.2) which assume that the root is not inherently marked for countability and countability. It is rather related to a specific head and feature. I accept the label Div for such a functional head. Following this framework Countable Nouns project a DivP that carries the feature [+COUNT] and this feature will feed the subsequent Number projection (QP). On the other hand, mass Nouns project a [–COUNT] and such a feature will prevent the counting function in the QP. The Div projection is by default singular (i.e. non-plural); plural is added under the QP.

4.5.3 QP

In my analysis of Czech data, I will follow Borer (2005a)'s theory and consider Determiners as lexical entries containing the features [+/-DIVIDER] and [+/-COUNTER]. These features are located around the projections DivP, QP and DP.[25]

The table (177) below illustrates the three possible combinations of the [+/-DIVIDER] and [+/-COUNTER] features for Czech Determiners. The place they initiate their derivation reflects their feature content in the following way:

DivP generated entries:
Cardinal numerals as in (177a) initiate their derivation within the DivP projection and subsequently raise to the higher QP position within the nominal structure. This means that they can function as both dividers and counters.

In contrast, Determiners such as *jedna* 'one' (177c) function solely as dividers and do not raise to the QP projection; instead, they remain in situ.

QP generated entries:
Determiners defined as [+COUNTERS], [-DIVIDER] such as *mnoho* 'much' originate in the QP layer and check the feature [+/-PLURAL]. Interestingly, in this scenario, the divider is absent, leading to an effect predicted by Borer (2005a). Without DivP, mass nominal emerges which cannot be counted but can be quantified. Subsequently, the output in (177b) will be interpreted as a large amount of stuff.

[25] In traditional taxonomy, there are no Determiners in Czech – assuming Determiners are in fact articles. Notice, however, that many Czech items can also appear in the DP position, similarly to English articles. They also exhibit strict ordering unlike adjectival modifiers which do not obey any conditions about their linear order.

(177)	a.	**Cardinals**	***tři***	*stoly*	[+COUNTER]	[+DIVIDER]
			three	table$_{PL}$		
	b.	***Quantifiers***	***mnoho***	*soli*	[+COUNTER]	[-DIVIDER]
			much	salt$_{UNCOUNT}$		
	c.	***Cardinal one***	***jedna***	*kniha*	[-COUNTER]	[+DIVIDER]
			one	book$_{SG}$		

Some Quantifiers, such as *mnoho* 'much/many' have a dual function. Besides serving as a [+COUNTER], [-DIVIDER] Determiner in (177b), they can also function as a [+COUNTER], [+DIVIDER] and originate in DivP as the following example demonstrates:

(178)	***Mnoho***	*chlapců*	[+COUNTER]	[+DIVIDER]
	many	boys$_{PL}$		
	'Many boys'			

It is worth noting that in the above-mentioned examples, there is agreement between the Nouns and the Determiners in terms of Number. I propose that the feature [+/-PLURAL] can be realized on the Noun post-syntactically through the Agreement process, as outlined in Norris (2014) and explained in section 3.1.2. As previously mentioned, the phi-features percolate in syntax to DP and are subsequently realized on the Noun. We can compare the grammatical example in (177) with the ungrammatical examples in (179) to illustrate the phenomenon where agreement does not apply.

(179)	a.	**tři*	*stůl*	b.	**jeden*	*stoly*
		three$_{PL}$	table$_{SG}$		one$_{SG}$	tables$_{PL}$
		'three table'			'one tables'	

When it comes to bare Nouns, the dividing and counting function is carried out by the positively valued features which are realized on the root of the Noun post-syntactically by lowering as singular or plural morphemes.

(180)	a.	*knih-a/* book$_{F.SG}$	[-COUNTER]	[+DIVIDER]
	b.	*knih-y/* books$_{F.PL}$	[+COUNTER]	[+DIVIDER]

One may wonder why the Quantifiers *mnoho* 'many/much' in (181a)-(181b) and the cardinal *tři* 'three' (181c) do not exhibit the same subject verb agreement when they both check the feature [+PL] .

(181)	a.	***Mnoho/pět***	*chlapců*	*bylo*	*ve škole.*
		Many$_{SG}$/Five$_{SG}$	boy$_{PL.COUNT}$	be$_{3.SG}$	at school
		'Many/Five boys were at school.'			

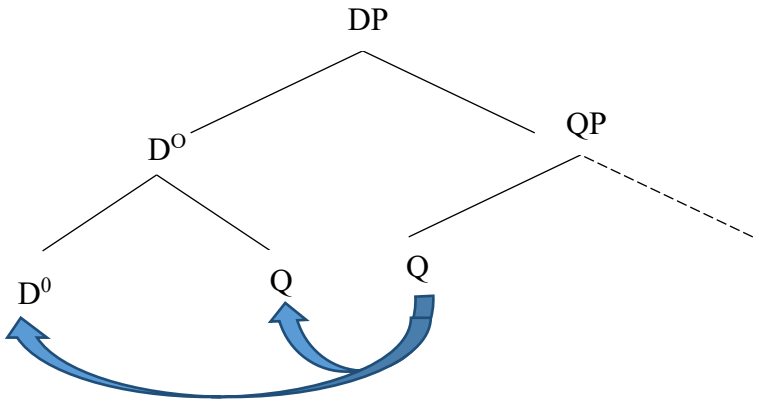
b. ***Mnoho*** *soli* *bylo* *na stole.*
Much salt$_{UNCOUNT}$ be$_{3.SG}$ on the table.
'Much salt was on the table.'

c. ***Dva/Tři/čtyři*** *chlapci* *byli* *ve škole.*
Two$_{PL}$/Three$_{PL}$/Four$_{PL}$ boy$_{PL.COUNT}$ be$_{3.PL}$ at school
'Two/Three/Four boys were at school.'

The morphological distinction between the Quantifiers described above is described in detail in Veselovská (2018a). The author used the labels Partitive and Agreeing Quantifiers. Following Pesetsky (2013)'s analysis of Russian, the author argues that both kinds of Quantifiers can participate in Q-to-D movement, Partitive Quantifiers can undermerge to D, Agreeing Quantifiers standardly do overmerge there. I will briefly explain these operations and refer to Veselovská for further reading.

The undermerge operation, originally introduced by Pesetsky (2013) involves the right adjunction of Q to D, followed by the application of the Right Hand Head Rule (Williams, 1981), resulting in the relabeling of D as Q. This undermerge operation blocks the features of Q. When D has deficient phi features, the S-V agreement can only be default. In contrast, in the overmerge operation, Q left adjoins D without the need for relabeling and no blocking occurs. Schematically, both processes are outlined in the picture (182) and further described in Veselovská (2018a)'s work (p.118).

(182) Overmerge (Right adjunction, Standard incorporation) vs. Undermerge (Left adjunction)



Also, Borer (2005a) predicts that [+/-DIVIDER] and [+/-COUNTER] functions cannot be assumed to be universal. An example that supports this view is seen in Hungarian, where cardinals seem to have a dividing function:

(183) *a két fekete kalap (-ot)* [+COUNTER] [+DIVIDER]
the two black hat(-ACC)

Similarly, Czech cardinal *jedna* 'one' has two specifications. It must be [-COUNTER] [+DIVIDER] as in the example (184c) on one hand, and [-COUNTER], [-DIVIDER] in example (184b).

(184)	CZECH		ENGLISH	
a.	**dvě*	*listí*	**two*	*foliage*
b.	*jedno*	*listí*	**one*	*foliage*
c.	*jedna*	*židle*	*one*	*chair*

As can be observed, English cardinal *one* is not specified for the other reading [+COUNTER], [-DIVIDER] as demonstrated by the ungrammatical expression **one foliage*.

4.5.4 The DP layer

In contrast to the belief held by some linguists, such as Boškovič (2005, 2008) and others, I will assume in this study that Czech – although it does not have articles - does have the functional projection which can be labeled DP. This claim is defended in detail in Veselovská (2018a) and a part of the argumentation concerns the fixed ordering of the Determiner field, illustrated in (185). [26]

(185) a. *Všichni* *ti* *čtyři* *chlapci*
all the four boys

b. **čtyři* *ti* *všichni* *chlapci*
four the all boys

According to Borer (2005a), the definite value and mutual exclusivity of certain elements, as illustrated in (185), are attributed to the distinction between *strong* and *weak* Quantifiers, which can optionally or obligatorily raise to D and compete for this position. Borer explains the ungrammaticality of such combinations in English by the double marking effect that would arise if these elements were to co-occur in the Determiner slot (D). I will exemplify that this distinction can also be applied to Czech, although some modifications will be necessary since we cannot assume that all features of Determiners are universal.

(186)	CZECH	ENGLISH
a.	-	**a the boy*
b.	*nějaký ten chlapec*	**some the boy*

The elements mutually exclusive in English, i.e., those which plausibly occupy the (obligatory and unique) central Determiner slot, can co-occur in Czech (186b). Nevertheless, there are some other elements, namely Universal Quantifiers, which might qualify for strong

[26] I will not repeat all the arguments in favor of the DP hypothesis here and refer the reader to the cited literature and studies summarized there.

Determiners in Czech. Let us analyze their properties. First of all, Veselovská (2018a) shows that universal Quantifiers must precede numerals in Czech:

(187)		CZECH	ENGLISH
	a.	*všechny/každé tři jahody*	*all three boys*
	b.	**tři všechny/každé jahody*	**three all boys*

Also, universal Quantifiers cannot co-occur which would be a signal of their competition for a single slot:

(188) **všechny* *každé* *jahody*
all each strawberries

Moreover, Borer (2005b) categorizes universal Quantifiers in Czech as strong Determiners due to the fact that they exhibit telicity effects and are not grammatical in perfective structures. Unlike cardinal numerals and partitive Quantifier such as *mnoho* 'many' in (189c) which can have a weak reading interpretation and occur in perfective contexts, universal Quantifiers (*každý* 'every', *všechen* 'all') in (189a-b) possess only a strong reading and are excluded in perfective structures:

(189) a. *Natrhala* ****každou*** *jahodu.*
pick$_{PAST.3.SG}$ every strawberry$_{SG}$
'She picked every strawberry.'

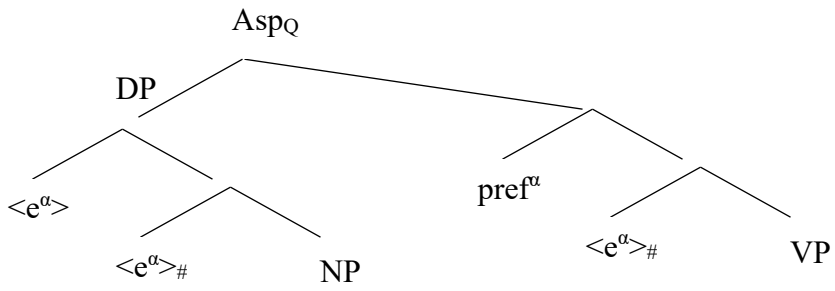
b. *Naděl*al* ****všechny*** *dluhy*
$_{PF}$do all debts
'He made all debts.'

c. *Natrhala* ***tři/ mnoho*** *jahod(y)*
pick$_{PAST}$ three/many strawberry$_{PL}$
'She picked three/many strawberries.'

Let me propose a structural explanation for this phenomenon. Borer (2005b) presents the verbal projection, as shown in (190), which can help us understand the data in (189).[27] In perfective contexts, prefixes like *na* assign range to the DP in [Spec, AspQ]. However, in our examples, the Quantifiers *tři* 'three'*, každý* 'every'*, and všechny* 'all' assign range to <e>$_{\#}$ in DP. This means that the prefix cannot assign range to the same element, as it would result in double marking. Instead, the perfective prefix can be realized as range assignment to <e>$_{d}$. Yet, the strong Determiners such as *každý* 'every' or *všechny* 'all' do not have this slot open, which renders it ungrammatical in this context.

[27] This structure and the analysis of telicity/ quantity will be the subject of Chapter 5.

(190) Telicity effects



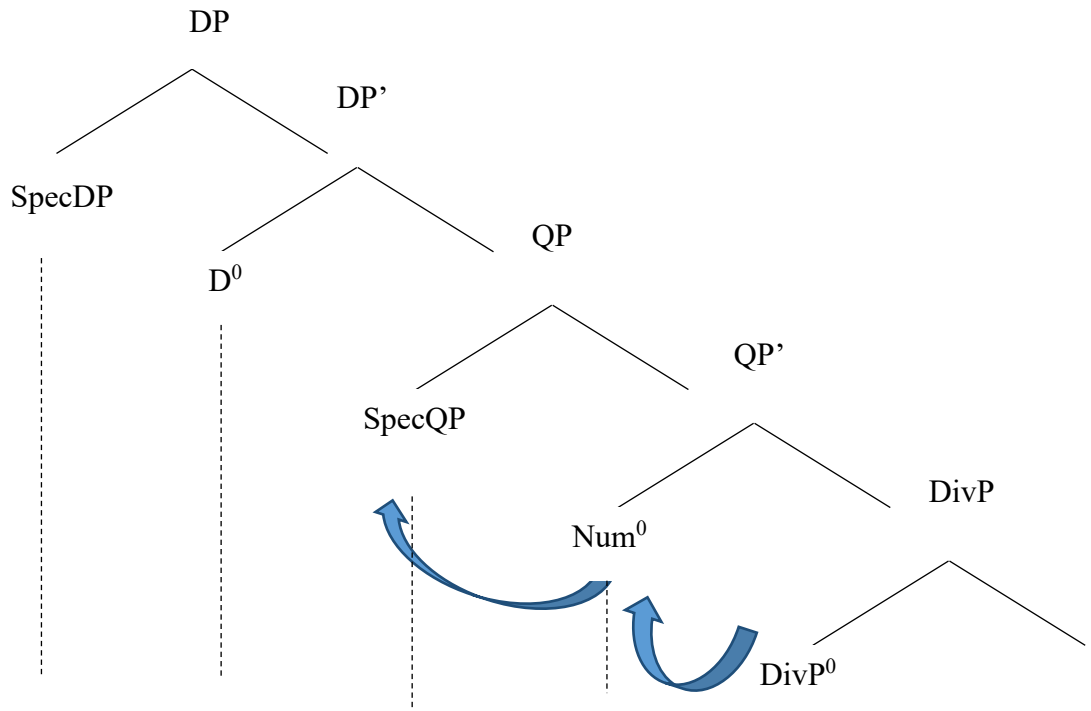
Source: Borer (2005b, p.175)

Considering all these factors, we can conclude that the situation in Czech is in fact similar to English. Just like in English, strong Quantifiers in Czech must raise to D obligatorily, while weak Quantifiers have the option to do so. The distinction lies in what qualifies as a strong Determiner in Czech, as the Czech counterpart of the English Determiner can have a different function and behavior in the syntactic structure.

In addition, it might be surprising that the partitive Quantifier *mnoho* 'many' in (189c) is not required to raise to D in Borer's framework obligatorily especially considering the suggestion in section 4.5.3 that it has to undermerge to D. In fact, in Borer's analysis, the weak and strong readings of Quantifiers correlate more with specificity rather than definiteness. Even indefinites can have a strong reading, which could potentially lead to a split DP hypothesis (not discussed in detail here). The crucial point in our case is that certain items compete for a particular position presumably due to specificity and are mutually exclusive.

In my analysis, I will diverge from Borer's view that central Determiners like *the* function as an anaphor that originates in QP (her #P). According to Borer, it inherits its value from its complement and then raises to assign a range to D. This process was properly described in section 4.1.2. Instead, I propose that when the Quantifier head position is already occupied by another Determiner, the additional Determiner can be generated directly in D. The following graph illustrates the possible derivations in Czech:

(191) Head vs. Specifiers in Number



a.		*tři/three*	*ti/the*	~~*tři/three*~~	~~*tři/ three*~~	
b.		*ti/the*		*tři/three*	~~*tři/ three*~~	*chlapci/boys*
c.		*všichni/all*		*tři/three*	~~*tři/ three*~~	
d.		*všichni/all*		~~*všichni/all*~~	~~*všichni/all*~~	
e.	*ti/the*	*všichni/all*	~~*ti/the*~~	~~*všichni/all*~~	~~*všichni/all*~~	
f.		*všichni/all*	*ti/the*	*tři/three*	~~*tři/three*~~	

To illustrate the derivation of *všichni tři chlapci* 'all three boys' in (191c), we can follow the following steps. The numeral *tři* 'three' originates in DivP and raises to QP. However, it cannot raise any higher because the position in DP is already occupied by the Quantifier *všichni* 'all'.

Another interesting observation is the grammaticality contrast between *ti všichni chlapci* 'the all boys' in (191e) and the ungrammatical **tři všichni chlapci* '*three all boys'. This contrast suggests that the general Quantifier *ti* 'the' may occupy a specifier position, while cardinal numerals and universal Quantifiers must function as heads in Czech. In the ungrammatical example **tři všichni chlapci* '*three all boys', both *tři* 'three' and *všichni* 'all' appear in head positions, and as a result, the derivation where *tři* 'three' precedes *všichni* 'all' is not grammatical. Additionally, *tři* 'three' cannot be merged directly in D in this case because *všichni* 'all' is a strong Quantifier that requires the D position.

This analysis can also account for the co-occurrence of elements in (192a), which is permissible in Czech but not derivable within Borer's syntactic structure:

(192)	CZECH	ENGLISH
a.	*všichni ti čtyři chlapci*	**all the four boys*
b.	**čtyři ti všichni chlapci*	**four the all boys*

(193) *[$_{DP}$ *all* [$_{D}$ *the* [$_{\#P}$ ~~*all/three*~~ [$_{\#P}$ ~~*three/the*~~ [$_{NP}$ *tables*]]]]

Borer (2005a) explains the ungrammaticality of the English examples in (193) as a structural constraint. According to her analysis, *all, the, and three* must all merge in the #P projection. However, there are only two available slots in #P projection: one created through merger as a head and another through merger as a specifier. This lack of available slots prevents the co-occurrence of these three elements in the structure, as demonstrated in (193).

The fact that these elements can co-occur in Czech suggests that Determiners, when they do co-occur, can be generated directly in the D position. This allows for their simultaneous presence in the structure without violating the structural constraints observed in English.

4.5.5 Processes Inside the Nominal Structure

In this section, I will direct primary attention towards the processes occurring within the nominal structure because those can be used as direct indicators of a specific configuration within the functional domain, namely of the presence of specific functional heads. The main emphasis will be on the consequences of both overt and covert N-to-D movement.

4.5.5.1 Overt N-to-D Movement

In her analyses, Borer (2005a) posits that the merging of abstract morphemes, such as the plural marker <pl>, requires overt head movement. The motivation behind introducing the N-to-D rule is rooted in the parallelism observed between the nominal and verbal domains. In the verbal domain, Emonds (1978) convincingly showed that the distinct positions of Verbs in English and French can be best accounted for by head movement (V-movement). For the nominal domain, arguments in favor of similar head movement inside one extended projection were provided by Longobardi (1994) and Cinque (1995) using Italian data. By drawing an analogy, Borer (2005a) anticipates that English plurals will undergo raising to SpecDivP (her SpecCL).

The N-to D movement could according to Borer (2005a) be realized either covertly or overtly. Should it be the case that the movement is covert, it would require a convention which would allow plural to be phonologically realized. However, Borer does not provide further details or specify the mechanism involved in this process.

If the movement is realized overtly, it would necessitate an additional constraint stating that Adjectives in English must never project between N and DivP. [28] As for Czech, I am not aware of any evidence that could prove this point. As demonstrated with the example (194), there is no difference in the surface position of Adjectives and Nouns regarding countability.

(194) a. *Mnoho sypkého písku*
much loose sand$_{UNCOUNT}$
'much of loose sand'

[28] In Borer (2005a), Adjectives are represented as adjunctions rather than specifiers as in Cinque, although within a bare-phrase-structure approach the distinction, especially if we take into account the existence of multiple specifiers, is not significant.

b. *Ty dvě krásné kočky*
the two nice cat$_{PL.COUNT}$
'the two nice cats'

Cross-linguistically, the N-to D movement is fully justified in Hebrew where Adjectives occur post-nominally and definiteness agreement between Adjectives and functional heads can be detected. Therefore, Borer (2005a) suggests for Hebrew abstract head feature [+Def] on N which triggers movement. Yet, no such signals are available in English and Czech. Free postnominal order of Adjectives is not permissible. Adjectives in English and Czech can occur post-nominally only if they are part of a more complex structure, such as when they are modified by a participial clause (195)(b):

(195) a. *Dostal jsem k Vánocům ilustrovanou* ***knihu***
got AUX for Christmas illustrated book
'I got for Christmas an illustrated book.'

b. *Dostal jsem k Vánocům* ***knihu*** *ilustrovanou akademickým malířem*
got AUX for Christmas book illustrated academic painter$_{INS}$
'I got for Christmas a book illustrated by a trained artist.'

There is some evidence for a partial N-to-D movement in Romance languages. Cinque (1994) presents data supporting this phenomenon in Italian (196), where N can undergo movement, but not as far as to D. A comparison between Italian, Czech, and English is visible in the examples below:

(196) a. [$_{DP}$ *ta* [$_{FP}$ *italská* [$_{NP}$ ***invaze*** N [*Albánie*]]]]
b. [$_{DP}$ *the* [$_{FP}$ *Italian* [$_{NP}$ ***invasion*** N [*of Albany*]]]]
c. [$_{DP}$ ***l' invasione***N [$_{FP}$ *italiana* t_N [$_{NP}$ t_N [d*ell'Albania*]]]
Adapted from Veselovská (2018a)

In Cinque's analysis, the Adjective phrases (APs) are situated in the specifier position of functional heads. And we can see that in Italian the head N moves from its base position through the head hosting the first Adjective to a higher head, still however following the D^0. However, Cinque (1994) does not operate with DivP and he deals only with the combination of the following elements: DEM, NUM (our QP), N, A. Thus, we do not have data from other languages that would support the movement to DivP.

As discussed by Veselovská (2018a), there is no compelling evidence for N-to-D movement in standard nominal structures in Czech although some examples can be provided using the contrast between the prenominal position of the Adjectives and the constructions involving Adjectives combined with indefinite pronouns *někdo/něco* 'somebody/something' as in (197). These cases, however, seem to exhibit characteristics more in line with certain nominal functional heads rather than simple N-movement:

(197) a. *někdo* *velký*
someone$_{NOM}$ big$_{NOM}$
'someone big'

b. *něco* *velkého*
something$_{NOM}$ big$_{GEN}$
'something big'

To conclude, I propose to separate the realization of an abstract feature on nodes from movement. As far as the plural is concerned, I will adopt the perspective of Alexiadou, who operates within the Distributed Morphology (DM) framework and who claims that the plural is a feature on the terminal node and can be realized on N post-syntactically, as explained in section 3.1.2. In this approach, the appearance of abstract features on terminal nodes is not accompanied by movement. Even though the realization of abstract features on terminal nodes might not involve movement, there could still be other reasons why N needs to undergo covert raising to D. These potential reasons will be explored and exemplified in the subsequent section.

4.5.5.2 Covert N-to-D Movement

In syntactic literature, the DP layer has traditionally been considered the domain responsible for encoding definiteness and specificity. However, in the case of Czech there exists a unique phenomenon where bare singular stems can function as both definite and indefinite Noun phrases, see (198).

(198) *Petr jedl jablko.*
Peter east$_{PAST}$ apple$_{DEF/INDEF}$
'Peter ate an/the apple.'

Additionally, Czech exhibits a restriction against N-to-D movement, further complicating the assignment of definiteness within the DP layer. The fact that the definiteness feature must be on the Noun is demonstrated in (199) with parallel grammatical and ungrammatical structures in English. Sometimes, definiteness can be overtly realized by demonstratives *ten*/*ta*/*to* which are regarded as equivalents of the definite article in English

(199) a. *Koupil jsem si nové (*to) auto. To/(*) auto je zelené.*
bought AUX myself new the car the car is green
'I have bought a new car. The car is green.'

b. *I have bought a/*the new car. The/*a car is green.*

I propose that when a Noun appears without an overt determine such as *ten/ta/to* 'the' or other Quantifiers (*mnoho* 'much'*, tři* 'three' etc.) that could raise to D and check the feature [+/-definite], then the data argue in favor of only LF movement of a head Noun into the D position. This perspective is also advocated in Veselovská (2018a).

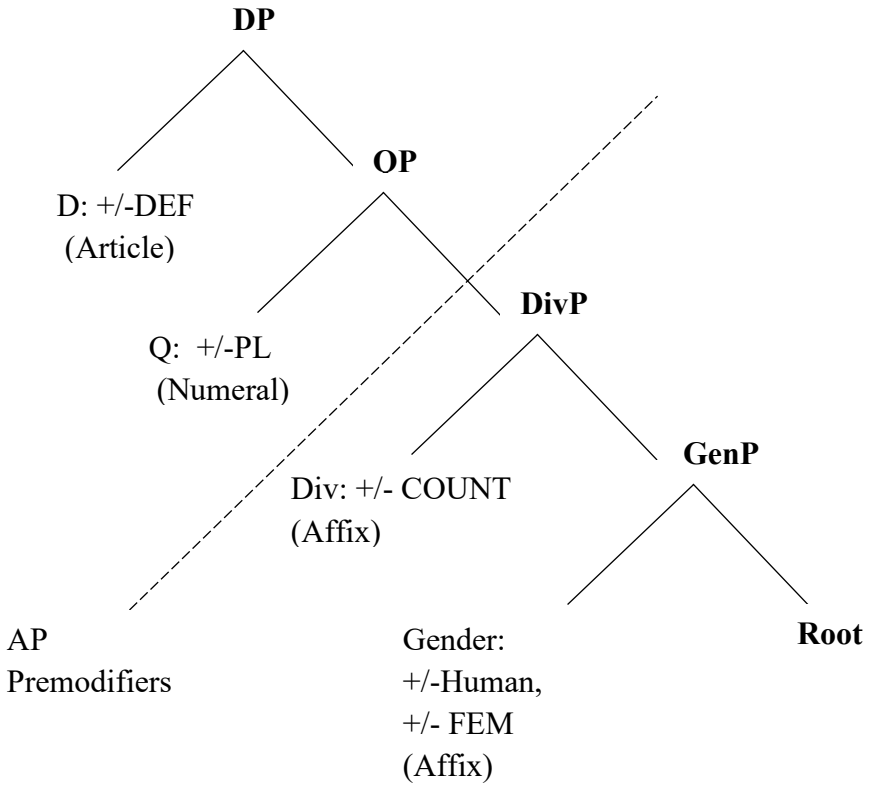
4.6 Chapter Summary

To sum up, this chapter has involved an application of the previously introduced theoretical models proposed by H. Borer and A. Alexiadou. I have explored how these models can be

applied to Czech data. In this section I will summarize the main findings and highlight the main distinctions in these models.

I proposed that Czech complex nominal projection DP contains four functional layers, namely GenderP, DivP, QP, and DP as illustrated in (164) and repeated below for convenience together with the proposed features of individual functional domains.

(200) The nominal projection in Czech



The core element of the above structures is the *root* embedded under functional layers that supply it with features and categorize it. In the preceding chapter I discussed also the features which are associated with individual functional layers:

- **The GenderP** is associated with the features [+/-HUMAN], [+/-FEM].
- **The DivP** layer introduces properties related to boundedness, with countable Nouns carrying the feature [+COUNT] and mass Nouns being [-BOUND]. The DivP also turns the undivided mass Nouns into count Nouns and it feeds the Number layer where bounded Nouns can be pluralized.
- **The QP** in turn deals with features [+/- PL] and is realized by Numerals, Quantifiers and Plural.
- **the DP** in Czech is present despite the fact that Czech is an articleless language. The DP layer functions as the locus of definiteness, with certain Determiners optionally or obligatorily raising to this level.

- Pre-modifying **Adjectives** can be introduced to the left of the root in the specifiers of functional projections but their specific position relative to DivP is uncertain. In Czech, there is no clear distinction in the positioning of Adjectives with respect to Gender and countability, as indicated in the diagram (200) with a dotted line for premodifiers.

The table below provides a comparison between these labels and the ones proposed by Borer (2005a) and Alexiadou (2020):

(201) The comparison of labels in the three models

	Czech model	**Alexiadou (2020)**	**Borer (2005a)**
	DP		
(iii)	QP	#P/ NumP	#P
(ii)	DivP	DivP	CL
(i)	GenderP	*n*	-
	√root		

The main distinctions in these models can be outlined as follows. Diverging from the perspective of both authors, I argue for the inclusion of separate Gender projections in Czech as Gender in Czech is reflected in morphology and has an impact on interpretation. Additionally, I adopt the structural descriptions for mass-count nominals employed by both authors, which are realized through two projections labeled as DivP/CL and QP/#P/NumP. However, a noteworthy difference arises: unlike Borer's CL which hosts plural morphology and does not correspond to a canonical singular, the DivP in Czech model is by default singular. The DivP feeds the QP which hosts the plural morphology in Czech. Similar scenario as in Czech is envisaged by Alexiadou (2021) with the Counting Plural in her NumP. Besides, she introduces the concept of Dividing plural situated within the DivP which is employed in her subsequent analyses.

I believe that the positioning of plural morphology within QP aligns with Jackendoff (1991)'s notion of boundedness. According to Jackendoff, the plural function has the potential to introduce unboundedness even within structures that are inherently bounded within the DivP projection.

Moreover, I diverge from Borer (2005b) and do not expect N-to D movement. It is not supported by the ordering of Adjectives within Noun phrases.

The above structure and characteristics of the distinct functional layers will be instrumental in exploring the countable properties of nominalizations. They will help us explain some characteristics of derived nominals, namely how nominalizations can be pluralized and interact with the verbal domain. For this purpose, a brief analysis of the verbal nominal projection will be presented in the next chapter in a similar manner to the previous examination of the nominal projection, i.e. considering the same two influential frameworks.

5 VERBAL FUNCTIONAL PROJECTION

In this chapter, I will describe the structure of a complex verbal projection as it was proposed by the two authors whose frameworks I adopted in the preceding chapters, namely Hagit. Borer and Artemis Alexiadou. The studies I will summarize below are *The Normal Course of Events* by Borer (2005b), and *Number/Aspect interactions in the syntax of Nominalizations* by Alexiadou et al. (2010). I am going to refer to more articles especially those dealing with the concept of Voice, above all Alexiadou et al. (2006) and (2015) and Alexiadou (2012), (2014b).[29]

After comparing the theoretical frameworks by the above authors, I am going to apply the models on Czech data. I will briefly cover all layers of the verbal projection focusing in more detail on the projections related to Voice and Aspect because these two layers are important for my analysis of Czech nominalizations in Chapter 6. [30]

5.1 Borer- Verbal Functional Projection

In her monograph *The Normal Course of Events* (Borer, 2005b) the author proposes the following three layers for the verbal functional projections Event (EP), Tense (TP), Aspect (Asp_Q P) and a root labeled as Verb (VP).[31] The extended verbal projection is thus as in (202).

(202) $[_{EP}$ <e>$_E$ $[_T$ $[_{AspQ}{}^{max}$ <e>$_{\#}$ $[_{VP}]]]]$

[29] Alexiadou backs up her aspectual analyses with thorough investigations of these issues in Slavic and English language by Borik (2006).

[30] Previous examinations of nominalizations within a generative framework have recognized that Czech deverbal nominals exhibit compatibility with both verbal and nominal characteristics, albeit without making an effort to pinpoint the placement of individual features within particular functional layers. While Veselovská (2018b) and Čakányová (2022) address nominalizations within their articles, Havranová (2020)'s dissertation represents an extensive work where such analysis is not included. Despite the description of verbal and nominal diagnostics, the localization of verbal and nominal attributes is confined to the VP and NP layers, with no specific projections and features attributed to them. Rather, the author employs *the Switch Categorizer Hypothesis* as formulated by Panagiotidis and Grohmann (2009). However, it is only applied to specific types of nominalizations when it could potentially have broader applicability. Consequently, her structures of nominalizations lack consistency. I also disagree with some conclusions in this dissertation. For example, she claims that B/K nominals can be interpreted as complex event nominals when they have argument structure and take place over time (p. 113).

iii. *zkouška* *studentů* *zabrala* *skoro hodinu*
exam students$_{GEN}$ take$_{3RD.SG.FEM.PAST}$ almost hour
'The examining of students took almost an hour.'

Nevertheless, the arguments in her examples could be omitted and nothing testifies in favor of AS status of B/K nominals. They are rather interpreted as simple event nominals as described in section 6.4.

[31] Recall that for Borer, the functional structure has the effect of categorizing the L-domain. Thus, the root projection will be Verbalized, i.e. categorized as VP in the presence of TP.

The projection of *Aspect* (Asp_Q) will give rise to a quantity event with telic interpretation discussed in detail in the following sections. The TP layer is associated with the feature of *Tense* and the *Event* (EP) layer hosts the event argument.

Moreover, in her later book *Taking form*, Borer (2013) speculates that there exists some semantic dependence between Tense and Grammatical Aspect, which she labels G-ASP (Grammatical Aspect). Hence Tense dominates Aspect rather than the other way round. She proposes three different ways of modeling this situation. First, G-ASP could be a complement of T. Second, G-ASP could be specifier of T and T could raise higher. Third, there could be a relationship between the head of the Tense Phrase and the head of the G-ASP Phrase with head-to-head movement or Agree but no complementation relationship. I will return to this issue in section 5.1.2.

Traditionally, it has been assumed that Verbs are associated with some valency – in generative framework with the verbal Argument Structure (AS). The AS states the number of arguments the verb requires and it is referred to as *subcategorization* or the c-selection frame. A c-selection of the Verb *give* and *break* are illustrated below.

(203) *John gave Mary a book.* — *give* [V; NP, NP]
Mary broke her promise. — *break* [V; NP]

In Borer (2005b) lexical entries (Verbs) do not contain any information about the projection of arguments. The AS is licensed solely by functional syntactic structure. To be more specific, the Verb *break* in the context of a structure like (203) licenses arguments, i.e. it is transitive, but in the structure with no argument it can be intransitive.

For Borer, Verb (L-head[32]) is just a *modifier* of the structure. By modification, Borer means *changing the semantic value* of the structure, i.e. the modifier in this context is *not* to be equated with a specifier position.[33]

Arguments are merged as specifiers of functional projections and their interpretation is regulated by particular syntactic positions. The idea of tying particular position with interpretation is shared with the UTAH (*The Universal Theta-Assignment Hypothesis*) proposed by Baker (1988).

(204) **The Uniformity of Theta Assignment Hypothesis**. (UTAH, Baker 1988)
Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.

Borer's concept of the AS is however not identical with the above. For Baker's UTAH, the argument structure is a property of lexical items: If a verb assigns a Theme in a particular position, this Theme role will be realized in this position throughout the derivation. Within this

[32] For the description of L-head see section 3.2.

[33] Functional heads, for example, are seen as pairs in which one member provides an open value, while the other provides the range assigned to that value. The latter is optional (adjunct-like) in the sense that *may* and *must* can both assign range to the same open value. This duality amounts to separating the syntactic portion of the structure from its semantic function. For Borer, L-heads do not have open values and are not assigned range but distinct Verbs will have distinct semantic content. Thus, they rather modify than determine the structure.

system, all instantiations of the verb, e.g. *drop* must have the same thematic and syntactic configuration. Consider the instantiations below:

(205) *drop*.TRANS *drop*.INTRANS [N *drop*] [A *dropped*]

As thematic roles cannot be eliminated, Verbs such as *drop* which alternate between transitive and intransitive variants, must start as intransitive and the external argument is added through cause-type head. Yet, adjectival passives (*dropped*) are unergative and the nominal *drop* does not allow any argument, which causes complications for the proponents of UTAH.

In Borer, no complications with interpretations arise as the Verb entry is devoid of any information about the AS and the relation between Verb and its argument is not fixed. The Verb stem is simply embedded under one of the structures below. If a listeme is embedded under (206a), it will be unaccusative, if (206b) unergative and (206c) transitive.[34]

(206)

a.	[AspQ [SUBJECT-OF-CHANGE	<e>#			[VP[V *drop*]]]]
b.	[EP [SUBJECT-OF-PROCESS	<e>E			[VP[V *drop*]]]]
c.	[EP [SUBJECT-OF-PROCESS	<e>E	[AspQ [SUBJECT-OF-CHANGE	<e>#	[VP[V *drop*]]]]

The full derivation of these structures will be explained in the following sections but what we can see already here is that in the context of nodes (EP and Asp_Q) the argument role labels may emerge.[35]

5.1.1 Asp_Q - Inner Aspect Layer

There are two kinds of Aspect in Borer (2005b): inner Aspect and outer Aspect. I will summarize the characteristics and functions of these layers in the following sections.

The features of *inner Aspect* – located in the higher level of Asp_Q - are related to telicity. If this level is not projected, atelicity will emerge. We need to discuss the issues of telicity more in detail because in the domain of nominalizations it is related to the ability of nominals to pluralize.

5.1.1.1 Telicity as Quantity

In Borer (2005b), telicity is linked to the notion of quantity, where telic events are characterized as being *non-quantitative* and *homogeneous* in nature. The definitions of homogeneity and quantity are in (207):

[34] As far as intransitive Verbs are concerned, Borer (2005b) provides several arguments that unaccusative-unergative distinction is syntactic. The former includes an argument occupying the same syntactic position as a direct object, while the latter has an argument in the same syntactic position as a subject of a transitive.

[35] This is also in contrast with Alexiadou where the projection of functional layers (*v*, Voice) is tied to thematic grids of particular lexical entries, as we will see more in detail in section 5.2.2.

(207) a. P is homogeneous iff P is cumulative and divisive
   i. P is divisive iff ∀x [P(x) → ∃y (P(y) ∧ y < x)] ∧ ∀ x,y [P(x) ∧ P(y) ∧ y<X→P(x-y)]
   P is divisive iff for all x with property P there is a y, proper subset of x, with property P, such that subtracting y from x yields a set with the property P.
   ii. P is cumulative iff ∀x [P(x) ∧ P(y) → P(x∪y)]
b. P is quantity iff P is not homogeneous

According to Borer, atelicity is to be viewed as an equivalent to the distinctions attested in the nominal domain between quantity and non-quantity nominals. Recall that neither bare mass Nouns nor bare plurals are quantities (they are homogeneous) in that they do not project a Quantity Phrase (#P). Thus, we can view #P in the nominal domain and Asp_Q in the verbal domain as parallel syntactic nodes which are devoted to quantity interpretation.

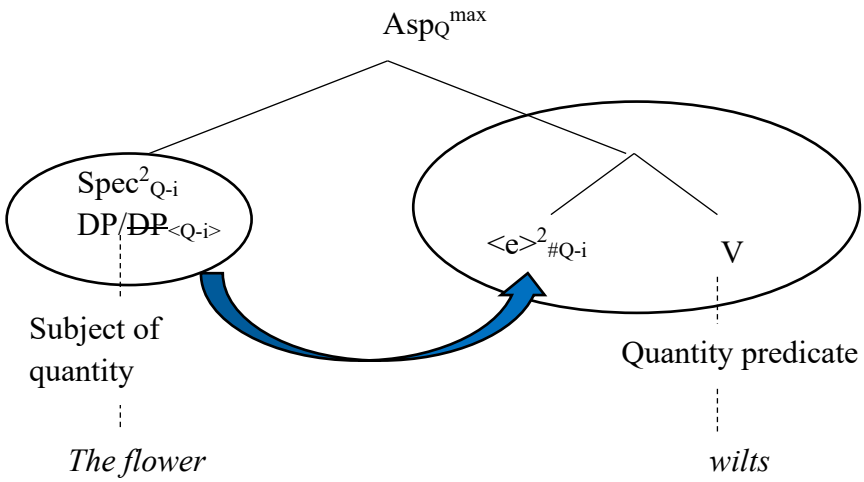
We can now be more specific about Borer (2005b)'s definition of homogeneity which involves both cumulativity (sums) and divisiveness (parts). If any of these requirements fails the expression will be quantity. For example, *three apples* are not cumulative (*three apples* plus *three apples* does not give *apples*) as well as non-divisive (subtracting *three apples* from *three apples* does not yield *three apples*). By definition, then *three apples* is quantity. Note here also, that *books* are divisive and thus non-quantity because plural is not multiplication of singulars in Borer. Thus, there are no parts of *books* which are not *books*, *a single book* no longer being part of *books*.

Similarly in the verbal domain, *John read books* is cumulative because *read books* and *read books* is *read books*. It is also divisive because part of *read books* is *read books*. The predicate *read books* then is atelic.

Also, Borer (2005) does not predict that telic events must have an end-point. Rather there is some kind of threshold after which the event can continue, e.g. *fill the room with smoke* where the process of filling may continue after the room is full of smoke. Therefore, in order to establish telicity in Borer, it is sufficient to refer to some initial or final sub-interval within P which is not P. Clearly, *build a house* (under non-activity interpretation) will involve some sub-events which are not *build a house* and can be obtained by subtracting from *build a house*.

Having introduced the definitions of quantity, let us demonstrate how quantity is represented in syntactic structures. In languages such as English, Asp_Q is mostly assigned the value indirectly when it transfers the value of the DP in $SpecAsp_Q$ through specifier-head agreement, see the structure (208) presented in Borer (2005b, p. 77):

(208) Asp_Q- Spec-Head Agreement



The DP (*the flower*) is quantity with a value Q-i which is assigned to [Asp <e>$_{\#}$] through Spec-head agreement. As can be seen. the presence of a quantity nominal can give rise to a telic event, thereby conforming Verkuyl's generalization in (209):

(209) **Verkuyl's Generalization**
Telic interpretation can only emerge in the context of a direct argument with property α[36]

However, telicity in English can emerge even without the presence of a quantity DP. Thus, Verkuyl's generalization captures only indirect range assignments where the value [+/- QUANTITY] is assigned to Asp_Q indirectly. In fact, Asp_Q can be assigned the range *directly* as well: via prefix, Adverb or PP adjuncts. I will elaborate these cases more in detail below.

Locative prefixes in English as well as perfective prefixes in Czech, themselves historically locative Prepositions as Filip (2000) observes, are quantificational in nature and can assign range to Asp_Q <e>$_{\#}$ directly (p. 70). I will discuss Czech perfective prefixes later in section 5.4.2.1 but for now I would like the reader to be aware of this connection illustrated in (210):

(210) a. *Robin took **off** (in two seconds).*
b. *The army took **over** (in two hours).*

The sentences (210) are telic and no DP which would trigger telicity is present. Hence, locative particle must assign range to Asp_Q <e>$_{\#}$, see below:

(211) [$_{AspQ}$ *up* <e^{up}>$_{\#}$ [$_{L\text{-}D}$ *take* ([~~*up*~~ <e^{up}>])]]

Adverbs or PP adjuncts can also be direct range assigners to Asp_Q:

(212) a. *Robin danced **twice** (in two hours).*

[36] Verkuyl is not specific about the nature of this property and its precise characterization has not been agreed upon. In Borer (2005b) it correspondents to quantity.

b. *John ran **to the store** (in two hours).*
c. *John ran (*in two hours).*

The examples (212a-b) have telic interpretation not only by the availability of *in-X-time* phrase but because they are not homogenous. In (212a) there is at least one sub-event (singular dancing) which does not fall under the predicate *dancing twice*. It cannot be thus considered divisive. Neither is it cumulative, *danced twice* and *danced twice* is not *danced twice*. Likewise, in (212b), we can imagine the path of running from home to the store and take some sub-event, e.g. from home to the middle of the way on this path. Clearly, this sub-event will not be equal to *run to the store*.

To make matters more complicated, in Borer's framework it is not possible to determine when a certain adjunct functions as a modifier and when it is a range assigner. For example, the delimiters such as *to the store* in (212b) function as a range assigner while in the following example (213) the delimiter *to New York* should be viewed only as an optional modifier of Asp_Q.

(213) *Kim pushed carts **to New York** (for several hours/*in several hours).*

In this example, the quantity nature of the DP *carts* continues to play a crucial role in spite of the delimiter. Borer (2005b) acknowledges the complexity of aspectual issues and leaves these matters for further research. The quoted examples serve to illustrate the intricate nature of aspectual considerations.

5.1.1.2 Verbal structures

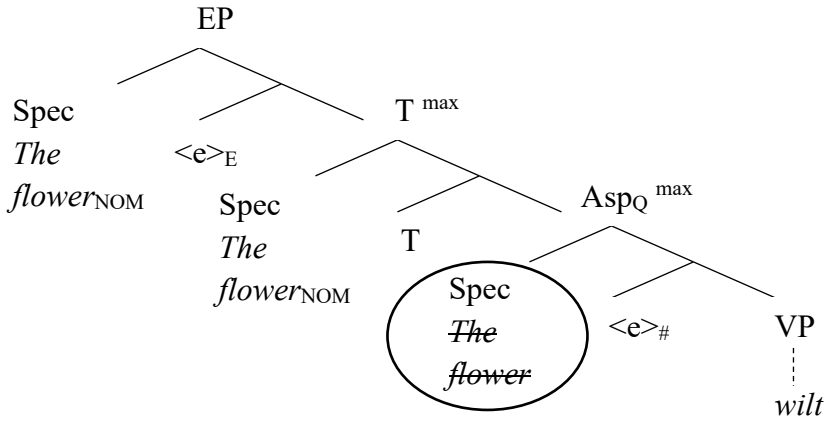
Having discussed the range assignment to Asp_Q, consider now the potential derivations that can result from this layer. We have already suggested that Asp_Q may or may not be projected. Additionally, we must also take into consideration that its specifier may or may not be associated with a Case feature. These factors play a crucial role in determining the various possible outcomes.

We start by examining structures that involve the projection of only one argument. In the first scenario, Asp_Q is projected, and the argument merges with it, but no Case is available in this configuration. Consequently, the subject-of-quantity (s-o-q)[37] DP *the flower* must move to a position where it can receive Nominative Case, likely to SpecTP. The resulting structure resembles that of unaccusative Verbs as in (214).

[37] A role that is associated with an object which undergoes a quantifiable change. It is assigned to a DP if it merges with ASP_Q.

(214) Unaccusatives (see Borer, 2005b, p.84)

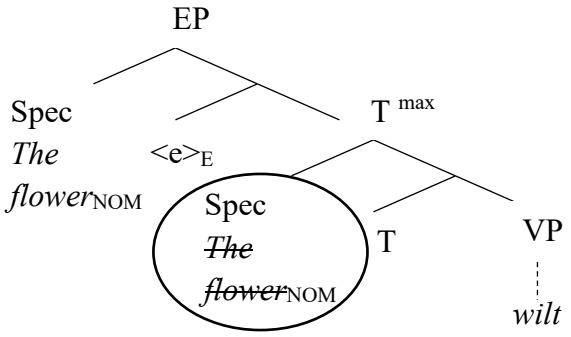
a. *The flower wilted in a day.*
b.



As for unergatives they are the result of the following derivation: there is no projection of Asp_Q and the DP in need of case must merge directly with T as in (215). This structure is interpreted as atelic by default because atelicity emerges in the absence of telicity.

(215) Unergative (see Borer, 2005b, p.84)

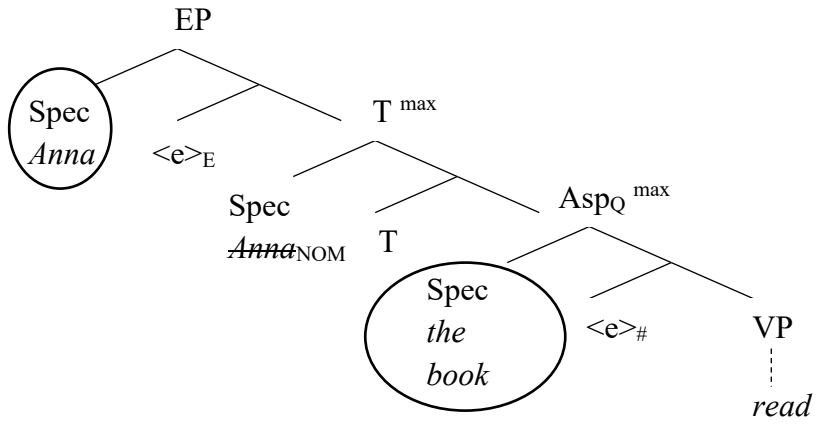
a. *The flower wilted for several hours (and then I watered it and it recovered).*
b.



Finally, the transitive structure such as *Anna read the book* is depicted in (216). Here, the two arguments must merge as functional specifiers. Asp_Q is projected and assigns Accusative Case which results in telic interpretation.

(216) Telic transitive structure (see Borer, 2005b, p.85)

a. *Anna read the book in two hours.*
b.



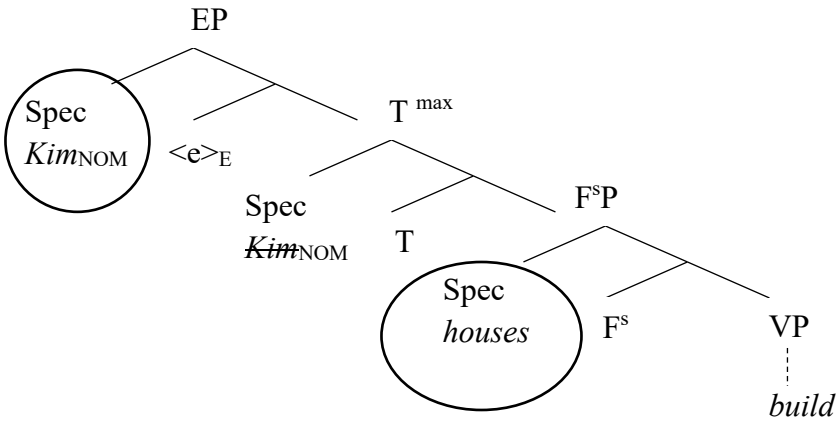
There remains the question which structure is available for atelic transitives as in (217):

(217) *Kim built houses.*

Interestingly, the languages such as Finnish that distinguish atelic and telic direct objects morphologically, use the partitive case for the latter. Therefore, Borer claims that Case may be the determining factor in licensing the semantically vacuous layer which is not headed by <e>#.

This layer, which remains present for phonological reasons, is referred to as the shell FP (henceforth F^sP) by Borer (2005b, p. 109). She also postulates that the partitive case is generated on N, must be checked in SpecF^sP and cannot be checked in Asp_Q. Subsequently, telicity is blocked and atelicity emerges.

(218) Atelic transitive structure



Having covered the variety of structures available for the active predicates, in the following section I am going to demonstrate Borer's analysis of passives.

5.1.1.3 Passive structure

The *analytical* form of the passive Voice in English is according to Borer (2005b) *bi-clausal*. In this construction, there exists an active sub-event *e* embedded under an operator π, call it Passive Voice. This operator (π) is associated with the elimination of objective Case. Furthermore, the emergence of the participial morphology is not due to any absorbing the external thematic role; rather, it occurs because *e* cannot merge with T. The auxiliary is required to support T and the morphological form of the Verbs emerges in the context of this auxiliary. This means that the participial morphology and the auxiliary are altogether disassociated from the properties of passive.[38]

Independent support for the separation of passives from morphology can be found in French causatives. In French causatives (219), the diagnostics of the passive are present, indicating a passive-like structure, but both the auxiliary and participial morphology are absent.

(219) *Marie fera laver le chien (par Jean)*
Mary make.FUT wash the dog (by Jean)
'Mary will cause the dog to be washed (by Jean). '

The emerging structure for passives is visible in (220):

(220) [$_{E}$ DP1 aux [$_{T}$ ~~DP1~~ aux [$_{\pi}$ ~~DP1~~ V^{e} $^{\pi}$ [e DP2 [e ~~V^{e}~~ [$_{ASPQ}$ ~~DP1~~ ~~V~~]]]]]]
ext.arg int.arg
Originator S-O-Q

Neither DP1 nor DP2 has access to Case. Moreover, the passive operator π binds DP2 in (220) preventing it from moving and requiring its realization as pro_{indef}. Alternatively, it can be phonologically realized if a preposition such as *by* is available to assign inherent case to it. The Object (DP1) must raise to T in order to receive Nominative Case, then presumably to SpecE. The verb (V) also undergoes movement as anticipated and ultimately lands in the position occupied by π.

Passive constructions, along with a variety of structures that can be generated through the inner aspectual projection Asp_{Q}, will be subjected to deeper examination within the context of nominalizations that are built upon these foundations.

While the level of inner Aspect computed in Asp_{Q} has been analyzed in detail in Borer's writings, the level of outer Aspect, which will be the subject of the next section, has not been explored to such an extent.

[38] Similar analysis for Czech analytic passives is presented in Veselovská and Karlík (2004). The authors propose that the adjectival PF morphology of Czech passive participles is to be related to the Merge of the passive Aux inside the verbal extended projection which has morphosyntactic characteristics of a copula (and blocks the Merge of Agent).

5.1.2 Outer Aspect – Grammatical Aspect

The outer Aspect or grammatical Aspect (G-ASP) is the type of Aspect that is computed at the higher level above the Asp_Q in the sense of Verkuyl (1972). Nevertheless, as stated in section 5.1, it is not clear whether the G-ASP has its own functional projection.

Borer assumes that English progressive and time duration adverbials such as *for X-time* are instantiations of the outer Aspect (G-ASP). The idea is that they function as operators on existing structure rather than as their determinants. Thus, the *for X-time* phrases take structures without Asp_Q as their input and return a bound event, but which nevertheless leave argument assignment intact within the inner aspectual domain. To illustrate this, sentence in (221a) is an activity and it remains so within the scope of the *for X-time* phrase in (221b):

(221) a. *Kim ran.*
b. *Kim ran (for three hours).*

In contrast, the nominalizer *-ing* (222a), which will be analyzed more in detail in Chapter 7 and contrasted with progressive and gerundive *-ing,* as in (222b) does not operate on existing structures but prevents Asp_Q from ever emerging.

(222) a. *Pat's **forming** of a complex event (for three minutes/*in two minutes).*
b. *Kim **formulating** government policy (for several weeks/in two weeks).*

The fact that Asp_Q is excluded in the sentence (222a) is corroborated by the ungrammaticality of the *in X-time* phrase which is a modifier of Asp_Q and requires its presence. Unlike, the *for X-time* phrase, the *in X-time* phrase cannot affect a change in event structure and it does not function as an operator but rather only as a modifier of quantity.

5.1.3 Event Phrase

Borer (2005b) adopts the Davidsonian approach, where she posits that event structure correspondents to syntactic functional structure.[39] To account for this, she postulates an event node called EP (Event Phrase) as a part of the verbal domain, which hosts event arguments. The event argument thus emerges through functional structure and not in the context of some categorial nodes, e.g. V, A.

There is a *predication* relationship between EP and the following functional head. In this sense the verbal structure represents a parallel with the nominal domain introduced in 4.1 where we can find the same predication relationship between the DP and the following functional head. Just like range assignment in $\langle e \rangle_d$ established a mapping from predicates to referential expressions, the range assignment to $\langle e \rangle_E$ turns predicates to events. For instance, when the predicate is Asp_Q, it will be understood as a quantity event.

Moreover, EP projects above TP or independently of TP altogether (as we will observe in complex event nominals), i.e. the EP can be licensed autonomously, not necessarily contingent on the presence of Tense in the structure.

[39] See Davidson (2007).

Further, Borer does not assume that the main function of event nodes (EP, Asp_Q) is to license arguments. These nodes do not assign roles obligatorily. Recall that the direct range assignment to Asp_Q can be assigned directly without the need for a DP. Similarly, EP does not assign the role obligatorily. It only assigns the role of *Originator* to the DP when that role has not been assigned elsewhere, e.g. in Spec Asp_Q. Therefore, we must view the argument interpretation as orthogonal to the entailment of event nodes rather than viewing it as their main function. [40]

On the other hand, the head of Event must be *existentially closed* and this closure is accomplished by a spatial rather than a temporal *operator*. Referential DPs (strong DPs) contain spatial illocutionary force and are thus capable of licensing EP, alternatively EP can be licensed by locative expressions.

Having demonstrated the functional structure of verbal projection as in Borer (2005b), we can now proceed to Alexiadou's framework in the following section 5.2, to be able then to compare and apply the corresponding parts of the two frameworks on Czech data in section 5.3.

5.2 Alexiadou- Verbal Functional Projection

The article *D vs. n nominalizations within and across languages* by Artemis Alexiadou (2020) proposes the following structure of a Root and five functional heads to represent the verbal domain:

(223)	**[CP [TP [AspectP [VoiceP *external argument* [*v*P *internal argument* [Root]]]]]**

In (223) the Root is dominated by the layer *vP* which functions as the categorizing head, i.e. the verbalizer. This head induces event implications. The layer of *Voice* is responsible for introducing the external argument. *AspectP* serves as the layer of outer Aspect while TP handles *Tense*. The top, CPs projection, plays a role in discourse linking functions and resemble the DPs in some languages, in others they are like TPs. In the following part, these projections will be investigated more in detail.

5.2.1 Verbalizer = Level of Inner Aspect

Both Borer (2005b) and Alexiadou et al. (2010) as well as Alexiadou (2020) cite Verkuyl (1993) to advocate the existence of the inner and outer Aspects. However, the two authors structure the layers differently. The composition of the inner aspectual level, which encodes telicity, is described in the following paragraphs.

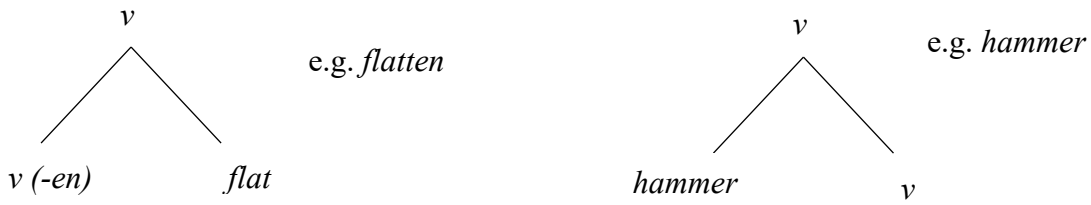
Both Alexiadou et al. (2010) and Borer (2005b) see telicity as a property associated with lexical Aspect/Aktionsart, that is an aspectual value composed within the *v*P domain. While Borer employs a separate functional projection for inner Aspect (Asp_Q), for Alexiadou it is the result of the *combination* of the *v* head and the root. The *v* head is a pure verbalizer and does not by itself correlate with any Aktionsart or transitivity properties. Nevertheless, the inner

[40] This idea is similar to the one proposed by Kratzer (1996) where external arguments are also separated from VP and introduced by a separate functional projection called Voice. In turn, external arguments are mapped onto a separate predicate of the event argument.

Aspect can be calculated within this projection on the basis of subclassification of roots and their point of merge.

Alexiadou et al. (2015) assume that roots fall into two main classes depending on their encyclopedic semantics: *manner* vs. *result*. These two types are integrated differently into syntactic structure which has semantic consequences. Atelic activities involve a manner root being merged as a modifier of *v*, as *flatten* in (224) on the left, while telic predicates involve a stative root/preposition or adjective being merged as the complement of *v*, as *hammer* in (224) on the right. In the former case we have mono-eventive structure, in the latter case bi-eventive, telic, structure as can be seen in (224).[41]

(224) Telic structure (bi-eventive) Atelic structure (mono eventive)



Whereas, in lexical resultatives such as *flatten*, the verb *flat* incorporates into *v* which is realized by affix *-en*, in case of compositional resultatives build on APs or PPs no incorporation is needed. I will return to this issue in section 5.4.2.1 when discussing the telicity of Czech verbs which is achieved by prefixes.

Alexiadou's research is influenced by Borik (2002)'s study of Aspect as in *Theory of Aspect in Russian.* To identify telicity, she follows Borik's three tests that can assist in determining it. These tests serve as valuable tools for analysis and I demonstrate them below:

1. Adverbial modification: In contrast to atelic predicates, telic predicates can be modified by adverbials known as "frame" adverbials, such as *in an hour*.

(225) a. *Mary drove the car (for an hour/*in an hour).*
b. *Mary ran a mile (*for an hour/ in an hour).*

2. Conjunction: When dealing with two telic predicates, such as in example (226b), the interpretation suggests the occurrence of two separate eventualities that happen independently within two temporal intervals indicated by Prepositional phrases (PPs). While this interpretation is possible, it is not the only one for sentence (226a), which contains an atelic predicate.

(226) a. *Mary drove her car on Monday and on Tuesday.* ambiguous
b. *Mary ran a mile on Monday and on Tuesday.* non-ambiguous

[41] Embick (2004) claims that adjectival roots in verbs like *flatt-en* and resultative secondary predicates such as in *John hammered the metal flat* have different structures. While in the former *hammer* is the modifier of v, in the latter, *flat* is the complement of *v*. This combination of *v* with roots can specify the means through which the state is achieved. This distinction is similar to manner vs. result roots in Alexiadou (2010b).

3. Progressive entailment: When an atelic predicate is used in the progressive form, it implies the truth of a sentence with a verb in the simple past form, as shown in (227a). However, a sentence with a telic predicate does not exhibit the same entailment (227b).

(227) a. *Mary was driving the car.* → *Mary drove the car.*
b. *Mary was running a mile.* --/→ *Mary ran a mile.*

5.2.2 Voice P

Since Kratzer (1996), the Voice layer has been recognized as responsible for introducing external arguments. When we compare Alexiadou's verbal projection in (223) with Borer (2005)'s framework, we can observe that no Voice layer is utilized in Borer. The reason for this divergence lies in their respective assumptions about the nature of Voice. Specifically, Kratzer (1996) assumes that Voice is a functional head that denotes the relationship that holds between the external argument and the event described by the Verb. Consequently, for Borer (2005b) the event is realized by two functional nodes, EP and Asp_QP. The external arguments arise as entailments derived from the event structure. In other words, it is not the structure itself but rather the fact that it is an event structure.

As for the concept of Voice in Alexiadou, she presents her hypotheses in several studies: Alexiadou et al. (2006) and (2015), Alexiadou (2012), (2014b). In those works, Alexiadou claims that there are two types of Voice heads in English: Active and Passive heads, and those two projections are designed to account for the following range of verbal forms in English:

(228)			
a.	Transitive/ Causative	Active Voice	*He murdered a woman*
b.	Unergative	Active Voice	*He runs.*
c.	Unaccusative/Anti-causative[42]	No Voice	*The tree fell.*
d.	Passive	Passive Voice	*The window was opened.*
e.	Reflexives, Dispositional Middles = Unergative	Active Voice[43]	*He washed himself/ This book sells well.*

As for thematic role, Alexiadou assumes two thematic roles introduced in Voice - *Causer* and *Agent* illustrated below[44].

[42] Anti-causatives refer to any intransitive use of a verb that also has a lexical causative use. The object of the causative variant is the grammatical subject of the anticausative variant, thus anticausative verbs are prototypical instances of unaccusative verbs.

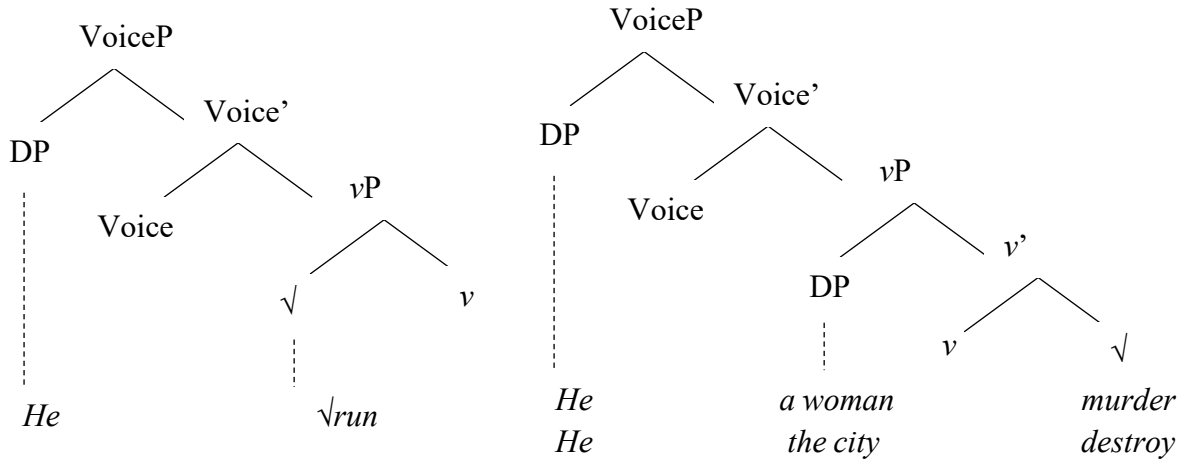
[43] In her earlier writings Alexiadou (2012) speculates that reflexives, unaccusatives as well as dispositional middles could contain Middle Voice but this is refuted in Alexiadou (2014b) where reflexives and dispositional middles behave like unergative predicates in English. In Greek they are like unaccusative.

[44] PP causers and DP causers do not have an identical distribution. PP causers as in the sentence *The window broke from the storm* are introduced in *v*P.

(229)	a.	*He murdered a woman.*	Agent
	b.	*The storm broke the window.*	Causer

Causer DPs are predominantly found in causative constructions that convey a change of state. These Verbs are typically bi-eventive or resultative, as discussed in the previous section. They exhibit greater constraints compared to Agents, which can appear in both mono-eventive (e.g., unergative) and bi-eventive structures, as shown in the structures (230) below taken from Alexiadou (2014b p. 23).

(230) a. Unergative structure b. Transitive/ Causative structure



According to Alexiadou's more recent view reflexives are categorized as unergatives and thus have the structure in (230a).[45] Nevertheless, among reflexives cross-linguistically Alexiadou et al. (2015) distinguish between semantically reflexive verbs (231) and reflexively marked anticausatives (232). One such language where these two types occur is German, see the examples below:

(231)	a.	*weil eine Frau sich anmeldete* as a_{NOM} woman SELF registered 'because a woman registered'	**Semantically reflexive verb**
	b.	**[$_{TP}$ T [$_{Voice\ P}$ DP Voice [$_{vP}$ *v* REFL]]]**	

[45] See some tests in Alexiadou (2014b, p. 32). To name just one, resultative secondary predicates can only be predicated of internal arguments; in the absence of such an internal argument a (fake) reflexive has to be inserted. It is then possible to have resultative phrase over co-referentiality with subject Phrase. In this way, they pattern with unergative and not unaccusatives:

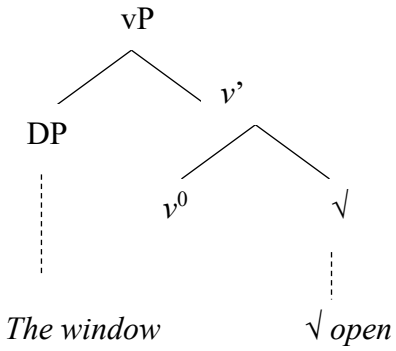
iv. a. *The ice froze (*itself) solid.*
b. *John laughed *(himself) sick.*

(232)	a.	*weil*	*sich*	*eine*	*Tür*	*öffnete*	**Reflexively marked anticausative**
		because	SELF	a_{NOM}	door	opened	
		'because a door opened'					
	b.	**[$_{TP}$ T [$_{Voice\ P}$ REFL Voice [$_{vP}$ *v* DP]]]**					

Alexiadou et al. (2015) assume that marked anticausatives involve non-thematic Voice projection, expletive Voice, where the reflexive element is merged but remain without any thematic interpretation. The other argument *eine Tür*/ 'a woman' is merged in *v*P. On the other hand, semantically reflexive verbs have two thematic roles, a nominative Agent *eine Frau*/ 'a woman' in Spec Voice and the reflexive marker in object position.

By contrast, unaccusatives as in (233) lack the Voice layer. Their decomposition is only into *v* with a change of state semantics:

(233) The unaccusative / anti-causative structure, see Alexiadou et al. (2006, p. 196)



Finally, for languages such as English, the passive construction is anticipated to merge at a higher level, positioned above the projection that introduces the external argument. This means that passive is an operation on an active transitive verb phrase. [46]

Unlike Borer (2005b), Alexiadou et al. (2015) propose certain constraints that are to rule out ungrammatical structures, as illustrated by the following examples:

(234) a. **The gardener wilted the flowers.*
b. **All the chickens killed.*

Alexiadou et al. (2015), divide verbs into following types which determine whether they can occur with the Voice P projection. This information is resolved at the level of the Encyclopedia.

(235) a. √Agentive (*murder*, *assassinate*)
b. √Internally caused (*blossom*, *wilt*)
c. √Externally caused (*destroy*, *kill*)
d. √Cause unspecified (*break*, *open*)

[46] Passives in English cannot be equated with anti-causatives because they do not reduce morphology. Anti-causatives have active morphology which is not always the case cross-linguistically.

For instance, internally caused Verbs do not permit the Voice head and can only assign the Causer PP thematic role. Consequently, sentences like (234a) are considered ungrammatical. On the other hand, agentive predicates such as *murder* require Voice which is Agentive. It can only be formed on manner roots that do not express results. Hence, these structures do not exhibit alternation with intransitive structures, commonly known as anti-causatives, see the ungrammatical example in (234b).

This section has demonstrated a range of constructions that can be derived with the Voice projections, e.g. unergative, unaccusatives and transitive predicates as well as reflexives. Reflexives will be of particular interest for us as the reflexive morphology is inherited in Czech nominalizations. Also, it has been shown that constraints can be imposed that serve the purpose of preventing the extensive overgeneration that can occur within Borer's framework which is not able to effectively eliminate the ungrammatical examples in (234).

5.2.3 Outer Aspect

The grammatical, outer Aspect, is located in AspectP projected above the VP level. Following the work by Verkuyl (1993) and Borik (2002), Alexiadou assumes that it hosts features that encode [+/-Perfective], [+/-Generic], [+/-Progressive].

For instance, in English, perfective Aspect[47] (as in (236a)) can indicate completed events in the past, while imperfective Aspect (as in (236b)) can express ongoing progressive actions.

(236)	a.	*John broke the glass.*	[+Perfective], [-Progressive].
	b.	*John was painting the wall.*	[-Perfective], [+Progressive].

The domain of outer Aspect is also sometimes called *viewpoint Aspect,* a term used by Borik (2002) and (Smith, 1977)[48]. In their theory, viewpoint Aspect provides a temporal perspective on events. It locates events relative to a specific point of view known as the *Reference time*. A well-known metaphorical description of viewpoint Aspect effectively captures the distinctions between perfective and imperfective Aspects. It is given in terms of different points of view from which an eventuality or a situation is described:[49]

- Perfective (looking at the event from the outside)
- Progressive (looking at the event from inside)

Moreover, AspectP can be detected by adverbial time modifiers in *X-time/ for X-time* as in (237). Another typical diagnostic for an Outer Aspect is the Aspect shift, originally introduced

[47] It should be noted that traditional English grammar does not call any synthetic verb forms in English 'perfective' rather than 'perfect'.

[48] Borik (2006)'s notion of (im)perfectivity is not related to eventualities but it is defined in temporal terms. She claims that if the viewpoint is defined for the same entities as situation types, then it is hard to separate the two layers.

[49] More detailed explanations and discussions on these concepts will be provided in section 5.4.1.

by De Swart (1988). [50] Alexiadou et al. (2010) demonstrate this phenomenon using verbal gerund that can impose their own aspectual value irrespective of the inner Aspect of the main verb:

(237) a. *John wrote the letter in three days/* for three days.*
b. *John's writing the letter for three days annoyed everybody.*

In the above example, the verbal construction *wrote the letter* in (237a) is telic which is signaled by the aspectual modifier *in three days*. Nevertheless, the verbal gerund imposes its own value and changes the interpretation to an unbounded one. Therefore, the modifier *for three days* is compatible with the construction in (237b).

Another related feature of the outer Aspect is its insensitivity to the inner aspect of the verb, allowing it to appear with both telic and atelic bases. This can be seen in (238) and (239) where the verbal gerund as well as progressive *-ing* co-exist with telic and atelic bases:

(238)	a.	*Mary drew **circles** (for several hours).*	**ATELIC**
	b.	*Mary is drawing circles.*	
	c.	*Mary's drawing circles annoyed me*	
(239)	a.	*Mary drew **a circle** (in five minutes).*	**TELIC**
	b.	*Mary is drawing a circle.*	
	c.	*Mary's drawing a circle annoyed me.*	

As can be observed above, the *-ing* morpheme in English has a single form that can appear in several constructions with different syntactic and semantic environments. Besides its role in progressive constructions and the *-ing* form in *verbal* gerunds, Alexiadou (2005) identifies a third type of *-ing* construction, located in *nominal* gerunds illustrated in (240). The ungrammaticality of nominal gerund in (241b) and (242b) contrasts with the two other *-ing* forms and can be attributed to the fact that it is *sensitive* to inner Aspect and cannot occur with telic forms:

(240) *John's speaking of his father*

(241) a. *the train arrived in five minutes*
b. **the arriving of the train*

(242) a. *the balloon exploded in five minutes*
b. **the exploding of the balloon*

The insensitivity to inner bases of verbs and the Aspect shift as features typical for outer Aspect are shared by both authors: A. Alexiadou and H. Borer. More details about the Aspect

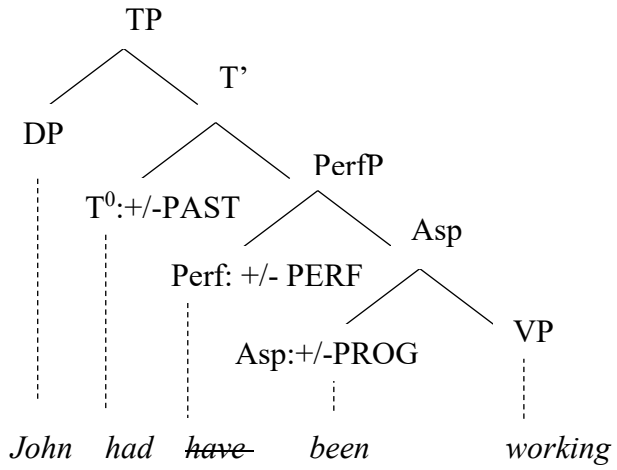
[50] In De Swart (1988) progressive, perfect and duration adverbial *in* or *for X-time* are interpreted as operators which can modify eventuality. To illustrate this, *She climbed the mountain in three days* is grammatical but **She was climbing the mountains in three days* is not.

phenomenon will be provided in Chapter 7 where I will analyze various nominalizations and their ability to pluralize.

5.2.3.1 Perfectivity

The present perfect Tense in English should not be equated with the notion of perfectivity. In the studies comprised in Alexiadou et al. (2003), discussing the perfect constructions, the authors pose the question of whether the perfect is a viewpoint Aspect, as a kind of proposed in the preceding discussion. The authors argue that the perfective Aspect is, in fact, a relative Tense: " It relates the reference time to some other time in the past, say a second reference time (Alexiadou et al., 2003, p.14)" This would mean that structurally Perfect phrase is located above Perfective phrase, akin to the configuration in our syntactic tree (243):

(243) Aspectual architecture



I will come back to the feature content of the perfect Aspect layer later on in section 5.4.1.4 where I will compare it with perfectivity.

5.2.3.2 Boundedness

In their article *Number/Aspect interaction in the syntax of nominalizations,* Alexiadou et al. (2010) –exploit the feature [+/-BOUND] (*Boundedness*) originally introduced by Jackendoff (1991) to unify perfect, perfective and telic notions. This feature [+/-BOUND], however, does not characterize only verbal domains but it cuts across major categories and can be extended to nominal and adjectival domains as well. This discussion will be limited to nominal and verbal domains in order to draw the parallel between those domains with respect to Number and Aspect which will be elaborated in detail in Chapter 7. I refer the reader for the applications of this feature to other domains to Alexiadou (2010a).

What is intended by boundedness is that unbounded entities are not located in space and time, as proposed by Jackendoff (1991, p.19). This does not entail that these entities are absolutely without boundaries in space and time, it just simply suggests that such boundaries are not of concern. Take for example the countable Noun *apple* and uncountable Noun *water*. While the former has clear perceptible boundaries, the same cannot be said about the latter.

Despite that, boundaries might be somehow present. When we utter the sentence: *There is a lot of water in this lake* we do not imply that the *water* in this case is absolutely without boundaries, its boundaries are limited by the size of the lake. However, in this context, the precise boundaries of the water are not of primary interest or consideration.

In the semantic literature, the mass/count distinction is frequently compared to aspectual specification in the verbal domain, as highlighted by works such as Bach (1986); Krifka (1989) and Jackendoff (1991). In the study by Alexiadou et al. (2010), they propose that count Nouns are similar to telic and perfective events in being BOUNDED while mass Nouns to atelic and imperfective in being UNBOUNDED. To identify boundedness in the nominal domain, Alexiadou (2007) proposes the following criteria:

- Homogeneity (=Borer's divisibility)
- Cumulativity

In the verbal domain, the relevant property related to boundedness is the concept of coming to an end-point. This can be tested by the progressive test which shows whether the predicate contains any minimal parts. The activity running in (244a) does not impose any minimal parts. We can say as soon as Sue is running that she has run and refer to the running she has done. In contrast, the sentence in (244b) does not entail such inferences.

(244) a. *Sue is running.* → *Sue has run.*
b. *Sue is running a mile.* -/→ *Sue has run a mile.*

Indeed, Borik (2006) employs this kind of test to identify the *telos* or *goal* of a predicate which can render it non-homogeneous and establish its telic characteristics. However, Borik refrains from using the notion of an end-point, as it may not always be appropriate for all cases. For instance, even past activities can introduce an end-point in atelic predicates, as exemplified by the sentence *Franz Kafka lived in Prague.* To address this limitation, Borik proposes the concept of homogeneity as a more comprehensive alternative. Homogeneity can be assessed through various tests, such as divisibility and other telic examinations introduced in section 5.2.1.

5.3 Comparison of Borer and Alexiadou and Applicability for Czech data

I have already mentioned some distinctions in the theoretical claims by Borer and Alexiadou in the preceding sections. In this section I will only summarize the main points and say which theoretical assumptions appear to be more suitable for Czech data.

First, the table in (245) provides a comprehensive comparison of the labels used in each model, highlighting the contrasts between their respective approaches:

(245)		**Alexiadou (2020)**	**Borer (2005a)**
	v	CP	EP
	iv	TP	TP
	iii	AspectP	
	ii	VoiceP	-
	i	vP	Asp_Q
		root	root

At the lowest level in both models, we find the root. The head related to Aspect immediately follows in Borer, in Alexiadou there are two additional projections of the categorizing *v* and *Voice.*

The head of *Aspect* is for both authors related to telicity/atelicity, which can be compositionally derived from its lexical specification and its (non)quantized arguments. Alexiadou (2020) does not introduce any specific projection for this decomposition and telicity arises as a consequence of the way the root merges with *v*. I concur with Alexiadou's viewpoint on this matter as this mechanism can reduce the necessity for introducing a cumbersome semantically vacuous Shell F^SP projection in atelic contexts, which are needed in Borer's model.

The next level in Alexiadou (2020) is *Voice* the main function of which is to introduce external arguments. On the other hand, in Borer (2005)'s framework, all arguments emerge from the structure itself, making the inclusion of a projection specifically designed to introduce arguments unnecessary. However, it is worth noting that in Borer's model, Agent roles or Originators, if not introduced elsewhere, originate in EP (Event Phrase). This resemblance can be seen as analogous to a Voice projection.

In my dissertation I will adopt Alexiadou's perspective of considering the inclusion of the Voice projection, which may or may not be present in the derivation. It assumes that in the case of unaccusative Verbs, the Voice projection is not projected, and this is determined by constraints dividing verbs into internally and externally caused etc. that are resolved at the level of the Encyclopedia. In contrast, in Borer's framework, the EP which is analogous to Voice Projection is required in all structures. I believe that the more selective inclusion of Voice projection helps prevent the excessive overgeneration of structures, which results from Borer's framework, where any root can be embedded under any structure with no explicit constraint.

While both authors agree that certain phenomena can be subsumed under the category of outer Aspect, Borer (2005b) does not deal with this issue in detail and situates it in her discussion of the G-Aspect. The primary discrepancy lies in their treatment of perfectivity. While Alexiadou et al. (2010) consider it as the level of outer Aspect that is universal across languages, Borer (2005b) views perfectivity as a morphological marker specific to Slavic languages. In her framework, as will be demonstrated in section 5.4.1.2 discussing Slavic data, perfectivity can be equated with telicity. After introducing the arguments concerning Slavic languages in section 5.4.1, the applicability of Borer and Alexiadou's proposals related to aspectual issues will be discussed. Finally, both authors recognize the role of the TP functional head in relation to Tense-related matters.

5.4 Verbal Functional Projection in Czech

Before introducing and discussing the verbal functional projection in Czech, it is essential to look more closely at the existing perfective/imperfective opposition in Slavic languages and therefore in the following section I will present a comprehensive description of aspectual phenomena in Czech. Additionally, I will dedicate a separate section to exploring Alexiadou and Borer's approaches to perfectivity and imperfectivity, considering their treatment of Slavic languages.

Finally, I will evaluate their theoretical assumptions w.r.t. aspectual issues and examine how they apply to Czech data. Based on the findings from the analysis of Czech, I will propose potential modifications to their frameworks, taking into account the specific aspects observed in the language.

5.4.1 (Im)Perfectivity in Slavic Languages

Most traditional Slavic grammarians have traditionally employed the term Aspect precisely for the (im)perfective aspectual contrast, see e.g. Kopečný (1962b). In the sections above, however, we have seen classification of perfect in English as an instance of the outer Aspect, while telicity was related to inner Aspect.

Perfectivity/Imperfectivity is sometimes envisaged on a par with telicity (Verkuyl, 1998) and sometimes with outer Aspect (Smith 1997) in English. These concepts need to be scrutinized in order to find out what the confusion about the different types of Aspects and their equivalence stems from. Specifically, it is crucial to investigate whether the discrepancies in the treatment of perfective/imperfective Aspects are merely based on different terminologies or if there are indeed structural differences between these types of Aspects. This exploration will shed light on whether languages can be underspecified concerning certain aspectual notions. As we analyze these concepts, we must be mindful of the distinction between language universals and language-specific characteristics, as outlined in section 4.3.

5.4.1.1 Czech (im)perfective morphology

Let us define first the notion of (im)perfectivity. Perfective Verbs in Czech are often derived from imperfective Verbs by adding a perfective prefix. Example is below in (246b) with the bold prefix *na-*. (I mark the resulting perfectivity in the glosses[51].)

(246)	a.	*Honza*	*psal*	*knihu.*	b.	*Honza*	***na**-psal*	*knihu.*
		John	write$_{PAST.(IMPF)}$	book		John	on$_{PF}$.write$_{PAST}$	book
		'John wrote a book.'				'John has written a book.'		

An important characteristic of Czech perfective Verbs is their incompatibility with the analytic future auxiliary *bude*, as illustrated in the contrast between (247a) and (247b).

[51] Recall that only features relevant for the discussion are marked in the glosses.

(247) a. *Honza* ***bude*** *psát* *knihu.*
John AUX.$_{FUT}$ book
write$_{INF}$
'John will write a book.'

b. **Honza* ***bude na-****psat* *knihu.*
John AUX.$_{FUT}$ book
on$_{PF}$.write$_{INF}$
'John will write a book.'

To get the future interpretation with a perfective Verb, Czech uses the form of the Verb which is identical with the present Tense of imperfectives. Compare the morphology of the Verbs in (248), where the unmarked agreement morpheme ***-e*** triggers a present interpretation, with an identical suffix in (b) where the presence of the perfective prefix *na-* results in the future interpretation. Notice that the imperfective prefix can have its own interpretation.[52]

(248) a. *Honza* *píš-**e*** *knihu.*
John write$_{3.SG(IMPF)}$ book
'John writes/is writing a book.'

b. *Honza* ***na****-píš-**e*** / ***pře****-píš-**e*** / ***do*** *-píš-**e*** *knihu.*
John on$_{PF}$.write$_{3.SG}$ / re$_{PF}$.write$_{3.SG}$ / in$_{PF}$.write$_{3.SG}$ book
'John will write / will re-write/ will finish writing a book.'

As the result of the above paradigm, the Verbs in perfective aspectual forms are never able to receive an actual present interpretation.[53]

The incompatibility of the future AUX and perfective infinitives is similar to the incompatibility of perfective infinitives following temporal aspectual Verbs, e.g. *začít* 'start', *přestat* 'finish'. The paradigm is illustrated below:

(249) a. *Honza* ***začal / přestal*** *psát* *knihu.*
John start$_{PRES}$ stop$_{PRES}$ write$_{INF}$ book
'John started / stopped writing a book.'

b. **Honza* ***začal / přestal*** ***na****-psat* *knihu*
John start$_{PRES}$ stop$_{PRES}$ on$_{PF}$.write$_{INF}$ book
'John started / stopped writing a book.'

No such restriction holds for the other Czech auxiliaries which combine with participles rather than infinitives. Here are examples illustrating their usage in past and conditional:

(250) a. *Já* ***jsem*** ***/ bych*** *psal* *tu knihu.*
I AUX$_{PAST}$/ AUX$_{COND}$ write$_{PRT.\ (IMPF)}$ the book
'I was writing a book/I would write the book.'

[52] The interpretation of the perfective prefix is sometimes related to similar Preposition but often unpredictable and sometimes very minimal. The prefixes are idiosyncratically selected by the stem and none is fully productive.

[53] I will come back to the topic in the following section 5.4.2.5.

b. *Já* ***jsem*** **/ *bych*** ***pře-psal*** *tu knihu.*
John AUX_{PAST}/ AUX_{COND} $re_{PF.}write_{PRT}$ the book
'I wrote a book /I would rewrite the book. '

Besides unmarked imperfective forms, there are in Czech also marked forms of Verbs with the suffixes ***-ova, -va, -a, -ě/e,*** see for example Čechová (2000, p. 137-138). These are following the stem and preceding the Tense marker and agreement as illustrated in (251). These suffixes often combine with the perfective prefix and it creates the 'secondary/derived' imperfective. In (251) I show that the prefix ***pře-*** (in bold) and the presence of the imperfective suffix ***-ova*** (in bold underlined) voids its perfective interpretation. The inflected form in (251) with the combination [PF]… [IMPF] is imperfective and therefore compatible with the future AUX.

(251) *Marie* ***pře-pis-ova-l-a*** *knihu.* --- *budu* ***pře-pis-ova-t***
Mary $re_{PF.}write_{\mathbf{IMPF}.PAST.AGR}$ book --- I AUX_{FUT} $re_{PF.}write_{\mathbf{IMPF}.INF}$
'Mary was rewriting a book.' --- 'I will rewrite.'

The Czech (im)perfective morphemes allow multiplication. Adding another perfective morpheme (the so called *superlexical* prefix) voids the imperfective suffix *-ova-* as we can see below. The combination [+PF][PF]… [IMPF] in (252) gets perfective reading and therefore cannot combine with the future AUX.

(252) *Marie* ***do - pře*** *-pis –* ***ova*** *-l-a* *knihu.* --- ** budu* ***do-pře-pis-ova-t***
Mary $finish_{PF.}$ book --- $finish_{PF.}$
$re_{PF.}write_{IMPF.PAST.AGR}$ AUX_{FUT} $re_{PF.}write_{\mathbf{IMPF}.INF}$
'Mary finished rewriting a book.' --- 'I will be finishing rewrite'

As illustrated above, the Czech perfectivity seems to be pretty systematic combinatorial phenomena, perhaps comparable with English perfect and progressive Aspects. However, as many traditional linguists notice, the combinations of possible prefixes and stems are restricted and unpredictable. No prefix is fully productive. The choice and interpretation of a prefix, as well as the resulting phonetic adaptations of the prefix + stem complexes, are rather idiosyncratic. I will get back to the more thorough structural analysis of the Czech aspectual morphology and its classification in section 5.4.2.3.

Prior to that, in the next section, I will outline how (Im)perfectivity is captured in the theory of Borer and Alexiadou. My main aim will be to find an answer for the following two questions:

i) can perfectivity in Czech be equated with perfect in English (a case of outer Aspect),
ii) can (im)perfectivity be equated with (a)telicity.

5.4.1.2 Borer's view of (im)Perfectivity and (a)telicity

Borer (2005b) devotes a large part of her second book *The Normal course of events* to aspectual issues in Slavic languages and she specifically uses Czech data to demonstrate these phenomena. She claims that the term Perfect is a morphosyntactic-semantic classification referring to the morphological realization of grammatical/outer Aspect.

As for the perfectives and primary imperfective – that is a bare unmarked stem in Slavic (as in (246a) above – those are morphological terms equated with telicity and atelicity, thus subsumed under inner Aspect.

On the other hand, the category of outer Aspect is attributed only to secondary imperfectives in Slavic as in (251) above characterized by the imperfectively-marked stem. Besides stating that secondary imperfective in Czech and perfect as well as progressive in English are cases of outer Aspect, further proposals or explanations for outer Aspect are not extensively provided. Neither is the explanation for incompatibility of perfective forms with FUT AUX and temporal aspect Verbs offered. Her book is mainly devoted to the inner Aspect projection.

As we have already described, telicity in English was understood as a quantity instantiated by the presence or absence of inner Aspect Asp_Q. Most importantly, for Czech, a quantity telic structure is achieved by the use of perfective prefixes such as *<na>* in (253) as described in Borer (2005b):

(253) *Petr* [$_{TP}$ *napekl* [$_{AspQ}$ [$_{DP}$ <e>$_d$ [$_{\#P}$ <e^{na}>$_\#$ [*housky*]]] <na> *pekl* <e>$_\#$ [$_{VP}$ *pekl*]]]
Peter [$_{TP}$ *pref.bake* [$_{AspQ}$ [$_{DP}$ <e>$_d$ [$_{\#P}$ <e^{pref}>$_\#$ [buns]]] <pref> *bake* <e>$_\#$ [$_{VP}$ *bake*]]]

The perfective prefix is a head feature which assigns a range to Asp_Q <e>$_\#$, resulting in the interpretation of a telic event. But it has an additional role, it triggers the projection of [DP <e>$_\#$] where the prefix assigns a range, leading to a quantity interpretation of the DP. Compare the quantificational nature of the DP in perfective and imperfective contexts:

(254) a. *Petr* *snědl* *housku.*
Peter $_{PF}$.ate roll
'Peter ate a roll.'

b. *Petr* *jedl* *housku*
Peter ate$_{PAST.(IMPF)}$ roll
'Peter ate a roll.'

While the perfective context in (254a) forces a specific interpretation where the whole roll was eaten, in imperfective (254b) such strong implication is not necessary and the example does not necessarily imply that the whole roll was eaten.

Regarding the nature of perfective prefixes, being a head feature, prefix merges directly with Asp_Q and triggers the incorporation of the verb. Alternatively, Borer proposes that it might be perceived as a Preposition-like element incorporating into verb in the L-domain before the verb moves to Asp_Q.

Traditionally, the problematic cases for equating telicity and perfectivity are the following ones.

(255) *Petr* ***(pro)**-spal* *pět hodin /*za pět hodin.*
Peter through$_{PF}$.spleep five hours /in five hours
'Peter slept five hours.'

The prefix *pro* 'through' is perfective but it describes an atelic event as indicated by *for X-time phrase*. Thus, unlike other Verbs such as (246b), this time a prefix does not seem to play a role in marking telicity. If we adopt Borer's proposal and equate telicity with perfective Aspect, we need to explain how this equivalence is achieved.

To begin, let us elaborate on the *in-X-time* phrase which equates the time of culmination with the actual end of the event. In our example (255) the end culmination seems to be excluded because the *in-X time* phrase is not grammatical. Recall, however, that for Borer (2005b) eventualities that are qualified as quantity need not have an end point culmination, instead might have an intermediate culmination and then continue. This fact was already explained with the example *fill the room with smoke*. Thus, Borer claims that the *in-X-time* phrase as a test of telicity obscures the possibility of intermediate culmination of events.

Subsequently, Borer sees the *for X-time* phrase as an instance of outer Aspect that can operate on the values assigned at lower levels. The predicate *pro-spat* 'through$_{PF}$.spleep' is inherently atelic and when the phrase *for-X-time* is attached to it, it changes the value to being telic. Moreover, the telicity of the predicate can be confirmed by its non-cumulativity. The sum of *sleep five hours* and *sleep five hours* does not equal *sleep five hours*. According to Borer, if the predicate fails one of the two tests, either divisibility or cumulativity, it will be interpreted as telic.

Atelicity, on the other hand, is the absence of any relationship between the imperfective marking and the direct object. This gives rise to structures such as (256a) where cumulative interpretation is clearly unavailable:

(256)

a.	*Pil*	*tři*	*kávy.*	b.	***Vy**-pil*	*tři*	*kávy.*
	drink$_{3.SG.PAST(IMPF)}$	three	coffee$_{PL.GEN}$		out$_{PF}$.drink$_{3SG.PAST}$	three	coffee
	'He drank three portions of coffee.' (**Weak**) 'He drank those three portions of coffee.'(**Strong**)				'He drank up three portions of coffee.' (**Weak**) *'He drank up those three portions of coffee.' (**Strong**)		
c.	*Pil*	*kávu.*		d.	***Vy**-pil*	*kávu.*	
	drink$_{3.SG.PAST.(IMPF)}$	coffee $_{SG.GEN}$			out$_{PF}$.drink$_{3.SG.PAST}$	coffee $_{SG.GEN}$	
	'He drank coffee.' (**Generic**) 'He drank the coffee.' (**Strong**)				*'He drank coffee.' (**Generic**) 'He drank the coffee.' (**Strong**)		

Unlike the direct range assignment in English by adjuncts as discussed in section 5.1.1.1, the direct range assignment in Czech manifests itself in the interpretation of DPs. This has already been explained in section 4.5.4 where it was shown that strong Quantifiers are impossible in perfective contexts. Similarly, cardinality expressions may not receive a strong interpretation (256b). Bare NPs, on the other, hand must be strong (256d) and cannot get generic interpretation.

5.4.1.3 Alexiadou's view of (Im)perfectivity and (A)telicity

As previously mentioned, Alexiadou's approach is influenced by Borik (2006)'s distinction between two aspectual levels. While Borik's *Theory of Aspect in Russian* primarily focuses on the Russian language. In the following paragraphs I will consider the arguments presented by Borik (2006) and supply them with examples from Czech to illustrate the concepts discussed.

For Borik (2006) the two aspectual levels are: *telicity* and *Perspective Aspect/outer Aspect*. While the former represents the property of a predicate, the latter is an outer Aspect captured in two temporal notions: *Speech time* and *Reference time.* The opposition between perfective and imperfective in Russian is thus analyzed in terms of Perspective Aspect/outer Aspect. This concept of perfectivity is distinct from Borer (2005b) for whom perfectivity in Slavic is the same as telicity.

According to Borik (2006), *telicity* is neither a sufficient, nor a necessary condition for perfectivity. If this were true then two implications would have to hold: perfective-> telic and telic->perfective.

Let us start with the first implication and contrast it with our example in (255) that Borer classifies as quantity. In this example we have a perfective verb *pro-spal* 'through$_{PF}$sleep' as indicated by its incompatibility with the FUT auxiliary or a temporal phase verb:[54]

(257) *Petr* **bude/začne* *(*__pro__)-spat*
Peter AUX.$_{FUT}$/starts (*through$_{PF}$).sleep
'Peter will/ start sleeping.'

According to the telicity tests proposed by Borik (2006) and described in section 5.2.1, this predicate is not considered telic: consider the use of adverbial modification *in X-time/for X-time* in the example (258):

(258) *Petr* *(__pro__)-spal* *čtyři hodiny /*za pět hodin.*
Peter through$_{PF.}$sleep four hours /in five hours
'Peter slept four hours.'

In the case of *pro-spal* 'through$_{PF}$sleep', the test above fails to prove telicity. This contrasts with Borer's framework, where the presence of adverbial modification (e.g., *za pět hodin* 'in five hours') implying an endpoint is not a necessary condition to establish telicity, as discussed above.

Another test utilized by Borik is the divisibility test which yields the same conclusion as the previous one and does not indicate that the predicate is telic either. Should the predicate be divisive, it should actually hold for any of its subintervals. In our case if *Peter* slept four hours, he must have slept even two hours or one hour. Obviously, the predicate *prospat* 'through$_{PF}$sleep' is divisive and thus homogeneous and atelic.

Finally, consider the application of a conjunction test in (259) which predicts that if the predicate is atelic, the sentence should result in ambiguity and have two interpretations:

(259) *Petr* *(pro)-spal* *čtyři hodiny* *v pondělí a v úterý.*
Peter through$_{PF.}$sleep four hours on Monday and on Tuesday.
'Peter slept four hours on Monday and on Tuesday.'

[54] Borik actually uses the same complementation test of phase Verbs to distinguish perfectivity from imperfectivity, both of which fall under the category of outer Aspect.

Indeed, the atelic nature of the predicate in (259) can be interpreted in two ways. The first interpretation suggests that Peter slept four hours on both Monday and Tuesday. The second interpretation implies that Peter slept a total of eight hours, with four hours of sleep on Monday and an additional four hours on Tuesday.

To sum up, comparing Borik's framework to Borer's approach, I have demonstrated that the predicate *prospat* 'through$_{PF}$sleep' does not pass the cumulativity test, which would classify it as telic according to Borer. However, in Borik's approach, the cumulativity test is not utilized, and instead, she relies on a more intuitive property of divisibility, supported by other telicity tests which prove that this predicate is atelic. Consequently, the implication perfectivity > telicity does not hold.

Now, we can proceed to the other relation between telicity and perfectivity. In the above, we have seen that perfective is not always telic. According to Borik (2006), neither is valid the other implication: telic-> perfective. This is corroborated by the next example:

(260) *Nepůjdu* *do kavárny.* *Už* *jsem jedla.*
not to$_{PF}$.go to a café already AUX.$_{PAST}$ eat$_{(IMPF).PAST}$
'I will not go to a café, I have already eaten.'

The Verb *jíst* 'eat' is clearly imperfective because the combination with a phase verb *začala jíst* 'start eat' is grammatical. Despite being imperfective, this construction still conveys a sense of completion, which is evident in the translation. Borik (2006) acknowledges this and points out that this is a typical characteristic of imperfective verb forms with *už* 'already'. The divisibility test to diagnose the telicity is hard to apply because the frame adverbial is not permissible:

(261) *Nepůjdu* *do kavárny.* *Už* *jsem jedla* **od 2.00* *do 5.00*
not to$_{PF}$.go to a café already AUX.$_{PAST}$ eat$_{(IMPF.PAST)}$ from 2.00 to 5.00
'I will not go to a café, I have already eaten from 2.00 to 5.00.'

While Borik does not explicitly mention these cases, in Czech, we can easily test imperfective forms with telic interpretation with *in-x-time* adverbials:

(262) *Už* *jsem* *jednou* *běžela* *do obchodu* *za deset minut.*
already AUX.$_{PAST}$ once run$_{(IMPF.PAST)}$ to the store in ten minutes
'I have already run to the store in ten minutes.'

Again, the verb in (262) is imperfective as the grammaticality of *začala běžet* 'start run' indicates and also telic. As a result, the implication telicity > perfectivity cannot be confirmed either.

To sum up, we have shown that the (a)telicity and (im)perfectivity are not equivalent in Borik (2006) system because two implications: telicity-> perfectivity and perfectivity-> telicity do not hold.[55]

[55]Perfectivity/ Imperfective contrast in Borik (2006) is built on Reichenbach's decomposition into event time E, reference time R and speech time S, which are taken as intervals. E is included in R by default. The S-E relation

Alexiadou et al. (2010) follow Borik (2006) and consequently reach different conclusions from Borer (2005b) where telicity/atelicity is equated with perfectivity and primary imperfectivity. Obviously, perfectivity as well as primary and secondary imperfectivity in Czech have now the same status as progressive in English. All are cases of outer Aspect in Alexiadou et al. (2010).

5.4.1.4 Outer Aspect: Perfectivity in English and Czech

Having defined the concept of (im)perfectivity in both English and Czech, we will proceed comparing both systems to determine whether we can identify corresponding structures in both languages. Second, we have already shown in section 5.2.3.1 that perfect cannot be equated with perfectivity. In this section we will evaluate whether this claim is justified for Czech, too.

Whereas perfectivity/imperfectivity is fully grammaticalized in the Czech language and signaled morphologically with prefixes, English grammaticalizes only progressive Aspect but not perfectivity/telicity. It is not plausible to set up an opposition between the past progressive action in English such as *He was sleeping* and past simple verbal form *He slept* and label them imperfective and perfective respectively. English past simple verbal can be translated into Czech using the imperfective form (263a), indicating that the action is not completed and can still be continued, as shown in the sentence in (263a) where the person is still sleeping.

(263)	a.	*Spal*	*včera.*	….	*A ještě pořád spí.*
		sleep$_{PAST.(IMPF)}$	yesterday		
		'He slept yesterday.'			'And he is still sleeping.'
	b.	***Vy**-spal* *se*	*včera.*	….	*# A ještě pořád spí.*
		out$_{PF}$.sleep.$_{PAST}$ REFL	yesterday		
		'He slept yesterday.'			# 'And he is still sleeping.'

The example highlights that Verbs in English generally come from the lexicon without explicit markings for perfectivity or telicity. These Aspects can be marked by their corresponding quantity DPs, as discussed in section 5.1.1.1, and this, in turn, constrains the

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is responsible for the temporal interpretation, e.g. E >S would indicate past. The S-R determines the grammatical/ viewpoint Aspect. Consequently, Perfective and Imperfective are defined for Russian in the following way:

PF: $S \cap R = \emptyset \ \& \ E \subseteq R$
IPF: $\neg (S \cap R = \emptyset \ \& \ E \subseteq R)$, namely, $S \cap R \neq \emptyset \vee E \not\subseteq R$

As E-R relation is fixed, the perfectives are distinguished by the fact that they impose a non-overlapping relation between the spseech time and the reference time. This is able to capture the fact that perfective is incompatible with the present Tense. No such condition is required in the case of imperfectives.

Obviously, this is a rather different architecture from other authors working in the Reichenbachian system where the reference time serves as an intermediary between the event and the speech time. In Ramchand (2004) this sequence is observed and Reference time mediates between E and S, as we will see in section 5.4.2.1.

In addition, no satisfactory explanation for the incompatibility of FUT aux and perfective Verbs is offered. Borik (2006) speculates that it could be the residual perfective semantics of the verb *to be*.

translations between English and Czech. Let us demonstrate it with bare plurals which in the complement position of perfective Verbs in Czech must be strong. Thus, the English atelic predicate *He ate apples* with a weak interpretation of bare plurals cannot be translated by a perfective Verb in Czech as the example (264) illustrates.

(264) a. *Snědl* *jablka* (za hodinu)/(*hodinu).
PF.eat.PAST apples in an hour/ hour
'He ate **the** apples (in an hour).'
*'He ate apples (in an hour).'

b. *Jedl* *jablka* *(hodinu)/(# za hodinu).*
eat.PAST.(IMPF) apples hour/in an hour
'He ate apples (for one hour).'
'He ate **the** apples (for one hour).'

Neither does the English progressive perfectly align with Czech imperfective. While it is true that English progressive cannot be translated by perfective in Czech, the imperfective Aspect in Czech does have other translations besides the progressive correspondence. It can express habitual actions in the past, simple past, etc., see (265):

(265) *Já* *jsem* *chodil.*
I AUX walk(IMPF)
'I was walking./ I used to walk./ I walked. / I have walked. / I had walked.'

Thus, we can say that English can express perfective and imperfective meaning but it is not grammaticalized to the same extent in morphology as it is in the Czech language. Also, the correspondences in surface structures are not straightforward.

On the other hand, Czech does not seem to grammaticalize perfect Tense. [56] It definitely cannot be equated with perfective features. It is a well-known fact that Czech past perfective can be translated into English with various forms. The translation with a simple past is a default one but given the right context, present perfect and past perfect are also suitable. The U Perfect and E Perfect are described in the footnote.

[56] This does not explain how perfective contributes to boundedness, especially when in the literature Perfective has been associated not only with boundedness but also unboundedness. For example, in Panchewa (2003) the following types of Perfect are identified. Although the prototypical Perfect is E-Perfect, thus we could treat the U-Perfect as a result of pragmatic coercion, some explanation would be desirable.

v.			
a.	*I have been sick since 1990*	Unbounded	U-Perfect
b.	*I have been cooking at home lately*	Neutral to boundedness	E-Perfect
c.	*I have built a house before.*	Bounded	E-Perfect

(266) ***Do**-stavěli* *dům.*
to$_{PF.}$build$_{.PAST}$ house
'They built a house.'
'They have built a house.'
'They had built a house.'

From this analysis, we can conclude that Czech Perfective is underspecified for perfect Aspect. As was suggested in section 5.2.3.1, we can envision the Perf phrase as representing a separate Reference time. In our structural terms, we can propose that the Perf Phrase is optionally projected above certain Aspect phrases, and when this projection occurs, it leads to an interpretation with perfect Aspect. For the sake of completeness, I add the featural configuration for present perfective with future interpretation:

(267) ***Pře**-čtou knihu*
re$_{PF.}$read$_{PRES}$ book
'They will read the book.' [-PAST] [-PERF] [+PERFECTIVE]

To conclude this section, while English is underspecified for perfectivity/imperfectivity, Czech is underspecified for perfect Aspect.

Comparison of both frameworks wrt. aspectual issues

After exploring the viewpoints of both theorists on aspectual phenomena in English and Czech, we can present a brief summary and a comparative table to illustrate the key differences between their approaches:

(268) Aspectual distinction in Borer (2005b) and Alexiadou et al. (2010)

	Czech		**English**	
	Inner Aspect	**Outer Aspect**	**Inner Aspect**	**Outer Aspect**
Borer (2005b)	(A)telicity= Quantity Perfectivity Primary imperfectivity	Secondary imperfectives	(A)telicity=Quantity	Perfect=Perfectivity Progressive
Alexiadou et al. (2010)	(A)telicity	Perfectivity Primary imperfectivity Secondary imperfectivity	(A)telicity	Perfect (im)perfectivity Progressive

Once again, it is evident from table (268) that both authors approach aspectual issues in both English and Czech by considering *two levels*. However, the specific arrangement of each level varies between the two authors. The key distinction lies in Borer's equating of perfectivity and telicity in Czech, whereas the concept of perfectivity does not extend to the realm of outer

aspect in English. In contrast, Alexiadou et al. (2010) incorporate the concept of perfectivity as an outer Aspect in both languages.

For the purposes of this thesis, and given the discussion in the preceding sections, I will follow Alexiadou et al. (2010). I am going to assume that in Czech, perfective Verbs that are often marked with perfective prefixes should not be equated with telicity. I conclude that telicity and perfectivity represent two different concepts in Czech. I will further show that Czech utilizes two types of perfective prefixes, the prefixes that mark the verb as telic or bounded and prefixes that do not necessarily influence the verb's interpretation. I will present some arguments developed by Caha and Ziková (2022) in the domain of Czech prefixes that confirm these claims. Furthermore, I will agree with Borer (2005b) and diverge from Alexiadou et al. (2010) that primary and secondary imperfectives are different notions, with the latter generated higher in the syntactic structure. This last argument will be motivated by the behavior of Czech *-ní*/*tí* nominals and will be the subject of chapter 6.

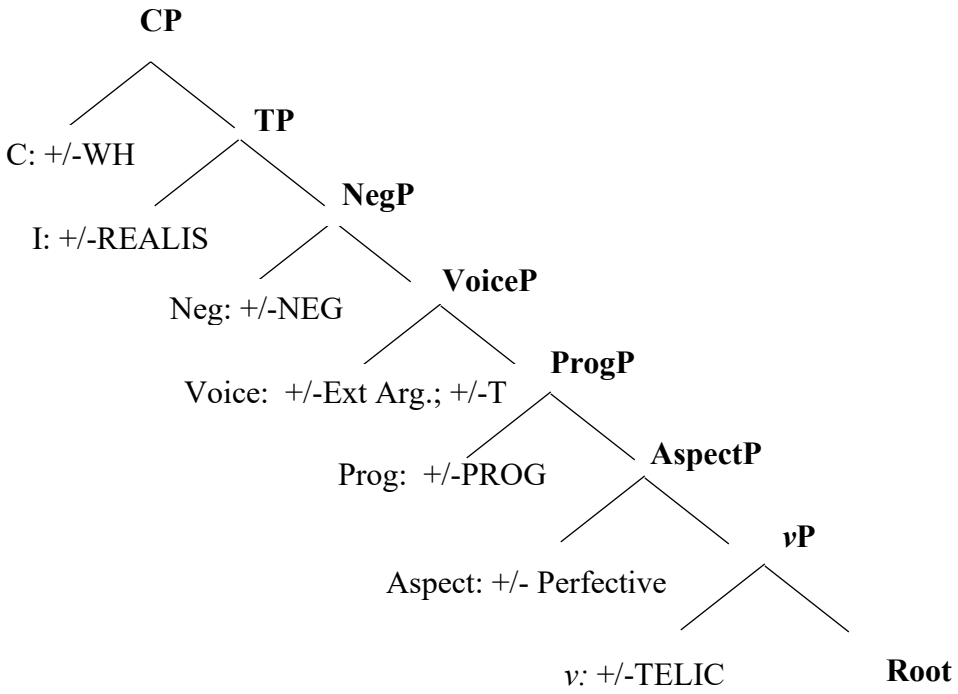
Having thoroughly examined the proposals of both authors for the verbal domain and their perspectives on aspectual issues in Czech, we can now proceed to apply this knowledge to analyze Czech data in the next section.

5.4.2 Layers in the Czech Verbal Functional Projection

For Czech, I introduce the following functional projection in (269). The Czech verbal functional projection starts with the root combining with *v*P which includes the inner Aspect of Verbs. Moving upwards, we find the Outer Aspect, which is divided into two projections: AspectP associated with perfective and primary imperfective Verbs, and ProgP associated with secondary imperfectives. The head VoiceP is responsible for introducing external arguments and is also the locus of Tense in Czech. IP, on the other hand, is the projection for Mood in both English and Czech with features [+/-REALIS], as described and justified at length by Veselovská and Emonds (2016a). The top CP serves as the landing site for interrogative phrases or focused constituents.[57]

[57] For the feature content of IP and CP see Veselovská and Emonds (2016a) and Veselovská (2011). I will not take stand here w.r.t. the more structured CP level used plausibly for the integration of information structure.

(269) Czech verbal functional projection



I will provide a more detailed explanation of these layers in the subsequent section, where they will be scrutinized in more detail.

5.4.2.1 Inner Aspect decomposed

The main point of disagreement between Borer (2005b) and Alexiadou et al. (2010) revolves around whether telicity and perfectivity can be equated. Using Czech data, the topic is addressed in the study by Caha and Ziková (2022). Adapting the framework and terminology as in Ramchand (2008), the authors provide compelling arguments for distinguishing between these two levels in Czech. I will follow their proposals and exemplify that this is fully compatible with the representation of aspectual issues in Alexiadou's model.

In order to do that, we need to briefly outline Ramchand's decompositional model for Verbs first. Similar to Borik (2002), Ramchand (2008) operates within the Reichenbachean system, which defines Aspect in terms of E (Event time), S (Speech Time), and R (Reference time). However, Ramchand diverges from Borik by treating E, R, and S as points rather than intervals.

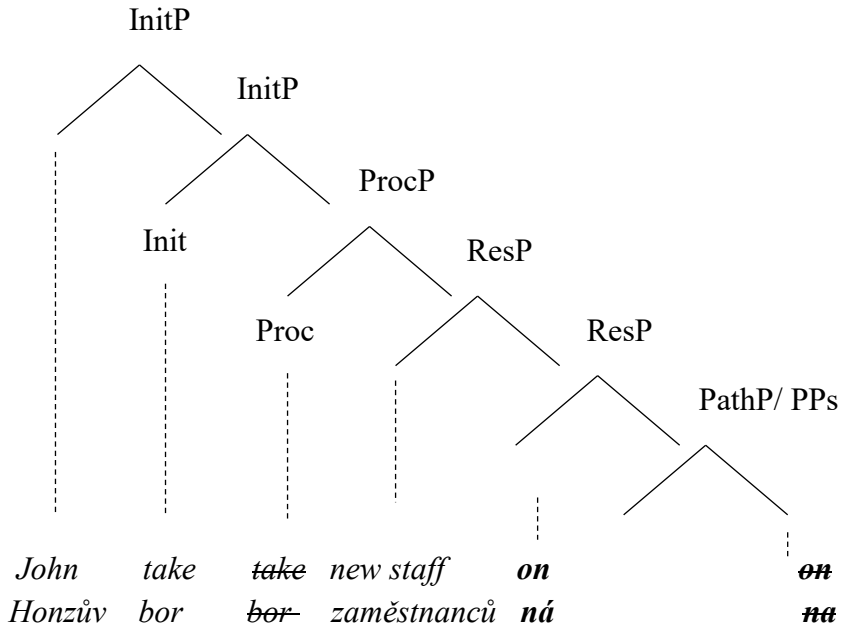
Second, in contrast to Borik's system, which does not require the Reference time to interact with the Speech time, Ramchand's framework involves the mediation of R (Reference time) between E (Event time) and S (Speech time). The specific mechanism of this mediation can be described as follows: there exists an inner aspectual head, referred to as the AspP head which binds the event variable introduced by the VP (known as the First phase: predicate over events) and introduces a Reference time denoted as "t" (predicate over times). Subsequently, the Tense node serves to anchor the Reference time to the Speech time.

In this section, I will describe the first phase which is the non-temporal lexical level. In the next sub-section, I will proceed to the aspectual level.

The first phase of decomposing can be described as follows: Each verb may have three sub-components: *Initiation*, *Process* and *Result*. Take for example the sentence *Alex gave Mary a book. Alex* is an initiator of the process and *the book* is changing location. This leads to the change of state with the result that *Mary* has a *book*.

Caha and Ziková (2022) argue that this model is able to account for Czech perfective prefixes which are located below Result (ResP) and can move upwards to the ResP to provide a result to the whole event, thereby making the verb telic. In this model, prefixes and particles minimally lexicalize Path components and the projection of Result. This characteristic distinguishes them from Prepositional Phrases (PPs), which solely lexicalize Paths. The process is depicted in (270) which demonstrates the derivation of English particles and Czech perfective prefixes.[58]

(270) Ramchand (2008)'s model adapted by Caha and Zikova (2022) for Czech



Let us elaborate on the process that leads to the above analysis. First, the fact that English particles are intransitive Prepositions goes originally back to Emonds (1976), contrast the examples below:

(271) a. *The police will fire tear gas **in** the window.*
b. *The police will fire tear gas **in**.*

In (271a) the Preposition *in* requires its complements to express the specific endpoint of the path.[59] However, unlike the Preposition *in*, the particle *in* (271b) does not require the

[58] The scheme (270) does not address the final morphological realization of the Czech bound prefix and the examples assume later nominalization. As the description of the first step of the derivation, however, they provide a good example of the concept of decomposition.

[59] Depending on the Preposition, it can express end-point (*to*), starting point (*from*) or route (*via*).

complement since it already incorporates the necessary information within itself and it can be inferred from the context.

Looking at the Czech data, we can find out that there are the so-called improper Prepositions in Czech as in (272) which are not followed by any complement (in traditional framework they would be categorized as a kind of Adverbs):

(272) a. *Marie šla **kolem**.*
Mary go$_{(IMPF)}$ around
'Mary went around.'

b. *Marie ***kolem-** šla.*
Mary around go$_{(IMPF)}$
'Mary around-went.'

The Czech intransitive Prepositions do not undergo transformation into prefixes. However, the absence of a complement alone cannot be the sole distinguishing factor between Prepositions and prefixes. Caha and Zikova (2022) argue that prefixes also contribute to the result or outcome of an event. This is supported by their example adopted here as (273). Notice that the prefix *-ob* alters the aspectual value of (273a) containing the (here transitive) Preposition *kolem* 'around', without affecting its meaning.

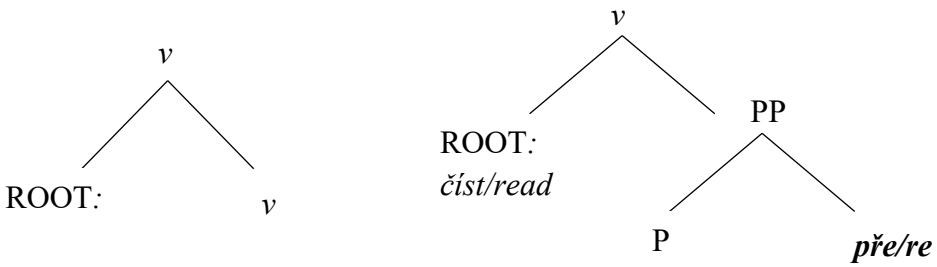
(273) a. *Marie motala provaz **kolem** stromu (*za den)/(celý den).*
Mary wrapped$_{(IMPF)}$ rope around tree in a day/ the whole day
'Mary was wrapping the rope around the tree the whole day.'

b. *Mary **ob-**motala provaz **kolem** stromu (za hodinu)/(*celý den).*
Mary $_{PF.}$round-wrapped rope around tree in an hour/the whole day
'Mary wrapped the rope around the tree in an hour.'

This decompositional idea about bringing a *result* to *events* is fully compatible with Alexiadou's eventive *v* which introduces events and takes stative roots as their complements. Recall that when *v* merges as a modifier of root, then we have Verbs with resultative semantics. Conversely, when a root is the complement of *v*, we have atelic structure.

The main idea can be preserved in Czech but it needs to be adjusted for prefixes. In Czech, prefixes rather than stative roots are often the components that make the verb telic, thus when they are complements of *v*, the resultative structure is born as in example (274b). Otherwise, when the root is just a modifier of *v*, the structure will be atelic as in (274a). I will also assume the option proposed by Borer that a prefix might be viewed as a Preposition-like element incorporating into a Verb as described in section 3.2.2. Furthermore, if the prefix raises to AspectP, it will become Perfective.

(274) a. Atelic stucture b. Telic structure

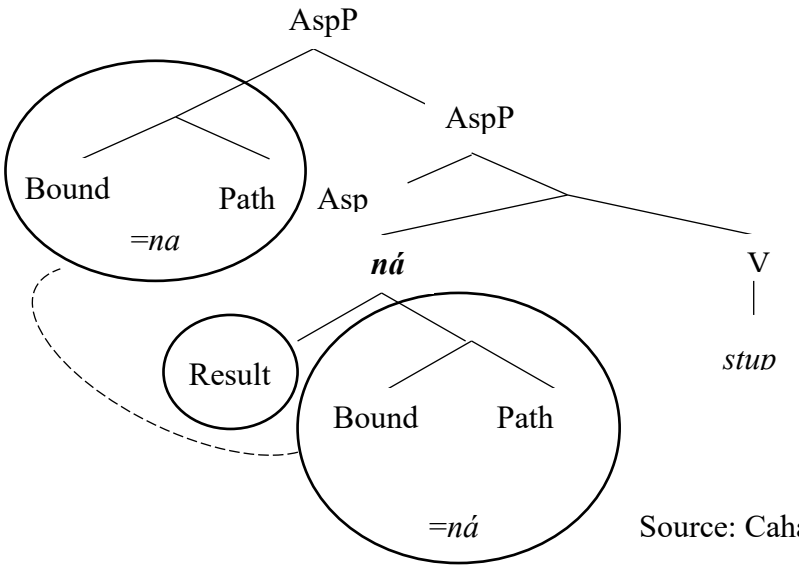


In my model I include the projection *v.* However, I do not suppose that its main function is to verbalize roots as in DM, but instead, it contributes to resultativity checking the feature [+/-TELIC] which it inherits from the incorporated prefix.

5.4.2.2 Outer Aspect

Besides the fact that prefixes describe paths alongside which the event proceeds, the other function of prefixes is aspectual. Caha and Ziková (2022) demonstrate that the Czech prefixes can alternate between two structural positions [60] and this will have an effect on the length of the prefix and their aspectual status. In the lower resultative position, the prefix is interpreted as non-aspectual with features [Path], [Bound] and [Res]. After movement to higher aspectual position, prefix becomes aspectual with features [Path] and [Bound]. This distinction is represented in picture (275) which provides the initial step in the derivation of deverbal nominals containing the prefixes. This initial stage in the derivation is not visible on Czech Verbs, therefore the demonstration of these processes needs to be illustrated with nominalizations which start their derivation as Verbs.

(275) Caha and Ziková (2021) Deverbal nominalizations and prefixes



Source: Caha & Ziková (2021)

[60] Caha & Ziková (2022) follow Borik (2006) and use tests envisaged for distinction between two aspectual levels.

The following table in (276) demonstrates the shortening of prefixes using examples by Caha & Ziková (2022, p.11):

(276)	**Verb**	**Zero-derived Noun**	***-ní/tí* nominal**	**Preposition**	**Meaning**
	na-stoupit	*ná-stup*	*na-stoupení*	*na*	'Get on'
	u-stoupit	*ú-stup*	*u-stoupení*	*u*	'Get out'
	pro-lézt	*prů-lez*	*pro-lezení*	*pro*	'Crawl through'

The classification of nominals will be provided in Chapter 6. So far, we can say that *-N/T* nominals and verbal prefixes pattern together in having a short prefix. Zero-derived Nouns are less verbal and have a non-aspectual prefix which is long.[61]

Also, we have seen that prefixes and Prepositions share the feature Path. Caha & Ziková (2021) propose that delimited trajectories of paths lead to delimited events and list the criteria for boundedness:

- Non-cumulativity
- Having an end-point
- Clear transition between boundaries

Hence, the prepositional phrase *cesta do školy* 'a way to school' exhibits non-cumulativity, as adding the same predicate would imply multiple ways to school. In contrast, *cesta kolem řeky* 'a way around the river' demonstrates cumulativity, as the addition of the same predicate would still result in the way around the river.

The resemblance between these criteria and those proposed by Alexiadou (2007) is striking. In Alexiadou's framework, boundedness in the verbal domain is determined by the presence of a decisive end-point. Indeed, telicity, as described in linguistic literature, involves having an inherent end-point (usually detected by the *in-X time* phrase), while perfectivity is concerned with whether a situation has reached its temporal boundary. The examples given in (277a-b) demonstrate that the imperfective verb remains unmarked and allows for the description of a situation as either finished or ongoing. On the other hand, the perfective verb must be terminated and cannot be continued by a sentence stating that it hasn't been finished yet (277c):

(277) a. *Petr četl tu knihu minulý týden, ale ještě ji nemá dočtenou.*
Peter read$_{(IMPF)}$ the book last weak but he hasn't finished it yet.

b. *Petr četl tu knihu minulý týden a dočetl ji.*
Peter read$_{(IMPF)}$ the book last weak and finished it.

c. *Petr **pře**-četl tu knihu minulý týden, # ale ještě ji nedočetl.*
Peter re$_{PF}$.read the book last weak # but he hasn't finished it yet.

[61] This type of alternation is found with a subset of prefixes. There are other types of changes. Nevertheless, all are explained by movement from a lower aspectual position to a higher one. Additionally, Caha and Zikova explain the alternations in the roots.

Thus, I accept Caha and Ziková (2022)'s view that delimited trajectories of paths lead to delimited events. Consequently, telic events frequently align with the perfective Aspect in being bounded. However, we must also address special cases where imperfective predicates exhibit boundedness, such as in examples (278)-(279).

(278) *Už* *jsem* *jednou* *běžela* *do obchodu* *za deset minut.*
already AUX.PAST once run(IMPF).PAST to the store in ten minutes
'I have already run to the store in ten minutes.'

(279) *Když Petr studoval rychločtení, tak* ***četl*** *vojnu a mír* *za dvě hodiny.*
When Petr studied fast-reading, then read(IMPF) war and peace in two hours
'When Petr took a course in fast-reading, he was reading War and Peace in two hours.'

These examples will qualify as bounded by the fact that they have a feature +TELIC and result in the plurality of the event. For further exploration of this topic, I can refer to Dočekal and Kučerová (2009), who discuss this phenomenon in their paper on *the Bound Reading of Imperfective Verbs.*

Another exceptional type, as exemplified in (255), involves atelic and perfective predicates, repeated here for convenience in (280):

(280) *Petr* ***(pro)****-spal* *pět hodin/ *za pět hodin.*
Peter throughPF.spleep five hours / in five hours
'Peter slept for five hours.'

In such cases, it is commonly observed that these predicates are associated with superlexical prefixes, which are introduced higher in the linguistic structure. These prefixes are known to belong to the realm of outer Aspect, and their characteristics will be further explored in the subsequent sub-section.

5.4.2.3 Other outer aspectual heads

I have already distinguished two aspectual levels: inner Aspect and AspectP, which check features [+/-Perfective]. However, it appears that Czech exhibits additional aspectual heads, as supported by Karlík (2007b).

Another higher level of Aspect is the *ProgP* which is the locus of secondary imperfectives realizing the feature [+Prog]. The positioning of ProgP is above AspectP in the hierarchy because (as we have seen already in section 5.4.1.1) the perfective Aspect needs to be derived first before the secondary imperfective Verbs can be formed using the suffix *-ova*. In the grammatical examples in (281a) the Verbs contain both the perfective prefix *vy-* and the imperfective *-ova* suffix, while the contrasting example in (281b) has no prefix and the imperfective suffix is not acceptable.[62]

[62] In Ramchand (2004), secondary imperfective is at the same level as perfective but it has to cancel its value. She also proposes that it might be the case that there is a separate functional head for secondary imperfectives.

(281) a. *psát* -> *vy-psat* -> *vy-pisovat* b. **pisovat*
write$_{(IMPF)}$->pref-write$_{PF}$ -> pref-write$_{IMPF}$ write$_{IMPF}$

Furthermore, secondary imperfectives can be perfectivized by superlexical prefixes (*e.g. po*). I have already demonstrated this with the example (252) in section 5.4.1.1. This step must follow the formation of secondary imperfectives because attempting to perfectivize them directly (as shown in (282b)) results in ungrammatical sequences:

(282) a. *po-vy -pis-ova-t* b. **po-vy-psat*
pref-pref-write$_{IMPF}$ pref-pref-write$_{IMPF}$

Superlexical prefixes in Czech are homonymous with lexical prefixes but both groups display different characteristics. According to Ramchand (2004), the idea behind superlexicals is that they can grammaticalize over time and impose specific reference time directly without being dependent on the result state. In Ramchand, they occur outside the AspP as specifiers of some null aspectual head. In other words, contrary to lexical prefixes which are generated lower in the structure, superlexical ones are generated higher.

The diagnostics for *superlexical prefixes*, as outlined in Svenonius (2004), typically involve their external localization: they are stacking outside lexical prefixes (as shown in (282a)). Superlexical prefixes are also oblivious to Argument structure of Verbs and cannot change it, see (284). The contrasted lexical prefixes are illustrated in (283) – notice that these can have an effect on the Argument structure:

(283) a. ***vy**-řezat* *díru* *ve dveřích*
out$_{PF}$.cut hole$_{ACC}$ in the door
b. **řezat* *díru* *ve dveřích*
cut$_{(IMPF)}$ hole$_{ACC}$ in the door

(284) a. *zpívat* *(píseň)*
sing$_{(IMPF)}$ song

b. ***za**-zpívat* *(píseň)*
pref-.sing song

Sveonius (2004) also notes that superlexical prefixes are not ordinarily included in nominalizations. In Czech, N/T nominals are compatible with superlexical prefixes (SP), while type II nominals are not. This prediction is supported by the following examples (285), where only N/T nominals can undergo double prefixation with both lexical prefixes (e.g., *vy, za*) and superlexical prefixes (e.g., *po*). In contrast, type II nominals do not allow for double prefixation:

(285) a. *vy$_{PF}$-taž-e$_{TH}$-n-í* po$_{SP}$-*vy$_{PF}$-taž-e$_{TH}$-n-í* vs. *vý-tah* **po-vý-tah*

b. *za$_{PF}$-vír-á$_{TH}$-n-í* *po$_{SP}$-za$_{PF}$-vír-á$_{TH}$-n-í* vs. *zá-věr* **po-zá-věr*

In her study Zikova (2012) argues that this distinction is the result of the presence or absence of a *theme vowel* required by the superlexical prefixes. According to her analysis, N/T nominals have a theme vowel, enabling them to be compatible with superlexical prefixes. On the other hand, type II nominals lack a theme vowel, which restricts the use of superlexical prefixes, as is evident in the examples (285).

The last phenomena in Czech which should be subsumed under outer Aspect is *iterativity* which is formed by means of *-va* suffix, as e.g. *hrá-l-> hrá-va-l->hrá-vá-va-l* 'played'*, chodí-> chodí-vá/* 'walk$_{3RD}$'. Iterative constructions typically cannot express present time only non-actual present time. Ramchand (2004) proposes that there is an iterative aspectual head, higher up than superlexical prefixes. Kopečný (1962a) has labeled it "the third Aspect".

The effect of iterativity is very much comparable to [+/-Plural] as discussed by Jackendoff (1991) and Veselovská & Karlík (2004). Both features [+Plural] and [+ITER] lead to unboundedness. To illustrate this, consider our tests for boundedness in the nominal domain first: *jablko*'apple' is not cumulative but plural *jablka* 'apples' is. Similarly, in the verbal domain in Czech the feature [+ITER] can be adjoined to imperfective Verbs and turn them it into sequence of bounded events which eventually results in unbounded. To be more specific, consider the pair of Verbs *chodil* 'walk' *->chodí-va-l,* where the iterative form is clearly cumulative, we can even express it morphologically with further *-va* suffix: *chodí-vá-val.*

The range of plausible candidates for aspectual heads is summarized in (286):

(286)	IterP	Superlexical	ProgP	AspP	*v*
	[+/-ITER]	[+/-PERF]	[+/-PROG]	[+/-PERF]	[+/-TELIC]

Although the hierarchy in Czech might look as in (286), no concrete proposal regarding this hierarchy will be offered besides stating that the dividing line seems to be the AspectP. Above this level nominalizations do not tolerate pluralization as exemplified below:

(287)

a.	*dvě stavby* Two constructions	b.	**dvě pře-stav-ová-ní* Two re$_{PF.}$building$_{IMPF.NT}$	c.	**dvě malová-vá-ní* Two paintings$_{ITER.NT}$
d.	*dvě pře-malová-ní* Two re$_{PF}$-paintings$_{NT}$	e.	**dvě do-pře-stav-ová-ní* Two pref-re$_{PF.}$buildings$_{IMPF.NT}$		

To conclude this section: for the purposes of my work, to demonstrate aspectual phenomena, I use the following three functional heads: *v*, AspectP and ProgP. I will leave the precise ordering of remaining aspectual heads within this domain for further research.

5.4.2.4 Voice Projection

The Voice projection serves two functions in Czech. Firstly, it functions as the locus of Tense, and secondly, it introduces external arguments. Let's begin with the first function. Discussing the specific characteristics of the multifunctional Czech Verb *být* 'be', Veselovská (2008)

introduces several tests to distinguish the Czech AUXs. She argues that only two Czech AUXs occupy the high functional T position, while other Czech AUXs and Verbs are situated somewhat lower in the structure. One of the tests she employs is negation, which clearly reveals that the preterite and conditional AUXs as in (288) and (289) are generated above the negation while the passive AUX in (290) is generated below. The examples below are from Veselovská & Karlík (2004, p. 174):

(288)	a.	*Já*	*jsem*	*ne-chválil.*	b.	**Já*	*ne-jsem*	*chválil.*
		I	AUX_{IS}	not-praised		I	not AUX_{IS}	praised
		'I did not praise.'						

(289)	a.	*Já*	*bych*	*ne-pracoval*	b.	**Já*	*ne-bych*	*pracoval.*
		I	AUX_{BYS}	not-worked		I	notAUX_{BYS}	worked
		'I would not work.'						

(290)	*Já*	*ne-jsem*	*chválen*
	I	not AUX_{IS}	praised
	'I am not praised.'		

Assuming that negation is situated below T, the passive AUX (290) must be below T. In my model I assume it is in the VoiceP head.

Subsequently, the Czech past tense as in (288) is expressed by a combination of the auxiliary *jsem* 'AUX_{IS}' which signals only mood in TP and the L-participle (*pracoval* 'worked') that is canonicaly realized on the Voice projection.

Veselovská & Emonds (2015) and Karlík (2007b) situate AspectP below VP. In the literature the highest VP has been replaced by VoiceP. Therefore, in my narrative AspectP should be located below VoiceP. Veselovská & Emonds (2015) claim that +/- PERF is an inherent feature of some Verbs and should be situated lower in syntactic trees. I suppose that independent evidence can be derived from the structures such as (291), where the passive AUX is situated presumably in VoiceP and the secondary imperfective prefix is attached to V. If Aspect were positioned higher than Voice, we would expect the secondary imperfective prefix to appear on the auxiliary instead.

(291)	*Já*	*ne-budu*	*přestavovat*	*dům.*
	I	not AUX.$_{FUT}$	re$_{PF}$.build.$_{IMPF}$	house
	'I will not rebuild the house.'			

Now we can address the issue of introducing external arguments and various verbal forms. Similar to English, Czech also has a similar spectrum of verbal forms. Below, we compare the Czech equivalents with their English counterparts:

(292) English verbal forms

a.	**Transitive**	**Active Voice**	*Petr*	*zabil*	*Roberta.*
			Petr_{NOM}	$\text{kill}_{\text{PAST}}$	$\text{Robert}_{\text{ACC}}$
			'Peter killed Robert.'		
b.	**Unergative**	**Active Voice**	*Petr*	*běží*	
			$\text{Peter}_{\text{NOM}}$	run_{PRES}	
			'Peter is running.'		
c.	**Unaccusative/ Anti-causative**	**No Voice**	*Strom*	*spadl.*	
			tree_{NOM}	$\text{fall}_{\text{PAST}}$	
			'The tree fell.'		
d.	**Passive**	**Passive Voice**	*Petr*	*byl*	*představen.*
			$\text{Peter}_{\text{NOM}}$	AUX_{IS}	introduced.
			'Peter was introduced.'		
e.[63]	**Reflexives =Unergative**	**Active Voice**	*Petr*	*se*	*umyl.*
			$\text{Peter}_{\text{NOM}}$	self	$\text{wash}_{\text{PAST}}$
			'Peter washed himself.'		
	Dispositional Middles = Unergative		*Knihy*	*se*	*prodávají dobře.*
			books	self	$\text{sell}_{\text{PRES}}$ well.
			'The books sell well.'		

In English as well as Czech, active Voice, reflexives and dispositional middles/mediopassives[64] share the same morphology, whereas the passive is morphologically (and syntactically) marked. Interestingly, Haspelmath (1990) observed that no language marks the active and passive in the same way. On the other hand, mediopassives are not consistently demarcated cross-linguistically. Some languages treat them as active forms, while others classify them as non-active and may either share morphology with the passive or have their own distinct form.

Recall that in Borer (2005b) external arguments are rather a result of an event structure, that is EP and Asp_{Q}P. We have dispensed with the Asp_{Q} and replaced it with the *v*P level. Consequently, we will need a separate VoiceP to introduce external arguments as in Alexiadou's framework.

[63] As far as reflexive passives, Hudousková (Volencová, 2009) argues that the reflexive particle *se/si* in impersonal passives correlates with Agents, and similarly Medová and Taraldsen (2007) propose that reflexives are actually generated as Possessors in the position of external arguments.

[64] In Czech tradition, dispositional middles are called mediopassives while for Alexiadou (2012) this term covers totally undetermined forms for passives/anticausative which is not found in English.

For the analysis of the process of passivization, I will briefly mention only some main points here and refer the reader to Veselovská and Karlík for more information in more of less compatible framework. The process of passivization in Czech is according to Veselovská and Karlík (2004) the result of the characteristics of the Czech passive AUX *být* 'be',[65] which is also the result of its *position* in the structure. The authors use different labels for verbal functional projections but translating them into my model the passive AUX is inserted into our VoiceP. The position of the AUX in the head which is normally (in actives) occupied by a Verb, leads to deagentivization (*be* does not assign the Agent thematic role), it blocks Accusative Case assignment and forces the PF adjectival morphology of the following participles.

Much more could be said about the features of the verbal domain. In this section, however, I will conclude the discussion claiming that one could hypothesize the existence of a Passive Voice that operates on active Verbs. When it comes to nominalization, a more fundamental question will arise – namely whether the process of passivization applies to them. This I will be trying to solve in the following Chapter 6.

5.4.2.5 Mood

The functional layer IP in Czech is the locus of Mood. The position of the features related to Mood in English and in Czech are discussed in detail in Veselovská & Emonds (2016a, p. 281). Based on the arguments derived from the feature analysis of the analytic verbal forms in both languages the authors propose that temporal interpretation are combinations of Tense and Mood.

As for Tense, located in the verbal head below negation, they propose two fundamental binary features:

- [-T] (unmarked): **Generalized Present**. An event or state that either holds now, or is destined to hold at some future time that becomes now.
- [+T] (marked): **Generalized Non-present**. An event or state that is unrelated to what holds now, either because it is in the past, is counter to present reality, or is hypothetical and hence unrelated to present facts.

As for the other feature – Mood, located in the functional domain above negation, they propose that Mood is characterized by two features:

- [-M] (unmarked): **Realis**. An event or state that is part of perceived reality, i.e. it holds in the present or it held in the real past.
- [+M] (marked): **Irrealis**. An event or state that is not specified as part of reality, i.e. it is not claimed to hold either in the present or in the real past.

They argue that the Mood features are able to distinguish two forms: the past Tense auxiliary in (288) and conditional auxiliary (289) which are defined as [-M] and [+M] respectively and which are clearly located above negation.

In their article, these authors also attempt to explain the incompatibility of the feature +PERF with future auxiliary Verbs as we have seen in (247). They propose that the basic syntactic feature of PERF:

(293) **Definition and locus of +PERF**: The canonical feature +PERF on a lexical V reports that a verbal event /State holds "at a point of time" different from the deictic now.

Subsequently, they claim that the only restriction for perfect is that its point of time cannot be now. The definition (293) holds the key to why Czech perfective Verbs with present Tense agreement morphology ([-M] and [-T]) refer to future. If a clause Tense is [-T], it can be only present or future. As our conditions excludes Now (present) then perfect can only refer to future. This is the case in (294a). The interpretation of past perfect as illustrated in (294b) is equally natural in this system, since it is defined as [+T], [-M], it satisfies the condition that it does not hold now. By virtue of being Perfect, Veselovská & Emonds (2016a) state that the event is perceived as completed because it cannot continue beyond the verb's past.

(294) a.

Marie	*postaví*	*dům.*	[-M]	[-T]
Mary	$_{PF}$build	house	~~Present~~/~~Past~~	~~Present~~/Future
'Mary will rebuild the house.'				

b.

Marie	*postavila*	*dům.*	[-M]	[+T]
Mary	$_{PF}$build.$_{PAST}$	house	~~Present/~~Past	Past/~~Future~~
'Mary rebuilt the house.'				

I agree with this analysis, but I do not take it for complete. The feature +BOUND for perfective which has the effect of completion of events is not superfluous, as we will see in Chapter 6. I will demonstrate that nominalizations in Czech do not include Tense, but they can still reflect the distinction between complete and incomplete actions as suggested here by the use of aspectual adverbials in examples (295):

(295) a.

měnění	*pneumatik*	*dvě hodiny/??za dvě hodiny*
changing$_{NT}$	tires	two hours/ in two hours
'changing of tires for two hours/ in two hours'		

b.

vyměnění	*pneumatik*	**dvě hodiny/za dvě hodiny*
out$_{PF}$changing$_{NT}$	tires	in two hours/for two hours
're-changing of tires in two hours'		

Moreover, as was illustrated above, Perf does not combine with temporal Aspect Verbs. Veselovská & Emonds (2016a) do not discuss temporal Verbs in their analysis but the sentence below (296) is defined as [-M], [+T] and still Perfective nominalization is not possible:

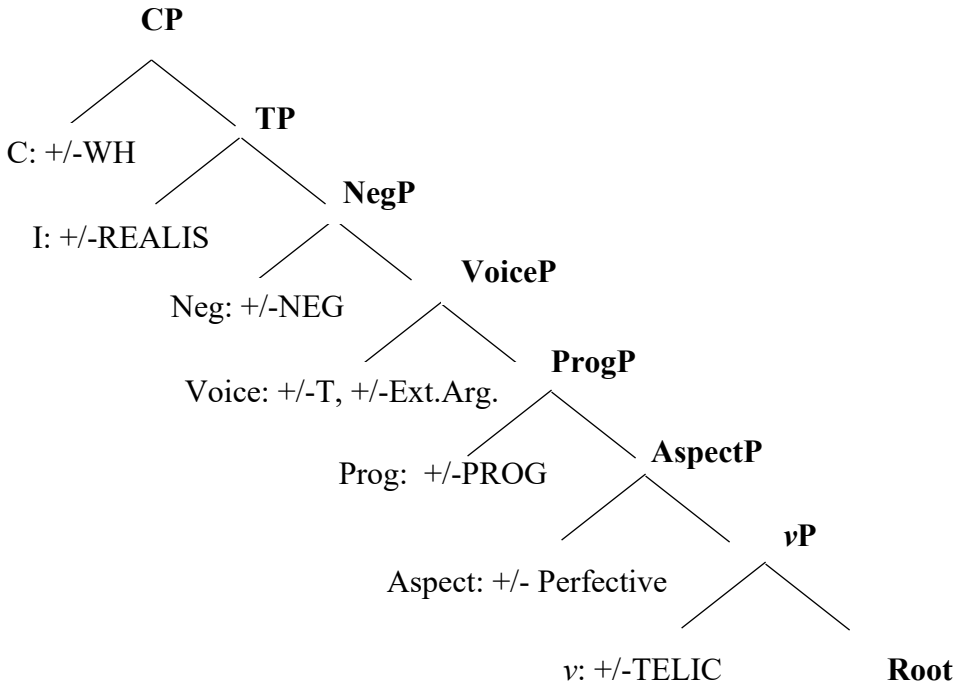
(296) *Marie*	*začala*	*s měněním/ ??vyměněním*	*pneumatik*	[-M]	[+T]
Mary	start$_{(IMPF).PAST}$	with changing$_{NT}$ / out$_{PF.}$changing$_{NT}$	~~tires~~	~~Present~~/Past	Past/Future
'Mary started with changing/ re-changing tires.'					

I am not able to offer a better analysis beyond saying that the feature +BOUND is not mutually exclusive with features [+/-M], [+/-T]. I am also not going to discuss features related to higher functional projections as they are not usually contained in nominalizations.

5.5 Chapter Summary

In the preceding chapters I have compared Alexiadou and Borer's verbal nominal projection and used it for implications in the Czech verbal nominal projection. I proposed the verbal projection in (269) for Czech repeated here for convenience as (297).

(297) Czech verbal functional projection



The labels employed in the Czech model are depicted in table (298) together with their assumed equivalents in the studies discussed in the preceding sections for the Borer's and Alexiadou's models, namely with the structures used in (202) and (223).

(298)

Alexiadou (2020)	**Borer (2005a)**	**Czech Model**
CP	EP	CP
TP	TP	TP
-		VoiceP
AspectP		ProgP
VoiceP	-	AspectP
*v*P	AspQ	*v*P

While some labels in the table above may look similar, their function may be distinct. The most important functional heads for the issue of nominalizations are the ones that are concerned with the introduction of external arguments and Aspect. These were discussed with a primary focus.

In my model, the *v*P does not primarily serve the function of verbalizing as in Alexiadou's work. Instead, it is mainly seen as responsible for inner Aspect, and the verbalization of the root is a secondary effect.

As far as Aspect is concerned, I concur with Borer (2005b) that it is essential to differentiate the separate functional head for secondary imperfectives from perfectivity but I also agree with Alexiadou et al. (2010) and diverge from Borer (2005b) in considering telicity and perfectivity as distinct heads. The arguments for separating telicity from perfectivity in Czech was based on the length alternation of Czech prefixes developed by Caha and Ziková (2022) which would be unexplainable without these two domains. Therefore, in the Czech structure Aspect is decomposed into three aspectual levels: inner Aspect, which deals with encoding (a)telicity, AspectP for (im)perfectivity, and ProgP, which is the locus of secondary imperfectives in Czech. There might be some more aspectual heads but no specific hierarchy of ordering will be provided here.

I assume that both perfective and telic Verbs are bounded and I will follow Caha and Ziková (2022) in supposing that boundedness at the lower level in *v* is related to boundedness at AspectP. This can be syntactically represented by raising a complex head with an incorporated prefix. To provide a comprehensive overview, Verbs with imperfective morphology can also exhibit boundedness, achieved at the telicity level. Conversely, Verbs with perfective morphology that are atelic such as (*pro)spal* 'through$_{PF}$.sleep' contain superlexical prefixes in the sense of Sveonius (2004) that are attached higher in the structure and can also lead to boundedness.

I have argued for the inclusion of the Voice projection employed in Alexiadou's framework rather than the analogical EP layer in Borer's theory. If combined with constraints on roots, the Voice projections can help us avoid the massive overgeneration of structures. Also, I locate VoiceP above AspectP unlike Alexiadou (2020) where the order is reversed.

The last distinction between my approach and that of both linguists lies in the treatment of Tense-related concept. I will follow Veselovská and Emonds (2016) who argue that Tense is not canonically realized in IP but lower in the structure in both English and Czech. I will locate it in the VoiceP projection. For these authors the IP level is not associated primarily with Tense but with the features of Mood.

6 FUNCTIONAL LAYERS IN NOMINALIZATIONS

The primary objective of the chapter is to assess the nominalization processes in Czech using a framework derived from a comparison of the models proposed by Borer (2005a/b and 2013) and Alexiadou (2001 and subsequent works).

Hagit Borer devotes to this issue her third book of the three-volume set *Taking Form* (2013). This book further develops her Exo-skeletal model focusing on a contrastive analysis of Hebrew derived nominals and English nominalizations. Artemis Alexiadou deals with nominalizations in many articles but her main arguments are summarized in her book *Functional structure of Nominals* (2001). Since then, many aspects of nominalizations have been revised in her later articles, e.g. Alexiadou (2009). Voice related issues are discussed in Alexiadou, A., Anagnostopoulou, E. & Schäfer, F. (2006). Aspect and Number related problems are analyzed in Alexiadou et al. (2010). The cross-linguistic comparison of nominalization and an overview of the role of functional projection in nominalizations can be found in Alexiadou (2020).

In the first part of this chapter, I will present and compare the ways Borer and Alexiadou approach the process of nominalization, considering the appropriateness of their proposals for Czech data. After this kind of theoretical discussion, I will present Czech data and incorporate empirical analyses of Czech linguists, some of which were already introduced in section 2.3. In this chapter I will provide more detailed discussion, especially of the phenomena related to the features of Number, including also some corpus data.

6.1 Borer (2013) – The structure of Nominalizations

In her large third volume of the Exo-skeletal trilogy - *Taking Form* - Borer (2013) focuses on the process of nominalization. She argues that Grimshaw's complex event nominals (CENs) come in two varieties: (i) the Long Argument structure nominalizations (LASNs) and (ii) Short Argument structure nominalizations (SASNs). Both of them can have a quantity and non-quantity construal as (299) and (300) illustrate.

The distinction between LASNs and SASNs is based on the position of the external argument: in LASNs, the external argument occurs pre-nominally and is marked as genitive as in (299a) and (299b) below. The short variety has two flavors: one where the external argument is expressed as a *by*-phrase and the other in where it remains overtly unmarked, as in (300a-c):

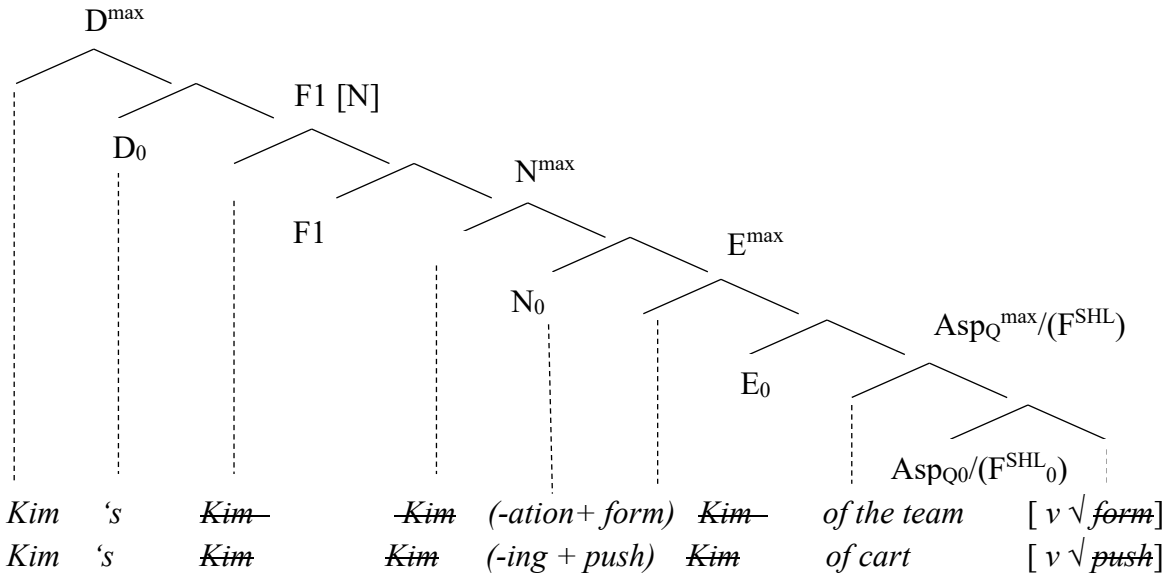
(299)	**LASN**	**quantity**	a.	*Kim's formation/forming of the team*
		non-quantity	b.	*Kim's pushing of the cart*
(300)	**SASN**	**quantity**	a.	*the formation/forming of the team (by Kim)*
		quantity	b.	*the team's formation (by Kim)*
		non-quantity	c.	*the smelling of the stew (by Robin)*

In her study, Borer (2013) provides evidence that LASNs are derived from *active* structures while SASNs embed a piece of *passive* structure. To demonstrate her proposal, I will start with the derivation of LASNs and then proceed to explain SASNs.

The structure for Long AS nominalizations are schematically represented in (301) providing examples (a) with quantity and (b) non-quantity predicates.

(301) Derivation of LASNs (quantity + non-quantity)

a. *Kim's **formation** of the team.*
b. *Kim's **pushing** of cart*



The quantity predicates would contain the projection Asp_Q while non-quantity predicates would have an F^{SHL} projection. This option is demonstrated in the graph above.

We can further observe that event layers are embedded under N which contains the suffix *-ation*. These derivational suffixes are called C-functors in Borer (2013) as analyzed in the section 3.2.1.

The event layers in nominalizations proposed by Borer and outlined in the scheme (301) can be compared to the ones which she suggests for the verbal functional domain, as described in section 5.1. and repeated here for convenience in (302):

(302) **[EP <e>E [T [AspQ^max <e># [VP]]]]**

Compared with the verbal domains in (302), in the nominalizations (301) the layer Tense is missing. This layer is responsible for subject-verb agreement, Tense and Nominative Case, all absent in AS nominals.[66]

Also, the Event Phrase (EP) can merge both above T and above grammatical Aspect (G-ASP), leading to a non-incremental functional architecture in AS-nominals. This means that we

[66] Most linguists assume that T is not present within AS nominals but see van Hout and Roeper (1998) who argue for its presence.

cannot expect that the verbal structure can be pruned off at certain point, retaining the lower layers for nominalizations while omitting the higher levels.

Consequently, in the absence of Tense in nominalizations, the root's categorization is achieved minimally through the EP serving as a necessary prerequisite for defining an event that must be present in AS nominals.

Furthermore, the V-head present in both (302) and (301) merges in nominalizations with the suffix *-ation* (a functor $C_{N[V]}$) whose complement must be verbal. The derivation is thus dependent on the matching identity between the complement of the C-functor and the complement of the extended verbal projection.

The nominal layers assumed for the nominal domain by Borer (2005a) were discussed in section 4.1 (theoretical framework in section 3.2) and summarized in (119) which I repeat below for convenience in (303):

(303) $\mathbf{[_{DP}\ <e>_{d}\ [_{\#P}\ <e>_{\#\ (DIV)}\ [_{CL}{}^{max}\ <e>_{DIV(\#)}\ [_{NP}]]]]}$

All these layers can be included in nominalizations. For the sake of space, I have only included F1 [N] and D as representatives of some nominal components of a structure.

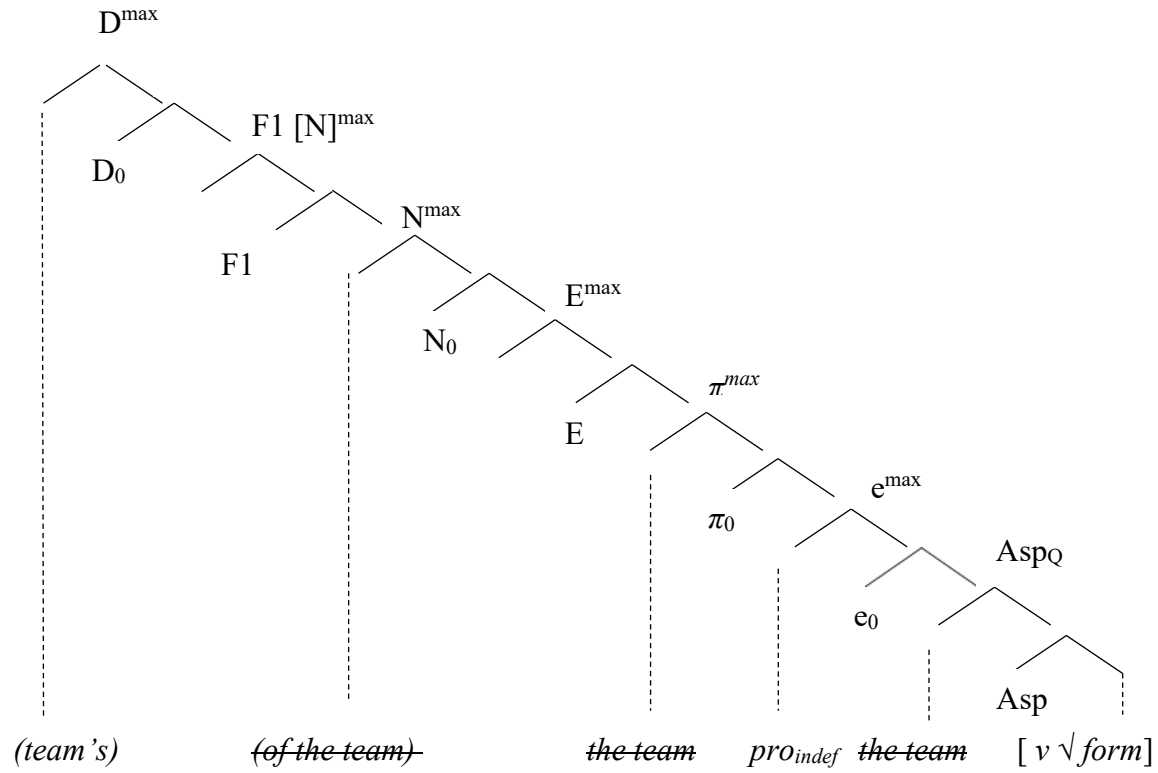
Having explained the nominal and verbal layers in LASNs, let us describe now Case marking of arguments within these structures in (301). Borer suggests that English *prenominal genitive* '*s* is the spell out of Case realization in SpecD or Spec#. For this reason, the external argument *Kim*, introduced in SpecE, needs to raise. In contrast, the internal argument like *of the team* does not have to raise and stays put in $SpecAsp_Q$. When G-ASP or T is absent in active sentences, Borer expects that *of* is a spell out of the objective Case.[67]

The second type of Borer's nominals are Short Argument Structure Nominals (SASNs). These are derived from passive structures and can be further divided into two sub-types: one for quantity predicates and another for non-quantity predicates. Let us begin by focusing on quantity SASNs as outlined in (304). We are also already familiar with the structural representation of passives as presented in Borer (2005b) in section 5.1.1.3. The derivation of SASNs is then quite straightforward: they are achieved by embedding the passive structure π under a nominalizer (Borer's C-functor).

[67] In other words, *of* for Borer is objective marking which is dependent on T or G-ASP in some languages. While in Hebrew such marking is optional, in English it is obligatory in the absence of T or G-ASP. This also means that *of* is for Borer ambiguous between objective and genitive marking, which is not a standard treatment in other frameworks, e.g. Emonds (2000) or Alexiadou (2020). These frameworks typically treat *of* as a nominal property and exclude it in the presence of a verb (V) in accordance with economy principles.

(304) Derivation of SASNs (quantity structure)

a. *the **formation/forming** of the team (by Kim)*
b. *the team's **formation** (by Kim)*



The primary difference from verbal passives lies in the fact that in the verbal domain, verb movement is blocked due to the impossibility of e to T movement. However, in the nominal domain, there is no T element and consequently there is no obstruction to its movement to a higher position (in English not as high as in Hebrew to D).

In contrast, the following examples are cases of SASNs which are non-quantities:

(305) a. *the **forming** of complex molecular structures (by the scientists)*
b. *the **smelling** of the stew (by Robin)*

For these, the direct object merges directly in π. There is, however, an addition complication. π itself does not assign a theta role and it can only acquire the role of an event Participants if it stays put. Furthermore, in order to be *of*-marked, it would need to move to some nominal domain and cross E(vent) where it inevitably be assigned the role of an Originator which is not licit. Thus, Borer proposes a somewhat stipulative analysis where Case assignment for DP1 is achieved through Agree, in parallel fashion with the nominal domain where Nominative Case is assigned through Agree with T. As a result, DP1 gets the role of an event Participant. The whole process is demonstrated in (306):

(306) $[_D[_{F2\text{-}N}[_{F1\text{-}N}$ ***of*** $[_N[_E$ V-$C_{N[V]}[_\pi$ $[$ ***of*** DP1$]$ ~~V~~ [e DP2 ~~V~~ $[_{C=V}$ ~~V~~(PP)]]]]]]

The independent evidence for the passive analysis of SASNs Borer (2013) finds particularly in Hebrew. In this language, LASNs receive objective marking *et* as in (307a) whereas SASNs exemplified in (307b) have *šel* which is the equivalent of *of*-phrases. Compare the constructions below and see Borer (2013) for more examples:

(307)

a. *ha.hokaxa* *šel* *ha.matematiqa'it* ****('et** ha.ţe?ana)* *be-xodšayim*
the.proof of the.mathematician OM the.theorem in two months
'the mathematician's proof of the theorem in two months'

b. *ha.hokaxa* ****(šel** ha.ţeana)* *(?al yedey ha.matematiqa'it)*
the.proof of the theorem by the.mathematician
'the mathematician's proof of the theorem in two months'

The example (307b) is for Borer (2013) definitely an AS-nominal as in Hebrew *by*-phrases cannot be licensed in authorship contexts such as *a picture by van Gogh*.

6.1.1 Argument Structure Nominals and Referential Nominals

Armed with the function of C-functors from section 3.2.1, we can now elucidate the differences between Argument Structure (AS) nominals and Referential (R) nominals.

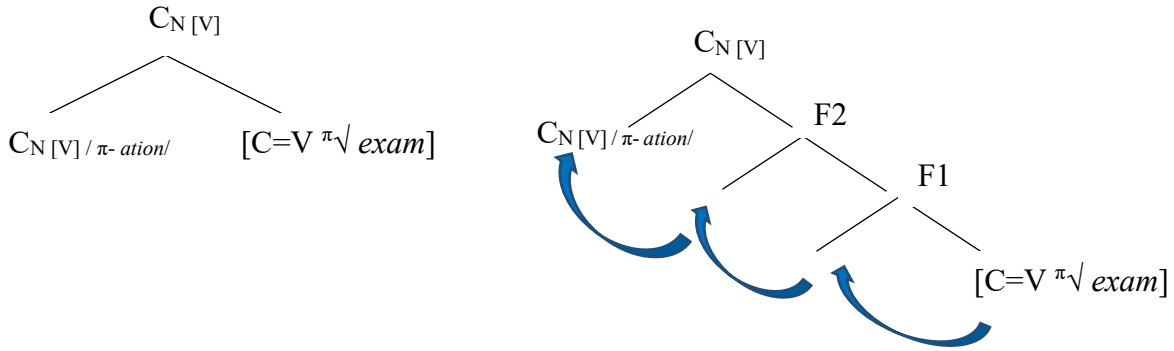
First recall that the structural description between AS nominals and simple events remained unaccounted for in Grimshaw (1990), while in the analysis by Borer (2013) there is an explanation why both constructions illustrated in (308) can be eventive although only the (308a) takes arguments obligatorily:

(308)	a.	*The frequent* ***examination*** **(of students) took place in the principal's office.*	**AS**
	b.	*The frequent* ***examinations*** *took place in the principal's office.*	**Simple event**

Borer (2013) proposes that the conundrum can be resolved if we assume that R-nominals and AS-nominals have the structures outlined in (309). The analysis depends on the assumption that Verbs or roots in themselves do not inherently select arguments. Subsequently, when R-nominals are directly embedded within a nominal structure, no event structure is expected. What renders R-nominals eventive is the C-functor which can take the V as its complement. The other way round – i.e. that V would select a higher C-functor – is not allowed.

AS nominals, on the other hand, are associated with verbal layers F1 [V], F2 [V] which allow the head to re-merge and reproject, eventually incorporating into the stem. Thus, all event-related information, including arguments of AS nominals can properly come from the verbal functional structure.

(309) (a) R nominals (b) AS-nominals



As mentioned earlier, Borer's derivation is heavily dependent on the matching between the complement of the C-functor and the complement of the extended verbal projection. If the C-functor were defined as $C_{N\,[A]}$ and the extended projection were verbal, the derivation would collapse. This assertion carries significant implications. It becomes evident that the responsibility of assigning an event argument cannot be attributed solely to C-functors. Consequently, it also implies that Nouns can never serve as the source of event structure. They are rather vehicles for passing event properties.[68]

Moreover, the primary role of the event functional projection is to introduce events. This is accomplished through the Event phrase, which is required in derived nominals. Alongside this, modifiers such as ASP_Q (Aspect Phrase) can modify events. It is worth emphasizing that the event-related functional projection does not primarily introduce arguments, as explained in section 5.1. Instead, it acquires specific interpretations when arguments are present, such as an Originator or a Subject-of-Quantity.

6.1.2 Grimshaw's Criteria Revisited

It has been already emphasized that Grimshaw's criteria for distinguishing between nominals have been challenged in many aspects. Borer (2013) is no exception, taking these criteria as a starting point and proposing her modifications. She discussed e.g. the de-adjectival nominals illustrated below in (310) and (311):[69]

(310) a. *the court's (*deliberate)* ***awareness*** *of the problem (for many years)*
b. *Pat's* ***consciousness*** *of my presence (for several minutes)*

(311) a. ***awareness*** *of the problem (*by the authorities)*
b. ***consciousness*** *of my presence (*by my cats)*
c. ****awareness*** *of the problem in order to solve the situation*

[68] It is worth noting that this claim does not pertain to the arguments of Nouns that do not represent events, such as relational Nouns (e.g., *a story about Mary*). Since all arguments originate from the structure, there is an expectation of a nominal extended projection present between the C-functor and the root.

[69] Examples with Determiners such as : **the awareness of the problem (by the authorities)* are ungrammatical because of the competition between PRO and the definite article *the* for the position SpecDP. It will be the subject of the next section.

Some of the Grimshaw's diagnostics are clearly not met by de-adjectival nominals, in particular Agent modification, Agent control and *by*-phrases. Given that de-adjectival nominals are not eventive but rather stative these findings are not unexpected because the hallmark of non-quantity nominals is the inability to pluralize, which de-adjectival nominals being statives certainly are.

For this reason, Borer (2013) notes that among the criteria stipulated by Grimshaw (1990) and summarized in section 2.2.3, only the following three remain relevant for stative nominalizations. Notice the tight connections of arguments with Aspect:

(312) a. obligatory arguments
b. subjects are arguments
c. allow some aspectual modification

Consequently, AS nominals do not necessarily have to be eventive but can also be stative. According to Borer's proposal, deadjectival nominals contain a stative event that is embedded within their structure.

6.1.3 PRO – Evidence for Passive Voice in SASNs

Many linguists suppose that prenominal possessors in AS-nominals are never true event arguments - this viewpoint has been adopted by Chomsky (1970), Grimshaw (1990), Marantz (1997), Alexiadou (2001; 2017a). Consequently, Agent prenominal DPs must be Possessors with agentive interpretation. Borer (2013), on the other hand, provides a plausible argument by means of the phonetically null PRO for the opposite.[70]

This argument is related to the whole architecture of nominalization, namely whether nominalizations are built from active or passive sentences and whether the process of passivization can apply within them. We will see that answers to these questions are not unified in the linguistic literature and I will assess these questions thoroughly in section 6.4 when considering Czech data.

Borer (2013)'s main claim in this respect is that the SEAs of SASNs are quite similar to the characteristics of the SEA in short clausal passives and quite distinct from the properties PRO in gerunds and infinitives. This supports her claim that SASNs emerge from the nominalization of verbal syntactic passive structure.

Borer (2020)'s argument in favor of the above claim is based on the study by Lebeaux (1984). Lebeaux argues that in target cases when silent subjects do not c-command each other nor is there any obvious antecedent that could control both of them, they tend to have universal/generic interpretation. Hence, these subjects need to refer to the same antecedent as formalized in the so called Lebeaux effect given in (313).[71]:

[70] PRO is a base generated phonetically null DP and it is not a residue of movement like NP-traces. Chomsky and Lasnik (1993) propose that it is the only element which can bear a special null case.

[71] Generic interpretations can range over pluralities, most typically human groups or possibly kinds (i.e., *all those who are sick, all who are poor*, etc.). Existential expressions assert existence. More examples were discussed in relation with the DP layers in section 4.1.2.

(313) T**he Lebeaux effect** (Lebeaux, 1984)
Within an appropriately defined local domain, all occurrences of uncontrolled silent subject need to have a universal interpretation (=PRO-arb), and hence are identified.

Consider now the possibilities of subject construal in Infinitives, Gerunds and SASNs provided by Borer (2020):

(314) ✗ **(Distinct Subject construal excluded)**
a. [PRO *to unionize the labor force*] *entails/is* [PRO *to fire workers*]
b. [PRO *to unionize the labor force*] *entails/ means* [PRO *firing workers*]

(315) ✗ **(Distinct Subject construal excluded)**
a. [PRO *unionizing the labor force*] *entails/ means* [PRO *firing workers*]
b. [PRO *destroying the work environment*] *entailed/ meant* [PRO *reorganizing the labor force*]

(316) ✓ **(Distinct Subject construal possible)**
a. [*The unionizing of the labor force*] *entails* [*the raising of salaries*]
b. [*The destruction of the work environment*] *entailed* [*the reorganization of the labor force*]

Although Borer (2020) specifically selected the examples to favor a distinct subject construal, such construal is not licit in gerunds (315) and infinitives (314). The only reading available for e.g. (315b) is that the individuals who caused damage to the work environment are the same ones that reorganized the labor force. In contrast, in SASNs in (316), distinct subject construal is possible.

The last point testifies in favor of a passive analysis for SASNs because their SEAs tally with the SEAs of passives. Borer (2020) envisages for passives and SASNs a null indefinite pronominal pro_{indef} which can have two readings: existential and generic as illustrated in (317):

(317) a. *Committee work was successfully avoided. (→ by some)*
b. *In the Middle Ages, it was believed that if you travel West you would get to India. (→ by all)*

Whereas in their existential reading the option of the same subject construal is dis-preferred, in their generic reading the same subject reading becomes possible. The examples given in (318) confirm that a disjoint interpretation is available:

(318) ✓ **DS (Distinct Subject construal possible)**
a. *Mail was collected before tea was prepared.*
b. *The workers had to be organized before salaries could be raised.*

The range of interpretations available for PRO in gerunds and Infinitives is a subset of interpretation available for $pro_{indef.}$ in passives and SASNs. Structurally, PRO can also occur in LASNs nominals and then these two have different positions in AS nominals. PRO is located in SpecD while pro_{indef} can occupy a position below the final realization site of N.

(319) a. $[_D$ ……N … $[_\pi \pi$ $[_e$ pro_{indef} …… $[_{C=V}$ V]]]]]
b. $[_D$ PRO N $[_E$ …… $[_{C=V}$ V]]]]]

Evidence for the existence of PRO in AS nominals can be found in deadjectival nominals, henceforth Adjectival Argument Structure Nominals (AASNs). We have already shown that they cannot passivize. Thus, they do not have recourse to $pro_{indef.}$ Yet, the ungrammaticality of (320) when contrasted with grammatical cases in (311) where the definite article is missing signals that PRO must be present. If the definite article is in complementary distribution with PRO in SpecD, the examples below cannot license an external argument and ungrammaticality arises.

(320) a. **The **awareness** of the constitutional problem*
b. **The **consciousness** of my presence (*by my cats)*
c. **The **readiness** to leave (*by Robin)*

This is a welcome result because external arguments are no less optional in AS-nominals than they are in clausal structures. It now emerges that sentences such as (321) will, in principle, be ambiguous between structure (319a) and (319b).

(321) *ongoing **deprivation** of entire population*

It might be a case of nominalized passive or active structure with silent SEA-PRO in SpecD.

This section has demonstrated that SASNs emerge from the nominalization of verbal syntactic passive structure. As suggested above, I will return to the consequences of this claim when discussing Czech data.

6.1.4 By-phrases

With nominalizations, *by*-phrases are treated on a par with other PPs. In Borer's architecture. Prepositions can be classified by their complements either as nominal or prepositional, depending on whether they are followed by a Noun (322a) or another Preposition (322b) respectively:

(322) a. *I broke the glasses **to** <u>three beautiful pieces</u>.*
b. *She emerged **from** <u>under</u> the house.*

Let's explore the derivational process and the formation of Prepositional Phrases (PPs). In principle, any item from the conceptual array (323a) can merge with a Preposition (P) that

categorizes it, assigns it an interpretation, and provides its Case. This resulting PP can then merge with an L-head (as shown in (323b)) or alternatively combine with an additional PP:

(323) a. <*emerge*, *house*>
b. < *emerge* [$_{P}$ *from* [$_{DP}$ *the* [$_{N}$*house*]]] >
c. < [$_{V}$ *emerge* [$_{P}$ *from* [$_{DP}$ *the* [$_{N}$*house*]]] >

For Borer, *by*-phrases are special cases and are generated VP internally under two conditions. First, they have to express *agentive* meaning. Second, the languages should not have the option of *authorship by*. As a consequence, in languages like English, where authorship *by* is possible, as in *the book by Chomsky*, the *by*-phrase becomes ambiguous. However, in Hebrew, which does not allow for authorship *by* constructions, *by*-phrases remain unambiguous and serve as a sign of verbal projection in the language. This diagnostic can also be applied in Czech as will be shown in section 6.4.2.2.

6.1.5 Rigidity of AS- Nominals vs. Flexibility of R-Nominals

According to Borer (2013), there is a clear asymmetry in word order constrains on AS- nominals and R-nominals. Borer (2013) demonstrates this phenomenon with Hebrew examples, but analogous constraints can be found in other languages. For example, the phenomenon is discussed for Romance languages in Zubizarreta (1979); Cinque (1980) and Giorgi and Longobardi (1991), and Polish data are given in Rozwadowska (1997).

Consider first the free word-order of R-nominals in Hebrew which allows for multiple cases of the Genitive Preposition *šel*:

(324) a. *ha.tmuna* ***šel*** *van Gox* ***šel*** *ha muzeon*
the picture of van Gogh of the museum'
'Van Gogh's picture of the museum'

b. *ha.tmuna* ***šel*** *ha muzeon* ***šel*** *van Gox*
the picture of the museum of van Gogh
'Van Gogh's picture of the museum'

No such freedom is allowed in AS-nominals in Hebrew. The word order obj>subj in (325b) as well as subj>obj in (325a) is not permissible when both arguments are marked with genitive *šel*:

(325) a. * *ha.'isup* ***šel*** *Lyn* ***šel*** *ha.pitriyot*
the collection of Lyn of the mushrooms
'the collection of Lyn of the mushrooms'

b. * *ha.'isup* ***šel*** *ha.pitriyot* ***šel*** *Lyn*
the collection of the mushrooms of Lyn
'the collection of Lyn of the mushrooms'

From the previous example, one might speculate that there is a restriction on postnominal subjects in AS nominals. However, this is not the case, as demonstrated by the examples in (326). The generalization is that in AS nominals, post-nominal subjects are permissible when there is no object present (326b) or when the indirect object is present but marked differently than with *of* (326a).

(326) a. *ha.hištabcut* ***šel*** *Rina be-šuk ha.?aboda (b-a.šana ha.'axrona)*
the integration of Rina in labour the market during the past year
'Rina's integration into the market during the past year'

b. *ha.rica* ***šel*** *ha-yeladim*
the running of the children
'the running of the children'

We can now compare the situation with English. In English, both AS-nominals (327c) and R-nominals (327a) allow for two types of genitives. One is the prenominal genitive realized with *-s*, and the other is the postnominal genitive realized with an *of* phrase. Two post-nominal genitives are not permissible neither with R-nominals (327b) nor with AS-nominals (327d). Moreover, postnominal subjects are grammatical in exactly the same cases as in Hebrew as (327e) and (327f) show:[72]

(327) a. *John's* ***picture*** *of the sunflower*
b. ****picture*** *of the sunflower of John /** ***picture*** *of John of the sunflower*
c. *John's* ***destruction*** *of the city*
d. **the* ***destruction*** *of the city of John/ *the* ***destruction*** *of John of the city*
e. *The constant* ***laughter*** *of children*
f. *? the constant* ***thinking*** *of CEOs of their profit*

For the sake of space, I will not repeat the examples from other above-mentioned languages. I will only summarize the facts mentioned in Borer (2013) about the possibilities of prenominal and post-nominal genitives in R and AS-nominals. Table (328) below provides an overview of the maximum number of allowed prenominal and postnominal genitives in these languages:

(328)	**R-nominals**		**AS-nominals**	
	Pre nominal	Postnominal	Pre-nominal	Postnominal
English	**1**	**1**	**1**	**1**
Hebrew	**-**	**3**	**-**	**1**
Romance, Polish	**-(only pronouns)**	**3**	**- (only pronouns)**	**1**

[72] Borer (2013) sets aside the nature of *'s* in cases such as *a car/picture of John's* as these are prohibited in AS nominals: **the destruction of the city of John's*.

On the basis of the data in table (328) and preceding examples, there are two key points that require clarification. Firstly, we need to explain why English R-nominals do not permit multiple occurrences of *of*-phrases. Secondly, we need to understand the reason for the contrast in word order rigidity between AS-nominals and the optionality within R-nominals cross-linguistically.

As for the ban on the iteration of *of-phrases* in English, Borer (2013) supposes that it resembles a phonological restriction reminiscent of similar concatenation of *-ing* which she calls the "*Double-of Filter*". The ungrammaticality of AS nominals in (327d) as well as R-nominals (327b) with the ungrammatical structure in (329) in English can be attributed to the *Double -of Filter*.

In contrast, the rigidity of word order in AS- nominals stems from *structural* reasons. The need to license two arguments forces the higher one to raise and be case marked with '*s* in DP. As for, the internal argument *the city* in (330) cannot move to any nominal functional specifier because *John* has left a copy in all of them. Instead, it can be case marked in SpecAsp$_Q$ where it functions as the spell out of the objective Case in English in the absence of T.[73]

(329) a. *[$_D$ [$_{F3\text{-}N}$ *picture* [$_{F2\text{-}N}$ ***of*** *John* [$_{F1\text{-}N}$ ***of*** *the sunflower* [$_N$ ~~*picture*~~]]]]]
b. [$_D$ ***John's*** [$_{F3\text{-}N}$ *picture* [$_{F2\text{-}N}$ [$_{F1\text{-}N}$ ***of*** *the sunflower* [$_N$ ~~*picture*~~]]]]]

(330) a. *[$_D$ [$_{F2\text{-}N}$ *destruction* [$_{F1\text{-}N}$ *of* ***John*** [$_N$ ~~***destruction***~~ [$_E$ ~~***John***~~ [$_{AspQ}$ *of the city*]]]]]
b. [$_D$ ***John's*** [$_{F2\text{-}N}$ *destruction* [$_{F1\text{-}N}$ ~~***John***~~ [$_N$ ~~*destruction*~~ [$_E$ ~~***John***~~ [$_{AspQ}$ *of the city*]]]]]]

Now, consider the Hebrew R-nominal from example (324) and AS-nominals from (325a). The examples in (331a) show that in contrast to English, the Double-*of* Filter is not operative in Hebrew (nor in Polish and Romance), thus nothing prevents Hebrew R-nominals from appearing with two genitives.[74]

However, in Hebrew AS-nominals (331b), a similar limitation as in English arises, only one DP can move, the other is blocked by a trace and has to stay put. Moreover, objects marked with *šel* in Hebrew must undergo Case marking within a nominal domain, which renders them illicit. This situation is analogous to what happens in Polish and other languages.

(331) a. [$_D$ *tmuna* [$_{F2\text{-}N}$ ***šel*** *van Gox* [$_{F1\text{-}N}$ ***šel*** *ha muzeon* [$_N$ ~~*tmuna*~~]]]]
[$_D$ *picture* [$_{F2\text{-}N}$ *of Van Gogh* [$_{F1\text{-}N}$ *of the museum* [$_N$ ~~*picture*~~]]]]

b. *[$_D$ *ha.'isup* [$_{F2\text{-}N}$ *šel Lyn* [$_{F1\text{-}N}$ *šel ha.pitriyot* [$_N$ ~~*ha.kaxa*~~ [$_E$ ~~*Lyn*~~ [$_{AspQ}$ ~~*ha.pitriyot*~~]]]]
*[$_D$ *collection* [$_{F2\text{-}N}$ *of Lyn* [$_{F1\text{-}N}$ of *the mushrooms* [$_N$ ~~*collection*~~ [$_E$ ~~*Lyn*~~ [$_{AspQ}$ ~~*the mushrrom*~~]]]]]

[73]Rightward movement and adjunction are excluded.
[74] This reveals the ad hoc nature of Borer's empty Double *of* filter.

In contrast, Hebrew AS nominals with object marking *et* are the realizations of objective marking which can be licensed in Asp_Q in the absence of T. Therefore, Long AS nominals as shown in (332) are possible.

(332) [$_D$ *ktiba* [$_{F1\text{-}N}$ *šel Ran* [$_N$ ~~*ktiba*~~ [$_E$ ~~*Ran*~~ [$_{AspQ}$ (***et***) *miktab*]]]]]
[$_D$ *writing* [$_{F1I}$ *an* [$_N$ ~~*writting*~~ [$_E$ *Ran* [$_{AspQ}$ *the letter*]]]]]

We have not touched so far on the fact that both orders NSO as well as NOS are possible in R-nominals as in (324a) and (324b) respectively. Borer (2013) puts forward that only the complex NO or VO could move. She excludes the possibility that the N-head and the complement are subject to separate fronting. Consequently, the word order in the result nominals is achieved by movement SNO→NOS as demonstrated in (333) below.

(333) [$_{F4\text{-}N}$ [$_{F3\text{-}N}$ Possessor/Author [$_{F2\text{-}N}$ *picture* [$_{F1\text{-}N}$ Depicted [$_N$ ~~*picture*~~]]]]]

Conversely, VO is unable to move to some specifier because the incorporation of V to N would be blocked and the derivation would crash.

This distinction between AS-nominals and R-nominals would be unexplainable under Grimshaw's framework who postulates the separation of the external argument in nominalizations. In turn, this external argument would have to merge with some projection of N and then (in English) possibly re-merge with D. Consequently, nothing would block the movement of the internal argument in AS nominals.

The rigidity of AS nominals as opposed to R-nominals stems from the Case-licensing mechanism. As I will explain later, in Alexiadou the rigidity of AS nominals is also related to Case-licensing but stems from ergative patterns in nominalizations. I will assess these issues in section 6.4.4 when analyzing Czech data. The objective will be to determine which theory is more appropriate and able to explain a complete range of nominalizations with as little appeal to ad hoc devices as possible.

As part of this, I will also examine ditransitive, unaccusative, and unergative structures, which are briefly introduced in the subsequent sections.

6.1.6 Ditransitives

The system for Case-licensing outlined above accounts for the fact that ditransitives cannot occur in English nominals as in (334b):

(334) a. *Carly's generous **giving of** candy **to** the children*
b. **Carly's generous **giving** **(of)** the children **(of)** candy*

The third argument cannot be licensed in any nominal functional projection as all merger sites have been pre-empted by moving of the logical subject *Carly* to SpecD. Nor can it receive an objective marking of due to the extension of the Double -*of* Filter. What can of, course converge is the derivation, where the goal argument *to the children* in (334a) is otherwise licensed.

6.1.7 Unaccusatives and Unergatives

Unaccusatives (335) and Unergatives (336) belong to the category of intransitive AS-nominals, making them examples of Long active AS-nominals rather than Short passive AS-nominals:

(335) a. *the **arrival** of the train*
b. *the **sinking** of the ship*

(336) a. *the **moving** of the train*
b. *the **dancing** of children*

While in certain languages. e.g. German, unergatives occasionally form passives (337), it is a well-known fact that unergatives do not cross-linguistically passivize.

(337) *Es* *wurde* *den ganzen Abend* *gentantz/gelacht/gesprochen.*
it AUX.PAST the$_{ACC}$ whole$_{ACC}$ evening$_{ACC}$ dance/laugh/speak$_{PAST.PRT}$
'People were dancing/laughing/speaking the whole evening.'

Such cases in (337) are analyzed as impersonal passives (Roeper, 2020), which are not commonly found in English. They do not give rise to passive nominalizations (338) either:

(338) **Die* *Getanzheit/Gesprochenheit/Gelachheit* *des Abends*
the dancing/speaking/laughing evening$_{GEN}$
'Dancing/Speaking/Laughing of the evening '

As far as unaccusatives are concerned, Borer (2013) claims that unaccusative do not take *by*-phrases and do not allow implicit argument control as their clausal counterparts, see below:

(339) a. *The **arrival** of the train (*by the conductor).*
b. *The **sinking** of the ship (*by the navy)*
c. *the **accumulation** of dust (*in order to grow tomatoes)*
d. *the **separation** of the cream (*in order to make the cake)*

In the derivation of both unaccusatives and unergatives, the argument might be Case-marked in situ or alternatively in some nominal projection. Their V incorporates into N and raises to some higher nominal functional layer, but not to D. The only difference lies in unaccusatives having the functional layer Asp$_Q$ present, causing the argument to originate lower in the structure. On the other hand, unergatives lack this Asp$_Q$ layer, resulting in the argument starting from a higher position, as depicted below:

(340) a. [$_D$ [$_{F2\text{-}N}$ V-C$_{N[V]}$ [$_{F1\text{-}N}$ ***of*** DP1 ~~V-C$_{N[V]}$~~ [$_N$ ~~DP1~~ ~~V-C$_{N[V]}$~~ [$_E$ ~~DP1~~ ~~V~~ [$_{C=V}$ ~~V~~]]]]]
b. [$_D$ [$_{F2\text{-}N}$ V-C$_{N[V]}$ [$_{F1\text{-}N}$ ***of*** DP1 ~~V-C$_{N[V]}$~~ [$_N$ ~~DP1~~ ~~V-C$_{N[V]}$~~ [$_E$ ~~DP1~~ ~~V~~ [$_{ASPQ}$ ~~DP1~~ ~~V~~ [$_{C=V}$ ~~V~~]]]]]

6.1.8 Zero Derived Nominals

Borer (2013) supports the idea that there is no zero realization for $C_{N[V],}$ meaning there is no zero-nominal suffix. Thus, the relationship between the pair *a walk/to walk* is captured by the same root which gets categorized by corresponding nominal or verbal projection D, T:

(341) a. [D [$_{C=N}$ √ WALK]]
b. [T [$_{C=V}$ √ WALK]]

She discusses several characteristics of the zero derived nominals (ZNs) which lead her to this proposal. First and foremost, the property of zero-derived nominals is their inability to form AS nominals. This can be illustrated by comparing the examples below:

(342) a. *the **walking**/**walk** of the dog for three hours*
b. *the **importation**/* **import** of goods from China in order to bypass ecological regulations*

Second, zero derived nominals may exhibit stress shifts when compared with their verbal correlates. In the Exo-skeletal model, these phonological changes testify in favor of a root analysis.

(343) a. *permít$_V$ → pérmit$_N$*
b. *progréss$_V$→ prógress$_N$*
c. *ekspórt$_V$ →éksport$_N$*

Third point suggests if zero nominal suffix were able to incorporate verbal structure, it should be compatible with verbalizing suffixes such as *-ize* and *-ify*, just like some overt suffixes are. However, this is not observed as (344) indicates:

(344) a. *Crystal-ize* **the crystal-ize- Ø$_N$* *the crystalization*
b. *acid-ify* **the acid-ify- Ø$_N$* *the acidification*

Borer also quotes some exceptions in (345) that could potentially form AS-nominals. She does not extensively explore these exceptions in her discussion. In a footnote, she remarks that all these forms are of Latinate origin and do not exhibit stress shifts. As a result, it is speculated that in these instances, a suffix may be postulated that is phonologically robust enough to block stress shift.

(345) *change, release, use, murder, discharge, endeavor, consent, resolve, descent, decline, collapse, rape*

During the analysis of Czech data in section 6.4.2.1, I will evaluate whether zero-derived nominals possess a nominal suffix or if they are devoid of such a suffix.

6.1.9 Adverbs

According to Cinque (1999) and other authors, Adverbs have the ability to indicate the existence of certain functional projections. Moreover, they often share meaning with their adjectival variants, suggesting an interplay between these two word groups.[75]

In particular, she proposes that specific types of Adverbs are licensed in particular projections. Very schematically, this proposal is outlined below:

(346)
- [$_{C/T}$ (proposition) **evidential** adv (V)
- [$_{E}$ "**agentive**" adv (V)
- [$_{T}$ [$_{G\text{-}ASP}$ **g-asp** adv (V) [**manner** adv V]]]]]

The scheme above predicts that the occurrence of agentive and manner Adverbs *frequent* and *cruelly* in examples such as (347) signals the eventive characteristics of AS-nominals in Hebrew. Borer also points out that in Hebrew, Adverbs can appear together with Adjectives in AS nominals, which rules out the possibility that Hebrew AS nominals are sometimes gerunds and sometimes more nominal.

(347)

*ha.**dikkuy***	*ha.**takup***	*šel*	*ha.caba*	***be'akzariyut***	*'et*	*ha.'oklosiya*
the oppression	the frequent	of	the army	cruelly	OM	the population

gorem le-harbe sin'a.
cause to-much hatred
'The army's frequent cruel/intentional oppression of the population gave rise to much hatred.'

Not all Adverbs can, however, occur in AS- nominals. Evidential and aspectual Adverbs, in particular, are not licit which can be explained by the absence of G-ASP, which bars aspectual Adverbs:

(348)

*ha **biššul***	***(tamid)***	*šel*	*Dan*	***(tamid)***	*et*	*ha.cli*
the cooking	always	of	Dan	always	OM	the roast

'the cooking (always) of Dan (always) the roast'

The distribution of Adverbs in English further corroborates this analysis. English gerunds lack T but possess G-ASP, which explains why evidential Adverbs are not prohibited, while aspectual Adverbs are acceptable.

[75] This observation is not unexpected since Adjectives and Adverbs are often argued to be part of a unified A-category (see e.g. Emonds, 2000 for extensive argument). I am not going to question categorial taxonomies here, assuming simply parallelism of both meaning and form.

(349) a. *Mary (’s) **eating** pasta **often**.*
b. *Bill **always talking** to his neighbor.*

(350) a. ***Mary(‘s) **presumably eating** pasta.*
b. ***Bill **evidently talking** to his neighbor.*
c. ***(Mary’s) **(fortunately)discovering** this evidence **(fortunately)** shed light on the interpretation*

Furthermore, Borer (2013) sees the relative grammaticality of manner and agent-oriented Adverb in AS nominals (351) compared to their complete ungrammaticality in R-nominals (352) as evidence for the assertion that R-nominals do not include verbal functional structure:

(351) a. *?Even though it was expected, I was nonetheless shocked by Jane’s **resignation** from the bank so **quickly**.*
b. *?The **disassembling** of this antique furniture **successfully** will require many hours of work, but its potential renovation is dependent on it.*

(352) a. ***the **race** to the mountains **deliberately***
b. ***Sarah’s **wedding** to Tom **happily***

Importantly, there is an interaction between Adverbs and adjectives in the syntactic structure. The actual content of Adverbs can, in fact, be expressed by adjectives both in AS-nominals (353) as well as in simple events (354). It can even include the content of Adverbs which is barred in gerunds. Compare the modifier *presumably* in gerund (350a) with the one in the AS-nominal (353b):

(353) a. *The **fortunate discovery** of this commentary may shed light on the interpretation.*
b. *The court presupposed the **presumed destruction** of the evidence.*

(354) a. *John’s **fortunate trip** to the mountains*
b. *her **presumed lecture** on biology*

The above explanation can help us roughly describe distributional characteristics of English and Hebrew AS-nominals. I will apply this diagnostic to Czech nominals and identify the existence of individual functional projections.

6.1.10 Compositionality of nominals

Derived nominals can be characterized also with respect to their *compositionality*. By ‘compositional’ we refer to the fact that the Content of the whole can be directly computed from the Content of its parts. If so, the AS nominals are always compositional while no such restriction holds for R-nominals, which can be either compositional or non-compositional.

Recalling the construction of Content as a component of meaning from section 3.2.3, we can now elaborate on the Content in more detail. First of all, Borer assumes that Content matching is not only cyclical but also optional.[76]

Interestingly, R-nominals and AS-nominals are *morpho-phonologically identical* which means that the very same morpho-phonological derivative is ambiguous between the two. For example, the word *transformation* can be an AS nominal or R-nominal. Therefore, the differences in the content between the two cannot be accounted to surface forms. Rather, the culprit is the presence or absence of the argument structure within these constructions. According to Borer, the Content beyond the merger of extended functional projections[77] must be compositional.

Let us explain this with some concrete examples. While in R-nominals in (355) the content can be matched either in phase I or phase II, in AS nominal in (356), the only option is assigning the content to *transform*. This limitation arises due to the presence of functional projection layers which delimit the Content domain and gives rise to compositionality.

(355)

Phase I	***transform***	→ TRANSFORM	Compositional
		→φ	Non-compositional
Phase II	**[N [*transform*] *ation*]]**	→TRANSFORM + $C_{N[V]}$	Compositional
		→TRANSFORMATION	Non-Compositional

(356) [N [ExP [ExP [*transform*]] *ation*] →TRANSFORM + $C_{N[V]}$

After discussing Borer (2013)'s framework for nominalizations and its significant aspects, we can now proceed to examine Alexiadou's approach to nominalizations and draw a comparison between their perspectives to motivate the choice of the model I will use for my analysis of Czech data in the following sections.

6.2 Alexiadou (2020) – The Structure of Nominalizations

In her article *D vs. n nominalizations within and across languages* (Alexiadou, 2020) the author proposes a unified structure for all types of nominalizations as in (359). Let us compare her scheme with the structure she used with Nouns (as in (145) in section 4.2) repeated here for convenience in (357)

(357) Nominal Functional Projection
[DP [#P (quantity) [DivP plural marking [*n*P Gender [Root]]]]]

And with the verbal domains (as in in (223) section 5.2) repeated below in (358):

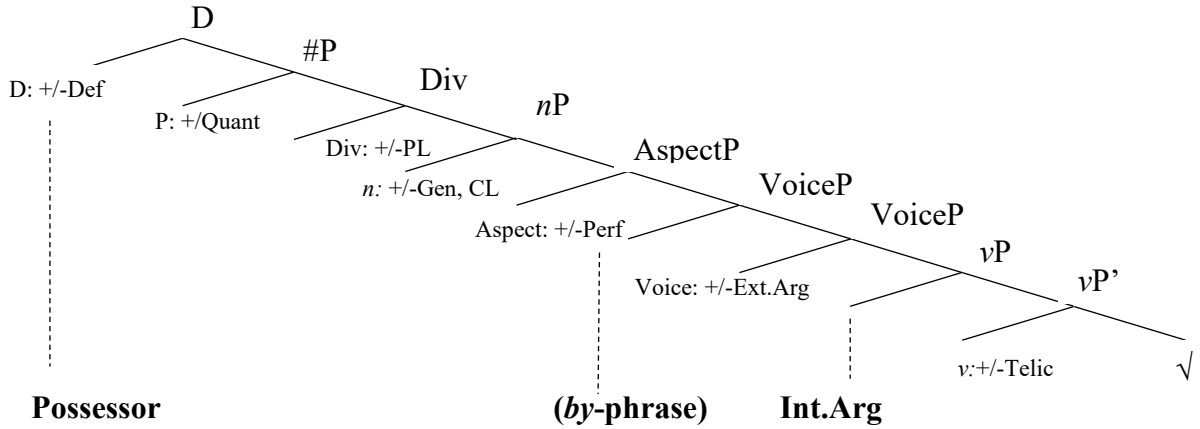
[76] Borer (2013) illustrates her viewpoint using examples from the poem Jabberwocky by L. Carroll, where items like *slithy* or *mimsy* lack explicit content. Additionally, she points to instances like *bloody* where no content is attributed to *blood*, but the content is instead matched with the entire derivative as a whole.

[77] Borer calls this an Exp-segment. This means segments of Extended Projections (e.g. for a verbal Extended Projection T, G-ASP and so on).

(358) Verbal Functional Projection
[CP --- [TP --- [AspectP --- [VoiceP *external arg* [*v*P *internal arg* [Root]]]]]

For nominalisations (359) Alexiadou proposes that the verbal layers are embedded under nominal layers and can be nominalized either by *n* or D.

(359) Structural representation of nominalizations in Alexiadou (2020)



For English, Alexiadou (2020) does not expect higher verbal layers such as T, CP and therefore these are not included in our structure. [78]Unlike Borer (2013), however, Alexiadou (2020) does not posit different structures for AS-nominals and R-nominals. Instead, she argues that the various nominalizations arise due to the different height attachments of the nominalizer, as will be explained later. All the functional projections in the structure depicted above have been demonstrated in the previous two chapters. Their roles in nominalizations will be illustrated in the following section through various examples.

6.2.1 n-based and D-based Nominalizations

In Alexiadou's model various types of nominalizations cross-linguistically can be formed based on the cut-off points within the structure where *n* or D can attach. Due to *n* or D attachment, Alexiadou (2020) establishes two nominalization strategies described in (360): (a) the n-nominalizations and (b) the D-nominalizations.

(360) a. [CP [TP **n** [AspectP **n** [VoiceP **n** [vP]]]]]
b. [**D** [CP **D** [TP **D** [AspectP [VoiceP [vP]]]]]

A distinction between the two kinds of nominalizations is the level of the verbal structure they can comprise. Alexiadou assumes that the verbal extended projection can be interrupted at any point but *n* cannot nominalize TP and CP. These two layers can only be nominalized by D. I will summarize other distinct characteristics of the two kinds of nominalizations in the following section referring to English examples and the structure in (359).

[78] These structures are possible in Turkish or Japanese, see Alexiadou (2020).

Let us start with *n*-based nominalizations. When the nominalizer *n* attaches directly to the root, no verbal characteristics are expected and various non-eventive nominals are derived as illustrated below:

(361) a. *a cat/a table/a dog (*for/in three hours)*
b. [D [#P [DivP [nP [√]]]]]

The first functional layer in the verbal projection as in (359) is *v*P. After the attachment of *n* to this functional projection, *result* (363d) and *simple event nominals* (363a-c) are generated with the structure in (362). The verbal (*v*) level in these Nouns can be detected by the presence of adjectives like *rapid* and *rough* which modify the event of delivering, estimating and measuring in (363). Unlike Derived nominals, however, these nominalizations do not require their internal arguments obligatorily as in (363e):

(362) [D [#P [DivP [nP[*v*P[√]]]]

(363)	a.	*the rapid **delivery***	**SEN**
	b.	*the rough **estimation***	
	c.	*the **examination** lasted for hours*	
	d.	*the **examination** was on the table*	**RN**
	e.	*The **examination** (*) of students took a long time.*	**Derived nominals**

The next functional head in the verbal projection in (359) is the layer of Voice which introduces external arguments. The diagnostics for the presence of Voice is a self-action interpretation. Compare the sentences in (364):

(364)	**Voice diagnostics**		
a.	*The children were being registered.*		**Passive**
	i.	*Th=Ag: *The children registered themselves.*	
	ii.	Th ≠ Ag: *The children were registered by someone.*	
b.	*The reported mentioned the painfully slow **registering** of children.*		**Nominal Gerund**
	i.	*Th=Ag	
	ii.	Th ≠ Ag	

c.	*The report mentioned the painfully slow **registration** of the children.* i. Th=Ag ii. Th ≠ Ag	**Derived nominals**

Nominal gerund (364b) and verbal passives (364a) pattern together and do not allow a *self*-action interpretation. English nominal gerunds thus arguably contain Voice, but it resembles a passive-like Voice as it does not project genuine external arguments. This is evident from its similarity with passives in excluding self-action which is a standard diagnostic for passives in Kratzer (1996).

By contrast, the derived nominals in (364c) are compatible with *self*-action signaling lack of Voice. For these reasons, Alexiadou suggests that derived nominals have an intransitive base, they are more like unaccusatives, and their external arguments are realized as Possessors. These prenominal possessives are generated in SpecDP directly and can be thematically interpreted as an Agent/Causer because in English Spec(DP) is considered as an A-position (since Abney 1987) (Alexiadou, 2001).

Missing the Voice layer, derived nominals in (364c) have the same structure as Result nominals and SENs in (362). It means that the height attachment of the nominalizer cannot be the whole story. More needs to be said about licensing of arguments and this issue will be addressed at a later point in our discussion.

As additional support for intransitivity in nominals, Alexiadou (2001) finds in examples such as (365) where Agent cannot normally appear in prenominal position:

(365) a. **John's **growth** of tomatoes*
b. *the **growth** of tomatoes*
c. *John **grows** tomatoes*

If nominals were normally transitive, these restrictions would not occur. This asymmetry has already been noticed by Chomsky (1970) who took it as an argument of lexicalist treatment of derived nominals.

As far as the level of AspectP is concerned, it is evidence by an Aspect shift (see section 5.2.3) and aspectual adverbials. While they are not permitted in nominal gerunds, verbal gerunds allow them:

(366)	[D [#P [DivP [nP[$\text{Voice}_{\text{INTRANS}}$ P[vP[√]]]]	**Nominal Gerund**
a.	*John's (*constantly) **omitting** of details (*constantly)*	
b.	*Bill's (*always) **talking** of his neighbor (*always)*	

(367)	[D [Aspect P[$\text{Voice}_{\text{TRANS}}$ P[vP[√]]]]	**Verbal Gerund**
a.	*Mary's constantly **writing** a letter to John*	
b.	**Mary's constantly **writings** a letter to John*	
c.	*Bill always **talking** to his neighbor.*	
d.	**Bill always **talkings** to his neighbor*	

Also, notice that verbal gerunds need to be nominalized by D. As a result, they cannot pluralize (367b) and (367d) - pluralization is a nominal feature situated in DivP. Once *n* is projected, the whole nominal structure would have to be present. From this perspective, the interesting correlates of *n*-based and D-based nominalization strategies identified in Alexiadou (2020) can be seen below:

(368)	**n-based**	**D-based**
Gender	✓	✗
DivP	✓	✗
All types of Determiners	✓	✗
Internal argument with GEN	✓	✗
External argument with NOM	✗	✓

6.2.2 Argument Structure of Nominals

As for the licensing of the AS, in her earlier work Alexiadou (2001) assumes that internal arguments could be introduced by roots. This option was revised later on in Alexiadou (2014c)[79] and in the present-day model the responsibility for the introduction of internal arguments lies with the *v* layer. This move remains controversial because the *v* layer is also present in simple and result nominals. If simply the attachment of a nominalizer played a role, the distinction between Grimshaw (1990)'s notion of a complement (an expression that corresponds to a position in the lexical conceptual structure of the head) and an argument, which is reserved for AS-nominals, were blurred.

To solve this, Alexiadou (2009) suggests that *v* cannot be a prerequisite for licensing AS, i.e. she divorces the verbalizers from argument licensers. Subsequently, arguments are introduced in other designated layers, e.g. external arguments (*by*-phrases) are licensed by Voice or as Possessors in SpecDP. Internal argument can be introduced by *v* but relying solely on the height of nominalizing attachment fails to account for the distinctions between SENs and CENs nominals as suggested above. Therefore Alexiadou (2009) suggests that there is an interplay between obligatoriness of arguments, aspectual issues and countability. All nominals licensing AS need to bind their internal arguments with some aspectual operator as explained in Alexiadou & Schäfer (2010).

Aspectual issues of derived nominals are represented with two aspectual levels (telicity/perfectivity) which has implications for nominals that exhibit both levels, or just one aspectual level. Notably, verbal gerunds possess presumably both of these aspectual levels and the higher level is in the complementary distribution with the Number layer. This accounts for the divergence of verbal gerunds from prototypical derived nominals, as they cannot be modified by adjectives and do not exhibit pluralization, see Alexiadou (2017d)'s example below:

[79] Particles, PPs and small clauses can also introduce internal arguments in Alexiadou's framework.

(369) **He could not stand her **criticizings** me.*

On the other hand, certain types of AS- nominals lack (+/-Perfectivity) and have only the inner Aspect (+/- Telicity). Interestingly, a subtype of them has the ability to pluralize, which is associated with their inner Aspect, see the examples in (370) quoted in Alexiadou (2009). Telic nominals can undergo pluralization while preserving their aspectual structure, whereas atelic nominals cannot.

(370) a. *He caused <u>three</u> **murders** of witnesses that was supposed to testify at trial.*
b. *There was at least <u>one</u> **pushing** of the cart to New York by John.*

To conclude the current discussion, we can state that when the internal argument is bound by some inner Aspect operator, *v* is an Argument licenser whereas when the argument is not bound, it will be just a verbalizer.

Notice that Borer (2013)'s assumption that the functional event structure correlates with AS licensing no longer holds in Alexiadou's framework due to the presence of *v*. Furthermore, in Borer (2013), there is a strong correlation between Aspect and the licensing of AS. If Aspect is missing, the AS is not licensed. Although Alexiadou and Schäfer (2010) argue that Aspect can be responsible for AS, it does not always have to be the case and the absence of Aspect, signaled by the absence of aspectual modifiers, does not necessarily imply the absence of an internal argument. In fact, these authors propose a different type of Aspect, namely dispositional Aspect, which can license AS.

To analyze the status of internal arguments in both relevant frameworks, we need to investigate the behavior of deverbal *compounds* (DVC) in both. The following examples show that deverbal compounds, whose non-heads are interpreted as internal arguments, disallow *by*-phrases as well as aspectual modifiers, consequently failing to display typical AS-properties, Borer (2013) argues that they are result nominals.

(371) a. *the house demolition (*by the army) (*in two hours)*
b. *the facility maintenance (*by the management) (*for two hours)*

(372) a. *the demolition of the house (by the army) (in two hours)*
b. *the maintenance of the facility (by the management) (for two hours)*

Alexiadou (2017c) in her study of deverbal compounds, notices that when the definite Determiner is not present, the examples (371) become acceptable, as can be seen in (373):

(373) a. *book reading (by students)*
b. *house demolition (by the army)*

The reason for this is that the internal argument is not a full DP but only a NumberP. As a result, the whole event cannot be quantized. In such cases, the internal argument has generic interpretation which is a hallmark of DVCs. Hence, the deverbal compounds in (371) are incompatible with definite Determiners. Another environment where genericity can be detected

are generic middles in (374), which do not need to refer to actual events, i.e. it can be true even if no one ever climbed that mountain.

(374) *This mountain climbs easily.*

Thus, Alexiadou and Schäfer (2010) propose that we need to dissociate between event Aspect and dispositional Aspect, representing two different heads $\text{Asp}_{\text{EPISO}}$ and $\text{Asp}_{\text{DISPOS.}}$ respectively. On this view, we could account for licensing AS in deverbal compounds by the fact that the event variable in *v*P is bounded by a dispositional operator in $\text{Asp}_{\text{DISPOS.}}$ The precise details and consequences of this proposal are beyond the scope of this study, the purpose of this part was to illustrate the different treatment of Aspect Phrase, traditionally detected by aspectual modifier as in (372). In cases where aspectual modifiers are missing, Borer's nominalizations could not have arguments, Alexiadou's nominalization structure, on the other hand, could be rescued by means of $\text{Asp}_{\text{DISPOS.}}$

In Chapter 7, I will discuss countability of AS nominals. I will get back to some topics mentioned in the above section and provide more comprehensive examination of the relationship between Aspect and countability which will allow me to propose more precise analysis.

6.2.3 Rigidity of AS- Nominals vs Flexibility of R-nominals

The rigidity of AS nominals is closely related to ergative patterns that nominalizations exhibit cross-linguistically. These issues will be elaborated in this sub-section. According to Alexiadou (2017d), the ergativity in nominalizations is associated with the type of nominalizations that contain an *n* head which renders them passive-like. This is due to the fact that *n* selects for a structure that does not project an external argument. The result then can be either a deficient VoiceP as in nominal gerunds in example (366) or unaccusative structure (375).

As a reminder, unaccusative Verbs do not undergo passivization, and their corresponding nominals in (375) do not permit *by*-phrases. This was previously illustrated in section 6.1.7 concerning unaccusatives in Borer's theory of nominalizations. In Alexiadou's framework, these structures will lack Voice in their functional projection, and their arguments will be projected in Spec *v*P, as discussed in section 5.2.2 about Voice in the verbal domain.

(375) *The arrival of the train (*by the conductor).*
[D [#P [DivP [nP[vP[√]]]]

In the literature, it has been claimed, in fact, that ergative languages are reflexes of a passive/unaccusative system, e.g. Nash (1996). These languages have a deficient Voice head, and there is only one structural argument checking structural case. The other argument, in the case of transitives, surfaces with ergative Case. Ergative is then seen in current literature as either a prepositional or a possessive Case.

Alexiadou (2017d) argues that this is exactly what happens in nominalization and it is the reason why we cannot have two genitives with AS-nominals. Before embarking on explanation, let me deal with ergative languages more in detail.

The term ergative is used to describe a grammatical pattern in which the subject of an intransitive clause is treated in the same way as the object of a transitive clause. Examples from the ergative language Tonga are quoted in Alexiadou (2001) to exemplify this concept.

(376) a. *Na'e* *tamate'i* *'a-Kollaiate* *'e Tevita*
AUX.PAST kill ABSGoliathh ERGDavid
'David killed Goliath.'

b. *Na'e* *alu* *'a-Tevia* *ki Fisi*
AUX.PAST go ABSDavid to Fiji
'David went to Fiji.'

More specifically, in ergative languages the Agent is referred to as the A-argument and is marked with ergative Case, the Patient is called the P-argument and is marked with absolutive Case as seen in (376a), the sole argument of intransitives named the S-argument receives absolutive Case (376b). This state of affairs resembles nominalizations where the theme *the city* in (377a) and the intransitive subject *John* in (377b) have the same Case-Genitive. The external argument/Causer in (377a) is introduced by PP.

(377) a. *The destruction of the city by Caesar*
b. *The arrival of John*

The similarities between the patterns in nominalizations and ergative languages described above are summarized in (378). This table also visualizes patterns in Nominative-Accusative languages:

(378)	N/A system	E/A system	Nominalizations
A-argument	NOM	ERG	PP
S-argument	NOM	ABS	GEN
P-argument	ACC	ABS	GEN

Having analyzed ergative patterns, we can proceed to Case assignment. According to Alexiadou (2017d), Case assignment is seen as a property of a particular domain. In the verbal domain, the relevant domain is CP while in the nominal domain the candidates are *n*Ps and DPs.

Specifically in the cases of nominal gerunds or derived nominals, the domain is *n*P. Alexiadou (2017d) argues that *n*P has properties similar to passives and its task is to turn a transitive verb into a passive construction. More importantly, there is only one head for one argument to agree (presumably AspectP). Alexiadou claims that the argument that receives structural Case is the one which surfaces with a genitive form. For the other argument, in the case of transitive verb, the only option is to surface as a *by*-phrase adjoined to $\text{Voice}_{\text{PASSIVE}}$ or escape *n*P and merge higher in SpecDP. This latter situation is visible in example (379):

(379) *Caesar's* ***destruction*** *of the city*

Ergative patterns of nominalizations thus arise in the similar way as in ergative languages where there is a deficient Voice head and only one structural argument checking structural Case. Regarding transitive Verbs, these cannot assign two Cases leading to the emergence of the unmarked Absolutive Case. Agents, then, have to surface as PPs or Possessors.

The question of ergativity within nominalizations leads to different consequences than those that were established in Borer (2013). Therefore, in section 6.4. I will employ a range of diagnostics to ascertain whether Czech nominalizations align with this pattern.

6.2.4 Passivization Process in Nominals

Alexiadou (2001) argues that the nominals of the type (380a) are not derived through a process of passivization as it developed in Borer (2013). Consequently, there can be no object movement, e.g. *the city* into prenominal position giving (380a). This is because all nominals are inherently passive-like/unaccusative from the outset, and passivization is not required for their formation.

(380) a. *city's* ***destruction*** *(in two days)*
b. ***destruction*** *of the city (in two days)*

Note that Grimshaw has also advanced the argument that Nouns are intransitive, but in her theory, intransitivity pertains to the notion that Nouns function as defective theta-markers. From this, the fact that passive complex event nominals do not exist for Grimshaw can be deduced. They are necessarily result Nouns. Alexiadou (2001) casts doubt on Grimshaw's analysis and argues that passive nominals are eventive. In support of her claims, she provides examples like (380), demonstrating that passive nominals can even be modified by aspectual modifiers.

These nominals are derived by directly merging the theme DP at SpecDP. Given that SpecDP is not restricted to a single thematic role, such a direct merging is possible without necessarily assigning an agent interpretation to the DP. On this view, passive nominals differ from non-passive ones in the base position of their theme arguments.

Additionally, the nominals of types (380a) and (380b) in Alexiadou's framework are already similar to passives/unaccusatives. Borer (2013), on the other hand, views (380b) as ambiguous between active and passive, and (380a) as derived through object preposing.

6.2.4.1 By-phrases

Alexiadou (2001) explains that *by*-phrases in verbal passives must be distinguished from *by*-phrases in nominalization. The explanation why this is so in the nominalizations was partly described above in relations to Case assignment. Thus, whereas in verbal passives the theta role is transmitted to the *by*-phrase, this does not occur in nominalizations where the *by*-phrase is rather dependent on the affected internal theme. This is captured by William (1987)'s generalization (p. 365):

(381) The Agent is assigned to a by phrase if there is an internal theme.

A supportive argument can be found elsewhere in the literature. Notably, *by*-phrases in verbal-passives can bear any thematic-role whereas *by*-phrases found in nominals are thematically limited. *By*-phrases in derived nominals can only be interpreted as Agents, Instruments or Creators, as in examples cited by Alexiadou et al. (2009):

(382)	a.	*the **imprisonment** of refugees by the government*	***Agent***
	b.	*the **destruction** of the city by lightning*	***Causer***
	c.	*the **fear** of Harry (*by John)*	****Experiencer***
	d.	*the **receipt** of the package (*by John)*	****Recipient***
(383)	a.	*Harry was **feared** by John.*	***Experiencer***
	b.	*The package was **received** by John*	***Recipient***

If *by*-phrases in verbal passives are different from *by*-phrases in nominalizations, it further supports the claim that nominalizations exhibit ergative pattern.

A point of clarification is necessary. It has been shown above that Derived nominals as in (384) have an intransitive base and are more like unaccusatives because they exclude self-action. But we can see that *by*-phrases are possible:

(384) a. *The **destruction** of the city by Caesar*
b. *the **translation** of the book by Peter*

More specifically, Alexiadou (2020) does not claim that *-ation* nominals always lack Passive Voice but that they *can* lack it.

6.2.5 Adverbs

Alexiadou (2001) reaches similar conclusions as Borer (2013) with respect to Adverbs in nominalizations. Different types of Adverbs are linked to particular functional projections. There is, however, a slight discrepancy between their perspectives, regarding manner Adverbs. Alexiadou views manner Adverbs as a crucial test for the presence of the Voice projection while for Borer (2013) they testify only in favor of some lower verbal projection. I will not cite any data because the other conclusions are the same as in Borer. What is important to emphasize is that if any types of adverbs are present in nominalizations, the eventivity of nominalizations can be confirmed. I will apply these diagnostics to Czech data to assess the individual functional projections in nominalizations.

6.2.6 Zero Derived Nominals

In contrast to Borer's perspective, which excludes the possibility of zero derivation, Alexiadou (2009) asserts that zero derivation is indeed possible. Without the option of zero derivation affixes, it could become challenging to account for cases that appear to function as argument-taking Nouns. Several examples demonstrating this phenomenon can be found in Newmeyer (2009):

(385) a. *the frequent **release** of the prisoners by the governor*
b. *the frequent **use** of sharp tools by underage children*
c. *an officer's too frequent **discharge** of a firearm*

Consider also the cases reported by Iordăchioaia (2020) in her corpus study of zero-derived nominals:

(386) a. *a complete **crash** of the US economy*
b. *investigated the deliberate **crash** of a Germanwings passenger jet into a mountain side*
c. *Tokyo allowed the continued **import** of South African coal*

Although Iordăchioaia (2020) haven't identified them with aspectual modifiers in her corpus, which would be a signal for their AS status, some eventivity seems to be included in these cases, e.g. they realize *of*-PPs in eventive contexts. Compare now the structure (387a) with (387b) which would be assigned to these nominals in Borer's and Alexiadou's frameworks respectively:

(387) a. [D …. [$_{C=N}$ √ *import*]]]]
b. [D …. [*n*P[*v*P[√*import*]]]]

Obviously, Borer (2013)'s structure lacks an explanation for why these constructions are eventive. I will further support my view in section 6.4.1 when dealing with Czech zero derived nominals.

6.3 Comparison of Borer's and Alexiadou's Frameworks in Nominalizations

I mentioned some theoretical distinctions between the two relevant models on nominalizations already in the preceding sections. Here I will briefly summarize the common basic assumptions and indicate the main points of contrast.

Alexiadou in her studies as well as Borer suppose that deverbal AS nominals contain verbal layers which distinguish them from standard Nouns (including R-nominals). With the nominals derived from Verbs, they both assume that the verbal part of the structure is subsequently nominalized by the merge of some nominal functional heads.

For Borer, argument structure and eventuality can emerge only in the presence of relevant verbal layers. The presence of Aspect and aspectual modifiers plays a key role in detecting the verbal layers. Borer also postulates an Event Phrase that must be always present in AS nominals. The emergence of external arguments and internal arguments is orthogonal to the presence of these nodes.

Alexiadou, in contrast divorces the introduction of optional complements from aspectual levels. In her theory, complements arise as specifiers of the categorizing functional *v* projection. The head *v* is present even in simple event nominals. Nevertheless, in order for a nominal to project argument structure, the event in *v* must be bound by aspectual operator in AspectP. The

two types of Aspects (eventive Aspect and dispositional Aspect) influence quantifiable division of events.

In this chapter I will use more Czech data to support the mechanism similar to the one employed in Alexiadou's theory. I have already demonstrated in section 5.4.2.1 the phenomenon of prefix lengthening in Czech deverbal Nouns which can be effectively accounted for by assuming the presence of the *v*P projection encoding telicity even in non-argument taking Nouns. I will get back to it in section 6.4.1.

In Borer, simple event nominals are the consequences of nominalizers (C-functors) which require V complements. As Borer (2013) does not postulate any zero nominalizer, the eventivity of zero-derived nominals is hard to capture. The drawback of this analysis is that there is no morpho-syntactic difference between lexical Nouns such as a *cat* and zero-derived nominals (ZNs) such as *Beijing's continuing export of coal*. In my analysis of Czech nominals, I will assume that zero derived nominals have at least the *v*P level encoding telicity.

Furthermore, while Alexiadou assumes that all nominalizations are intransitive, either passive or unaccusative, Borer (2013) distinguishes between Long Argument Structure Nominals (LASNs) in (388a-b) which are active and Short Argument Structure Nouns (SASNs) in (388c-d) which are passive. Consequently, the structure in (388d) is associated with object preposing. Alexiadou (2001) refutes the passivisation process in nominals and proposes instead merging of this argument directly in SpecD.

(388)	a.	*Kim's* ***formation/forming*** *of the team*	**LASNs**
	b.	*Kim's* ***pushing*** *of the cart.*	**LASNs**
	c.	*the* ***formation/forming*** *of the team (by Kim)*	**SASNs**
	d.	*the team's* ***formation*** *(by Kim)*	**SASNs**

Also, Borer (2013) presumes incorporation of V to N and subsequent movement of N to D. While in Hebrew N can raise up to D, in English only partial movement is expected. Alexiadou (2001) follows Cinque' (1980) conclusion about ordering of adjectives and does not assume N-to D movement. There is only V-to N movement. The consequences of these different approaches can be seen in the explanation of the ban of double genitive in AS nominals. For Borer (2013), this ban is due to a Double *-of* Filter operative in English. Consequently, the need to license two arguments forces the higher argument to raise and receive Case marking with '*s* in DP, leaving behind a copy that hinders the lower argument from raising and necessitates it being Case marked in situ.

Alexiadou (2017d), on the other hand, proposes that *n*-nominalizations have a deficient *v* and there is only one structural position (presumably Aspect) for Case checking. Therefore, remaining arguments either surface as PPs under VoiceP or escape *n*P domain and merge in SpecDP. A similar process is observed in ergative languages. Hence, nominalization exhibit ergative marking which is also detectable from similar Case marking of their objects and subjects in constructions derived from transitive and intransitive clauses.

I will exemplify that both of the proposed mechanisms concerning Case markings encounter certain challenges in the context of Czech; however, they can still be applicable. Nonetheless, if we adopt the perspective that Czech nominalizations exhibit a passive-like/unaccusative nature, as suggested by Alexiadou (2017d), then her explanation appears to be more suitable

and appropriate. Using the diagnostics involving binding phenomena, PRO interpretation, characteristic morphology and Case patterns, I will argue in section 6.4 that Czech nominalizations are more passive-like/unaccusative and exhibit ergative patterns.

6.4 Considering Czech Data

As discussed in section 2.3 providing some previous analyses of Czech of nominals, in Czech there exist minimally two types of deverbal nominals. The classification tests presented by Veselovská (2018b) and Karlík (2019) accurately capture their differentiation into two distinct groups:

- **Type I** are syntactically derived I nominals which behave as complex event nominal and can become result nominals while
- **Type II** nominals behave as simple event nominals and can become result nominals in the sense of Grimshaw (1990).

In this dissertation, I will call the Type I nominals as **N/T nominals** while Type II will be referred to as **B/K nominals**[80].

6.4.1 The Structures for the Czech N/T and B/K Nominals

I proposed, in section 5.4.2, the layers and feature content of the Czech verbal projection as in (269), repeated here in (389):

(389) [CP -- [IP-- [NegP -- [VoiceP-- [ProgP-- [Aspect P -- [*v*P-- [Root]]]]]

The structural representation of the two types of Czech nominalizations is outlined in the schemes (390) and (391) below.

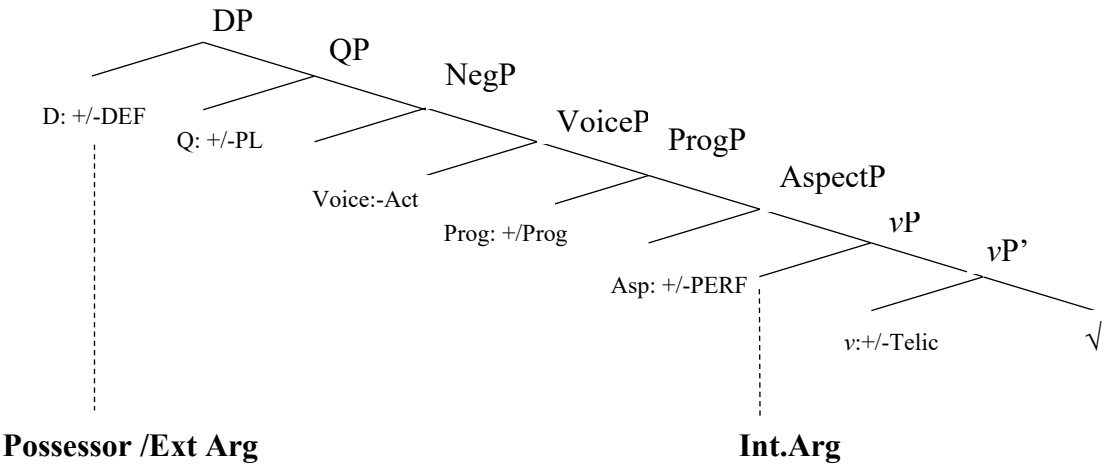
Let us start with (390) which represents the N/T nominals which are the Czech CENs variety. We can see that it contains large part of the verbal projection as in (389).

- ***v*** layer is associated with the feature +/-TELIC.
- **AspectP** is the locus of perfectivity and imperfectivity.
- **Prog P** is the place for secondary imperfectives and
- **VoiceP** is a deficient layer: It is passive and does not project external arguments, it can only serve as a locus of external arguments marked by Instrumental.

As for the verbal projections of T and CP, I will argue that no Mood and Tense are projected in Czech nominalizations.

[80] The labels are formed based on the two typical suffixes used in those nominalizations with B/K they are *-ba/-ka* (as in *stav**ba*** ‘building’ and *procház**ka*** ‘walk’) and with N/T *-ní/-tí* (as in *stav**ění*** ‘building’ *and písknu**tí*** ‘whistling’). According to Borer’s terminology, B/K nominals can be categorized as AS-nominals with the potential to transform into R-nominals. In contrast, B/K nominals correspond to R-nominals.

(390) The syntactic representation of Czech derived nominals- N/T nominals



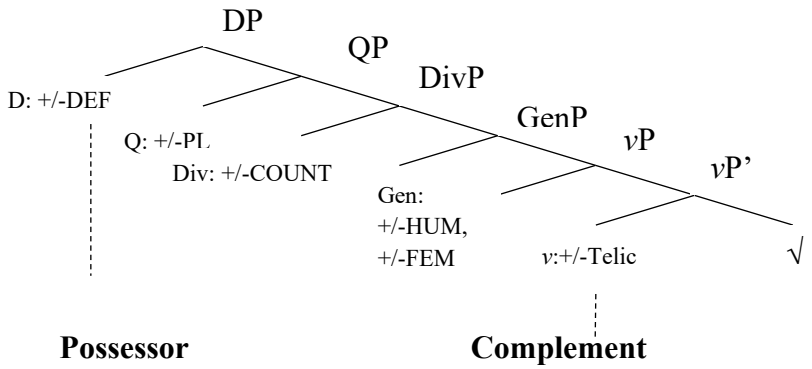
Considering the nominal domain of the N/T nominals as in (390), first let us repeat the structure of Czech nominal domain discussed in section 4.5. The Czech nominal projection includes the following layers above the root:

- **GenderP -** with the features [+/-Human], [+/- FEM].
- **DivP -** with the features [+/- COUNT] realized in Czech by affixes, and
- **QP -** with the features [+/-PL] providing position– for e.g. Numerals,
- **DP -** with the features [+/-DEF] and hosting e.g. Articles,

Compared with the above standard nominal projection, the N/T nominals in (390) are impoverished in their nominal layers. The neuter Gender is assigned by default and no GenP is projected. Neither is DivP present. In cases where the structure needs to be countable, the feature +Telic or +Perfective, which is bound, supplies the required feature +COUNT in DivP. The layer QP check the feature +/- Plural and the DP functional projection is responsible for definiteness. Moreover, External arguments are introduced in SpecDP while Internal argument emerge in Spec *v*.

The proposed projection of the B/K nominals is in (391). They are interpreted as single event nominals, i. e. they are less verbal and more nominal than the N/T nominals illustrated above. Comparing them with the standard verbal and nominal projections, they have only one verbal layer, *v*P, which is related to telicity. On the other hand, these nominals have a full array of nominal layers. Their structure is nominalized by GenP which assigns its Gender. Once this layer projects, other (higher) nominal layers can be expected, namely the nominal layers which can carry the features of countability and definiteness, i.e DivP, QP and DP.

(391) The syntactic representation of B/K-nominals



In the following sections I am going to provide arguments which will show that the proposed structures are able to explain and predict the Czech data.

6.4.2 Structural Classification of Nominals in Czech

I will begin by assuming that the classification tests presented by Veselovská (2018b) and Karlík (2019) presented in section 2.3 accurately capture the division of Czech deverbal nominals into two main distinct groups. However, I aim to explore the structural analysis further by subjecting them to a more detailed examination based on the criteria proposed by Borer and Alexiadou. This will enable me to establish a more fine-grained distinction with regards to the functional layers involved in each type of nominalization.

According to Karlík (2019), a notable observation is that his syntactically derived nominals (here N/T nominals) can also function as result nominals. On the other hand, his lexically derived nominals (here B/K nominals) exhibit characteristics similar to simple event nominals and have the ability to transform into result -nominals. Specifically, Karlík (2019) asserts that the B/K nominals:

i. never co-occur with negation,
ii. cannot be reflexivized using the particle *se*,
iii. do not include superlexical Aspect morpheme,
iv. cannot combine with iterativity,
v. do not have Aspect, and
vi. have no obligatory arguments.

I will not repeat all his examples as most of them were already demonstrated in section 2.3.2. Below I provide only examples illustrating the properties related to the lack of reflexivity and negation not explicitly illustrated yet.

First, we can see in (392) that nominals like *učení* 'learning' can be reflexive as CEN but not as RN. The SEN nominal *stavba* 'building' has no CEN counterpart.

(392)

a.	*Petrovo*$_i$	***uč-e-n-í***	***se*$_i$**	*trvalo dlouho.*	CEN
	Peter$_{POSS}$	learning$_{NT.\ (IMPF)}$	self	took a long time	
	‘Peter’s self-learning took a long time.’				
b.	*Petrovo*	***uč-e-n-í***	***(*se)***	*ležel na stole/*trvalo dlouho.*	RN
	Peter$_{POSS}$	learning$_{NT.\ (IMPF)}$	self	lay on the table/ took	
	‘Peter’s learning material was on the table.’				
c.	*Petrova*	***stav-ba***	***(*se)***	*trvala dlouho.*	SEN
	Peter$_{POSS}$	building$_{F.SG}$	self	took a long time	
	‘Peter’s building took a long time.’				
d.	*Petrova*	*papírová*	***stav-ba***	*ležela na stole/*trvala dlouho.*	RN
			(*se)		
	Peter	paper-made	building$_{F.SG}$	lay on the table/*took a long time	
			self		
	‘Peter’s paper-made building was on the table.’				

In (393) the variants of the nominals are presented with a negative prefix *ne-* (in bold). We can see that only the nominal analyzed as CEN can be negated. The other, more nominal and less verbal nominals, do not have the negative prefix.

(393)

a.	*Krm-e-n-í / **ne-**krm-e-n-í*	*ptáků*	*se mu vymstí.*	CEN
	feeding / non-feeding$_{NT.\ (IMPF)}$	bird$_{GEN}$	will cause him troubles	
	‘Feeding /non-feeding birds will cause him troubles.’			
b.	*Krm-e-n-í/*__ne-__krm-e-n-í*	*pro ptáky*	*ležel na stole/*trvalo dlouho.*	RN
	food/non-food$_{NT.\ (IMPF)}$	for birds	lay on the table/took a long time	
	‘Food for animals was on the table.’			
c.	*Kres-ba/*__ne-__kres-ba*	*portrétů*	*trvala dlouho.*	SEN
	painting/non-painting$_{F.SG}$	potrait$_{GEN.PL}$	took a long time	
	‘Painting of the portraits took a long time.’			
d.	*Černobílá*	*kres-ba/ *__ne-__kres-ba*	*ležela na stole/*trvala dlouho.*	R-N
	black and white	painting/ non-painting$_{F.SG}$	lay on the table/ took a long time	
	‘The black and white painting was on the table.’			

What these examples demonstrate is that although both Types of Czech nominals can have characteristics of result nominals, only some of them can be complex event nominals. Only

when they can be analyzed as N/T nominals, they will exhibit a higher degree of verbal characteristics.

Compare the reflexivity and negation tests demonstrated above for English in (394) and (395). We can see that these properties are not just a specificity of Czech deverbal AS-nominalizations:

(394) a. *John's$_i$* ***description*** *of himself$_i$*
b. *Mary's$_i$* ***showing*** *of herself$_i$*
c. **John's$_i$* ***car*** *of himself$_i$*

(395) a.	*Despite her **not knowing** most of the answers, Pauline passed the test.*	**Verbal Gerund**
b.	**The **not processing** of the election results created a scandal.*	**Nominal Gerund**
c.	**The **not exam** shocked everybody.*	**Result nominal**

In the forthcoming section, I will attempt to analyze more precisely the verbal functional layers embedded within the Czech nominalizations. The verbal layers will be scrutinized first and in order to do that, I will refer repeatedly to the table in (396) which compares the functional projections for verbal structure developed by Borer and Alexiadou as they were introduced and discussed in detail in Chapter 5. This provides the labels for the functional heads and outlines the diagnostics associated with each of these projections including possible lexical entries:

(396)

Alexiadou (2020)		**Borer (2005a)**	
---		**EP**	Agentive Adverbs
TP	Subject verb agreement, Tense, Nominative Case	**TP**	Subject verb agreement, Tense, Nominative Case
AspectP	Evidential, Aspectual Adverbials	**G-ASP**	Evidential, Aspectual Adverbials
VoiceP$_{AC\ T/PASS}$	ACC, Manner adverbs, Agentive Adverbs, *by*-phrases	***π***	*by*-phrases
vP	Eventive adjective modifiers	**Asp$_Q$**	Manner Adverbs

6.4.2.1 B/K Nominals

We will begin our discussion focusing on the least verbal structures, namely on the B/K nominals that include zero-derived nominals. I will assume that B/K nominals project at least to *v*P. The scheme below shows that Borer does not utilize the *v*P layer as in (397a-b) in contrast to Alexiadou who does include it as the layer above the root as in (397c).

(397) a. [D …. [$_{C=N}$ √ *lov*/hunt]] Borer's framework (zero affix)
b. [D …. [$C_{N\,[V]}$ √ *zkouška/exam*]] Borer's framework
c. [D …. [nP[vP[√zkouška/exam]]]] Alexiadou's framework

Additionally, it is worth noting that in Borer's analysis the nominals suffixes like *-ba* or *-ka* can be assigned the structure depicted in (397b). On the other hand, a zero-derived affix does not exist, and zero-derived nominals must be represented by the structure described in (397a). In the subsequent section, I will examine whether there is empirical evidence to support these claims.

In section 5.4.2.1 I introduced some data from Caha and Ziková (2022). The authors present thorough analysis of Czech prefixes that exhibit alternation between two structural positions overtly signaled by differences in prefix length and interpreted aspectual status. Their complex research reveals that Czech zero-derived nominals, which fall under the category of B/K nominals, possess at least inner Aspect feature in contrast to N/T nominals, which exhibit outer Aspect. Their example (276) is repeated below in (398) for convenience. Notice the possible Preposition *na,*'on' when prefixed to the stem in the form of *na-/ná-,* acquires length when it forms the zero-derived Noun. Without the inner Aspect projection in zero-derived nominals, these changes would be inexplicable.

(398)	**Preposition**	**Verb**	**Zero-derived Noun**	***-ní/tí* nominal**
	na	***na**-stoupit*	➔ ***ná**-stup*	➔ ***na**-stoupení*
	'on'	'get on'	'getting on'	'getting on'

Assigning the inner Aspect *v* projection to zero derived nominals better captures the Czech data because these nominals can express some limited eventivity (399a), duration (399b) and take optional complements (399a) like their verbal counterparts (399c), see below:

(399) a. *Rychlá* ***výměna*** *(pneumatik)* *zabrala pět minut.*
quick out.change$_{F.SG}$ tires$_{GEN}$ took five minutes
'A quick change of tires took five minutes.'

b. *Rychlé* ***vy-měn-ě-n-í*** **(pneumatik)* *zabralo pět minut.*
quick out$_{PF}$.*change*$_{NT}$ tires$_{GEN}$ took five minutes
'A quick changing of tires took five minutes.'

c. *Petr* *rychle* ***vy-měnil*** *(*pneumatiky).*
Peter$_{3.SG}$ quickly out$_{PF}$.change$_{PAST.3.SG}$ tires$_{GEN}$
'Peter quickly out-changed the tires.'

However, it is important to note that zero-derived nominals do not exhibit sensitivity to perfective Aspect. By applying the temporal phase verb test introduced by Borik (2006), it becomes evident that zero-derived nominals are unaffected by perfectivity, as demonstrated in

example (400a). Conversely, N/T nominals, as illustrated in example (400b), align with the behavior of perfective prefixes in clauses, as depicted in example (400c):

(400) a. *Začal* *s **vý-měnou*** *(pneumatik).*
start with out.change tires$_{GEN}$
'He started with the out-change of tires'

b. *??Začal* *s **vy-měn-ě-n-ím*** **(pneumatik).*
start with out$_{PF.}$changing$_{NT}$ tires$_{GEN}$
'He started with the out-changing of tires'

c. *Petr* *začal* ***měnit/ *vy-měnit*** *(pneumatiky).*
Peter start change/*out$_{PF}$.change tires
'Peter started changing tires.'

The previously mentioned characteristics, such as length alternation, eventivity flavor, durativity, and optional complementation, cannot be properly accounted for if zero-derived nominals are assigned the structure as in (397a).

In contrast, Alexiadou's framework includes a functional projection *v* (397c) for simple events, which has the capability to account for telicity. Therefore, I conclude that incorporating the *v* projection in B/K nominals, which exhibit behavior akin to simple event Nouns, provides a more suitable explanation for Czech data. I will assign them tentatively the following structure in (401a) where GenP attaches above the *v*P layer. If they behave as result Nouns and refer to tangible objects as in (392d), they exhibit the structure in (401b):

(401) **Czech B/K nominals**
a. [D …. [GenP[*v*P[√]]]] Czech Simple event nominals
b. [D …. [GenP[[√]]]] Czech Result nominals

It is worth noting that the inclusion of the GenP level is empirically justified, given that Type II nominals can express Gender freely, unlike N/T nominals which are neuter by default.

(402) a. *stav-ba* construction$_{F}$
b. *jás-ot* cheering$_{M}$
c. *stav-ě-n-í/mluv-e-n-í* construction$_{NT/}$ speaking$_{NT}$

The further nominal layers within these projections will be discussed in the next Chapter in more detail.

6.4.2.2 N/T Nominals

Moving forward with the analysis of the structure of N/T nominals, these are predicted to possess a higher degree of verbal characteristics compared to B/K nominals.

The highest verbal projections are **CP/IP projections** with the feature of Mood or Tense.[81] However, N/T nominals do not have these features. Both Borer and Alexiadou propose several diagnostics to verify this, including subject-verb agreement, Tense, and Nominative Case, all of which are absent in Czech nominalizations.

The Aspect Phrase

In terms of the aspectual projection, we can observe that N/T nominals demonstrate sensitivity to perfectivity, as shown in (400b), i.e. using the perfective prefixes.[82] Additionally, it is important to highlight that N/T nominals possess the capacity to form secondary imperfectives (403a) by incorporating the suffix *-ová*. This distinction sets them apart from B/K nominals (403b):

(403) a. ***vy-měň-ová-n-í*** *pneumatik*
out$_{PF.}$changing$_{IMPF.NT}$ tires$_{GEN}$

b. ****vý-měn-ova*** *pneumatik*
out.change$_{IMPF}$ tires$_{GEN}$

The secondary imperfective verbal suffix *-ová* associated with N/T nominals in Czech exhibits a similar interpretation to the progressive Aspect found in English. However, unlike the English progressive, the interpretation of the secondary imperfective Aspect in N/T nominals is not as limited, as it encompasses a broader range of meanings beyond ongoing action. These additional interpretations can include habitual and iterative meanings. According to Alexiadou et al. (2010), both perfectivity and secondary imperfectivity would fall under the projection of AspectP. In contrast, Borer (2005b) categorizes telicity and perfectivity under Asp$_Q$, while secondary imperfectivity is regarded as an instance of outer Aspect G-Asp. To better understand the interplay between aspectual issues and countability, I assume that it is beneficial to distinguish these distinct layers: telicity, perfectivity, and secondary imperfectivity. Their functional projections will be labeled as v, AspP, and ProgP in this thesis as in the illustrative tree in (390) above.

The Voice Phrase

The VoiceP layer in the literature is associated with special properties, namely introduction of external argument, assignment of Accusative Case, licensing of particular set of Adverbs and agentive PPs. Extensive analysis of these aspects has been conducted in previous chapters; so we can now focus on summarizing the main implications of VoiceP for nominal structures.

[81] I will not commit myself to any claim concerning the CP which may be multilayered, to express the features related to information structure. CP can also furnish a structural escape hatch for long distance movements as Czech does allow many kinds of extractions from the nominal domain. This requires some structural analysis though not specific to nominalizations. For the purpose of this work therefore I cannot see any reason to introduce CP domains in my analysis.

[82] Czech aspectual prefixes and suffixes are illustrated in previous sections, above all 5.4.1.1.

Alexiadou argues that *n*-nominalizations cross-linguistically do not typically contain active Voice and have rather a deficient/passive Voice or are unaccusative. As a result, external arguments are not present in nominalizations. For Borer, some nominals are built on active while some are built on passive structures. Moreover, as table (396) depicts, Borer does not use the Voice projection and the closest functional projection is the EP which is in AS nominals by default. However, functional projections (EP, Asp_Q) in Borer need not introduce arguments in their specifiers. Instead, the interpretation of arguments within events is an entailment from event structure. Subsequently, the role Originator which is introduced in EP spans not only traditional Agents and Causers but also, importantly, subjects of activities, including those occurring with so-called variable behavior Verbs in their unergative instantiation. I have argued in section 5.4.2.4 for including VoiceP projection in verbal domains, which might or might not be projected, rather than Borer's EP projection, which must always be present in verbal domains. Consequently, the massive overgeneration of structures can be avoided. Despite these discrepancies, we can explore whether there are any tests that could detect this projection in nominalizations.

Both linguists, Alexiadou (2001) and Borer (2013), employ Adverb modification as a diagnostic tool for examining the presence or absence of the Voice/EP projection. Borer (2013) proposes a scheme for the licensing of Adverbs within specific projections described in section 6.1.9 and outlined below:

(404)	[C/T (**proposition**) **evidential** adv (V) [E **agentive** adv (V) [T [G-ASP **g-asp adv** (V) [**manner adv** V]]]]]

There is, however, a slight discrepancy between their perspectives, particularly regarding manner Adverbs. Alexiadou (2001) views manner Adverbs as a crucial test for the presence of the Voice projection while for Borer they testify only in favor of some lower verbal projection. In Czech, aspectual adverbials (405a-b) or evidential Adverbs are not grammatical but manner Adverbs are not entirely excluded. The one in (405c) even has an agentive flavor. Although, adjectives expressing the same content are usually preferred (405e):

(405) a. ***Do-d-á-n-í*** *zboží* *zdarma/* obvykle* *je možné.*
to$_{PF.}$delivery$_{NT}$ goods$_{GEN}$ freely$_{ADV}$/usually$_{ADV}$ is possible
'Delivery of goods for free is possible.'

b. ***Sklád-á-n-í*** *testu* *nanečisto/*pravděpodobně* *je možné.*
passing$_{NT.\ (IMPF)}$ test$_{GEN}$ mock$_{ADV}$/probably$_{ADV}$ is possible
'Passing of the mock test is possible.'

c. ***Na-kresl-e-n-í*** *obrázku* *? opravdu precizně*
on$_{PF.}$drawing$_{NT}$ picture$_{GEN}$ really precisely$_{ADV}$
'Painting of the picture really precisely'

d. ***Plac-e-n-í*** *daně* *hotově* *je možné.*
paying$_{NT.(IMPF)}$ tax$_{GEN}$ in cash$_{ADV}$ is possible
'Paying taxes in cash is possible.'

e. *rychlé* ***čtení*** *detektivky* *? rychle*
quick$_{ADJ}$ reading$_{NT.(IMPF)}$ detective story$_{GEN}$ quickly$_{ADV}$
'(quick) reading of the detective story (quickly)'

The substitution of Adverbs by Adjectives might be related to the fact that Adverbs in (405a-b) do not have adjective correlates while the Adverb in (405e) has this possibility. Thus, in some cases speakers are forced to use Adverbs. In other cases, they will opt for adjectives. In any case, these examples testify in Alexiadou's framework in favor of the presence of Voice in Czech in N/T nominals.

Another property associated with the active Voice is the assignment of Accusative Case. However, neither English nor Czech have the ability to generate the complements of nominalizations with Accusative Case. In Czech, these complements are typically marked with the Genitive Case which is an equivalent construction of the English *of*-phrase.

Voice and *by*-phrases

The final property to consider is the presence of agentive *by*-phrases. Both Alexiadou (2017d) and Borer (2013) view agentive *by*-phrases as indicative of a passive Voice, although there are significant differences between their proposals. Borer suggests that in languages where authorship contexts are distinguished from agentive readings, e.g. in Czech examples (406), the presence of *by*-phrases signals the passive nature of nominals, akin to the verbal domain. Notice that the Czech equivalents of the *by*-phrases are either the PP with Preposition *od* followed by Genitive, as in (a) or prepositionless Instrumentals as in (b).

(406) a. ***kniha*** *od Chomského/ *Chomským*
book by Chomsky/ Chomsky$_{INS}$
'a book by Chomsky'

b. ***chválení*** *našeho syna paní ředitelkou*
praising$_{(IMPF).NT}$ our son$_{GEN}$ a headmaster$_{INS}$
'praising our son by a headmaster'

On the other hand, Alexiadou et al. (2009) do not anticipate that *by*-phrases in nominalizations will resemble verbal passives. The main supportive evidence is that cross—linguistically they can assign a limited set of theta roles. [83]

[83] In the literature, Alexiadou et al. (2009)'s claim regarding the behavior of *by*-phrases has been refuted by Bruening (2013). He argues that the recipient as well as experiencer theta role can be assigned to nominals. See below some of his examples:

vi. a. *The receipt of at least three of those letters by their intended recipients* RECIPIENT
is a matter of historical record.

As far as the modification of nominalizations by Czech *by*-phrases is concerned, there is a higher restriction on agentive Ps with B/K nominals. While N/T nominals occur with them freely (407a); (408a), in B/K nominals they are felt as too heavy (408b), see also the discussion in Kolářová (2010).

(407) a. ***na-malov-á-n-í*** **(krajiny)* *(významným malířem)*
on$_{PF}$.painting$_{NT}$ landscape$_{GEN}$ renowned painter$_{INS}$
'painting of landscape by a renowned painter'

b. ***mal-ba*** *(krajiny)* *(* významným malířem)*
painting$_{F.SG}$ landscape$_{GEN}$ renowned painter$_{INS}$
'painting of landscape by a renowned painter'

(408) a. ***ob-jev-e-n-í*** **(Ameriky)* *(Kryštofem Kolumbem)*
$_{PF}$discovering$_{NT}$ America$_{GEN}$ Christopher Columbus$_{INS}$
'Discovering of America by Christopher Columbus'

b. ***ob-hajo-ba*** *(diplomových prací)* *(?? našimi studenty)*
$_{PREF}$.defence$_{F.SG}$ diploma theses$_{GEN}$ our students$_{INS}$
'The defence of theses by our students'

The examples with adverbs and *by*-phrases provided above evidence for the hypothesis that Czech N/T nominals involve Voice. The question at hand is whether N/T nominals are uniformly passive-like/unaccusative, as Alexiadou (2001); (2017d) proposes, or if some of them are constructed with active Voice and true external arguments, as Borer (2013) suggests. The related question is whether the process of passivization applies within nominals. These specific issues will be explored in the next sections.

Finally, let us consider the productive use of the negative particle-*ne* which with finite verbal forms (409b) signals sentential (verbal) negation and can interact with the negative polarity items such as *žádný* 'any'. We can see the same interaction in the example (409a) with N/T nominals but not with the B/K nominals in (409c) which do not tolerate the negative particle.

(409) a. ***ne**-čt-e-n-í* ***žádných*** *novin*
non-reading$_{NT.\ (IMPF)}$ any$_{GEN}$ newspaper$_{GEN}$
'not reading any newspaper'

b. ***ne**-četl* ***žádné*** *noviny*
not-read any$_{ACC}$ newspaper$_{ACC}$
'He did not ready any newspaper'

b. *The perception of his inadequacies by his wife.* EXPERIENCER

c. ***ne**-čet-ba* ***žádných*** *novin*
non-read$_{F.SG}$ any newspaper$_{GEN}$
'not reading any newspaper'

d. ***ne**-plavec* *v* ****žádném*** *bazénu*
non-swimmer in no pool
'non-swimmer in any pool'

Also, compare it with the agentive nominal *ne-plavec* 'non-swimmer' in (c) which tolerates the negative particle but cannot be combined with the negative polarity item. I conclude that it indicates only lexical negation. These examples confirm that only N/T nominals have a rich verbal structure with the layers embedding the sentential negation. Similar arguments have been developed in Rozwadowska (2020) for Polish nominals.

To conclude, the structure of N/T nominals in Czech is represented by the verbal layers as in (410a). However, it is worth noting that similarly to B/K nominals, N/T nominals have the potential to adopt the structure in (410b) if they lose their eventive characteristics and function as objects as we saw in examples above:

(410) **Czech N/T nominals**
a. [D…..[NegP [VoiceP[ProgP[AspectP [*v*P [root]]]
b. [D …. [DivP[√root]]]]

6.4.2.3 Some Borderline Cases

N/T nominals are more complex, particularly in cases where they are on the border between syntactic and lexical derivations. Kolářová (2014) discusses such borderline cases, which often involve a shift in meaning from the process to the abstract result of the process. One such instance is a change in valency, which is reflected in the Case marking of their complements. For instance, the N/T nominal with a shifted meaning in (411b) changes the Case of its complement from Genitive (411a) to Dative (411b). Additionally, it prohibits the use of Instrumental Case and the Adverb *předem* 'in advance' (411b):

(411) a. ***upozornění*** *myslivců* *(předem)* *(Dr.Novákem)*
$_{PF}$warning$_{NT}$ hunter$_{GEN}$ in advance$_{ADV}$ Dr.Novák$_{INS}$
'The warning of hunters in advance by Dr.Novák'

b. ***upozornění*** *myslivcům* *(*předem)* *(*Dr.Novákem)*
$_{PF}$warning$_{NT}$ hunter$_{DAT}$ in advance$_{ADV}$ Dr.Novák$_{INS}$
'The warning of hunters in advance by Dr.Novák'

(412) a. ***varování*** *zlodějů* *(předem)* *(Dr.Novákem)*
warning$_{NT.(IMPF)}$ thief$_{GEN}$ in advance$_{ADV}$ Dr.Novák$_{INS}$
'The warning of thieves in advance by Dr.Novák'

b. ***varovaní*** *zlodějům* *(*předem)* *(*Dr Novákem)*
warning$_{NT.(IMPF)}$ thief$_{DAT}$ in advance$_{ADV}$ Dr.Novák$_{INS}$
'The warning of thieves in advance by Dr.Novák'

According to Kolářová (2014), these borderline cases of N/T nominals should be treated as lexical derived nominals. However, she notes that despite their classification, they can still be modified by certain eventive and agentive adjectives:

(413) *úmyslná* ***varování/upozornění*** *zlodějům*
deliberate warning$_{NT.(IMPF)}$/ $_{PF}$warning$_{NT}$ thief$_{DAT}$
'deliberate warning of thieves'

For this reason, I propose to represent simple event Nouns with the verbal layers below:

(414)	[D……[*v*P[√root]]]]

Regarding B/K nominals, as mentioned earlier, they do not exhibit sensitivity to Aspect. They also do not tolerate aspectual modifiers easily, as the following structures show:

(415) a. ***Čet-ba*** *(knih)* *(?? několik hodin)/(*za hodinu)* *nikoho nebaví.*
reading$_{F.SG}$ books$_{GEN}$ several hours/ in an hour no one enjoys
'No one enjoys reading books for several hours.'

b. ***Čte-n-í*** *(knih)* *(několik hodin)/ (*za hodinu)* *nikoho nebaví.*
reading$_{(IMPF).NT}$ books$_{GEN}$ several hours/ in an hour no one enjoys
'No one enjoys reading books for several hours.'

c. ***Pře-čtení*** **(knihy)* *(za hodinu)/ (*několik hodin)* *je možné.*
re$_{PF.}$reading$_{NT}$ books$_{GEN}$ in an hour/ several hours is possible
'Reading of the books in an hour is possible.'

Nevertheless, some few examples such as (416) with aspectual modifiers seem to be natural:

(416) a. *Celkové* ***trž-by*** *(dodavatelů)* *(za 1.čtvrtletí)/ (*celé čtvrtletí)* *klesly.*
total sales$_{F.PL}$ deliverers$_{GEN}$ in the first quarter fall
'The total sales from deliveries in the first quarter have fallen.'

b. ***Výro-ba*** *(masa)* *(za celý rok)/ (*celý rok)* *klesla.*
production$_{F}$ meat$_{GEN}$ in the whole year fall
'The production of meat in the whole year has fallen.'

This can be explained by the proposal in Borik (2002, p. 47) who points out that imperfective predicates may in fact combine with *in an hour* adverbials. These cases were illustrated with Czech examples in section 5.4.1 Thus, my conclusion is that they illustrate a different property than perfectivity, namely telicity, which usually (though not always) correlates with perfectivity.

6.4.3 More Paradigms Involving Argument Structure Licensing

Both Alexiadou (2009) and Borer (2013) concur that internal as well as external arguments are licensed within distinct functional projections. In Borer's framework, the presence of these arguments is not mandatory and is instead derived as entailments from the structure. While we have discussed the layers where external arguments originate, the challenge now lies in understanding the internal argument, particularly considering that B/K nominals can have optional complements.

Both Borer (2013) and Alexiadou and Schäfer (2010) highlight the significance of Aspect in licensing internal arguments. In Borer's framework, the internal argument is closely connected to Asp_Q/F^sP. In contrast, Alexiadou and Schäfer (2010) separate the relationship between an internal argument and grammatical Aspect. The internal argument does not necessarily have to be constrained by episodic Aspect; it can also be associated with dispositional Aspect. However, in both types, some form of aspectual operator within AspectP must bind the event introduced by *v*.

Let's examine the arguments within Czech nominalizations and the role that Aspect plays within them. The following examples shows that when the N/T nominal is *imperfective* as in (417a), both the external and internal arguments can be omitted. In this aspect, there is no distinction between the N/T and the B/K nominals in (417b).

(417)	a.	*(Karlovo)*	***malov-á-n-í***	*(obrazu)*	*trvalo dlouho.*	**N/T nominal IMPF**
		Karel$_{POSS}$	painting$_{(IMPF).NT}$	picture$_{GEN}$	took a long time	
		'Karel's painting of the picture took a long time.'				
	b.	*(Karlova)*	***mal-ba***	*(obrazu)*	*trvala dlouho.*	**B/K nominal**
		Karel$_{POSS}$	painting$_{F.SG}$	picture$_{GEN}$	took a long time	
		'Karel's painting of the picture took a long time.'				

The situation with internal arguments differs when the Verb is marked with the feature +/- PERF. Since B/K nominals do not have to contain this feature, their arguments can be optional. In (418b) no condition on obligatoriness is expected while N/T always require an internal argument (418a) similarly to the verbal structure in (418c). This is despite the fact that eventive contexts are induced as the modifier of events *trvat* 'took a long time' indicates:

(418)	a.	***Vy-stav-ě-n-í***	***(kina)**	*nám*	*trvalo rok.*	**N/T nominal +PERF**
		out$_{PF}$.building$_{NT}$	cinema$_{GEN}$	us	took a year	
		'Building a cinema took us a year.'				

b.	***Vý-stav-ba***	*(kina)*	*nám*	*trvala rok.*	**B/K nominal**
	$_{pref.}$building$_{F}$	cinema$_{GEN}$	us	took a year	
	'Building a cinema took us a year.'				
c.	*Radnice*	***vy-stavěla***	**(nové kino).*		**Verb**
	the authorities$_{NOM}$	out$_{PF.}$build	new cinema$_{ACC}$		
	'The authorities built a new cinema.'				

(419) a. *Po* ***ob-jev-e-n-í*** **(léku)* *došlo* *k poklesu úmrtnosti.*
after $_{PF}$discovering$_{NT}$ medicine$_{GEN}$ come death rate decrease
'After discovering the medicine the death rate has decreased.'

b. *Po* ***ob-jevu*** *(léku)* *došlo* *k poklesu úmrtnosti.*
after pref.discovery$_{M}$ medicine$_{GEN}$ come death rate decrease
'After discovery of the medicine the death rate has decreased.'

The examples above confirm the following correlation: N/T nominals which are aspectually sensitive always require internal argument. B/K nominals do not contain this feature and their internal arguments are optional. For this reason, I propose the correlation between the feature +/-Perf and the realization of internal arguments.

6.4.3.1 Active Voice and Transitivity of Czech Event Nominals

As mentioned earlier, the adverbial tests have confirmed the existence of a Voice layer in nominalizations. However, the crucial question now is whether this Voice layer can be active with true external arguments or whether it is passive/deficient in nature. Another related question is whether the process of passivization, e.g. object preposing is possible in nominalizations. On this matter, the two linguists I am comparing hold divergent viewpoints and propose different answers.

Alexiadou (2001); (2017d) claims that nominalizations of the type (420) are either passive or unaccusative. By contrast, for Borer (2013) the example in (420a) has an active counterpart, so that (420b) and (420c) are passive. The latter derived by object preposing from (420b).

(420) a. *Kim's* ***formation/forming*** *of the team*
b. *the* ***formation/forming*** *of the team (by Kim)*
c. *the team's* ***formation*** *(by Kim)*

Although, Alexiadou (2017d) introduces passive Voice in nominalizations, this functional projection is deficient and cannot introduce external arguments. The external arguments are introduced in SpecDP which result in their different interpretation. They are prone to be interpreted as Causers rather than true Agents. Also, there is no object preposing for structures such as (420c) and the theme is also situated in SpecDP directly. Thus, nominalizations rather realize ergative patterns similarly to ergative languages which have deficient *v* and their external arguments can either surface as PPs or Possessors.

Karlík (2007) casts doubt on the hypothesis that nominalizations are passive structures. Recall that he points out on the basis of binding relations that a Genitive DP with the A2 (internal argument) interpretation in nominalizations (421b-c) do not have interpretation analogical to DPs with A2 interpretation of passive participles (421d):

(421) a. ***kritizování*** A2 *učitele* *žákem*
criticizing$_{NT.\ (IMPF)}$ teacher$_{GEN}$ pupil$_{INS}$
'criticizing of the teacher by a student'

b. ****kritizování*** A2*učitele$_i$* ***svým$_i$*** *žákem*
criticizing$_{NT}$ teacher$_{GEN}$ REFL pupil$_{INS}$
'criticizing of the teacher by his own pupil'

c. * A2*učitelovo$_{i\ .}$* ***kritizování*** ***svým$_i$*** *žákem*
teacher$_{POSS}$ criticizing$_{NT.(IMPF)}$ REFL pupil$_{INS}$
'criticizing of the teacher by his own pupil'

d. *Učitel$_i$* *je* ***kritizován*** ***svým$_i$*** *žákem.*
teacher$_{NOM}$ AUX.$_{BE}$ criticize$_{PRT}$ REFL pupil$_{INS}$
'The teacher is being criticized by his own pupil.'

It seems that the object preposing operation works differently in the nominal domain than in the verbal domain. By means of binding facts, Karlík (2007) also stresses that prenominal Genitives with the interpretation A1 (external argument) in nominalizations do not exhibit subject-like properties. The following set of data demonstrate that subjects in the verbal domain can bind anaphors (422a) but prenominal possessives in nominalizations do not (422c). They rather pattern with possessors of genuine nouns (422d):

(422) a. Petr$_i$ ***kritizuje*** *svého$_i$* *učitele.*
Peter$_{NOM}$ criticize$_{3.PL}$ REFL teacher$_{ACC}$
'Peter criticizes its own teacher.'

b. A1 *Petrovo$_i$* ***kritizování*** *svého$_i$* *učitele.*
Peter$_{POSS}$ criticing$_{NT.\ (IMPF)}$ REFL teacher$_{GEN}$
'Peter's criticizing its own teacher'

c. *? Petrovo$_i$* ***pobíhání*** *ve své$_i$* *pracovně*
Peter$_{POSS}$ running$_{NT.(IMPF)}$ in REFL office
'Peter's running in in his own office'

d. **Petrovo$_i$* ***křeslo*** *ve své$_i$* *pracovně*
Peter$_{POSS}$ chair$_{N.SG}$ in REFL office
'Peter's chair in his own office.'

While nominalizations in Alexiadou's theory have a deficient Voice and subjects are located in SpecDPs directly, their different interpretation is expected. SpecDP is a thematic position and can license various thematic roles. Above all, Alexiadou claims that subjects of nominalizations have different interpretation than true Agents and behave rather like Causers. On the other hand, in Borer (2013), the argument interpretation within nominalizations should be identical to the interpretation of arguments in active and passive sentences.

We can, nevertheless, employ Borer (2013)'s test and try to find out whether Czech N/T nominalizations are more active-like or passive-like. Recall that in her investigation of silent subjects described in section 6.1.3, Borer (2013) realizes that silent subjects of SASNs pattern together with passive structures in having a PRO which exhibits the so-called Lebeaux effect.

Lebeaux (1984) points out that in target cases where silent subjects do not c-command each other nor is there any obvious antecedent that could control both of them, have universal/generic interpretation and hence need to refer to the same antecedent. For passive and passive nominals, Borer (2020) envisages a null indefinite pronominal pro_{indef} which can have two readings: existential and generic. Whereas in their existential reading the option of the same subject construal is dis-preferred, in their generic reading the same subject reading is possible. The structural position of these silent subjects is visible in (423):

(423) a. $[_D$ ……N … $[_\pi \pi$ $[_e$ pro_{indef} …… $[_{C=V}$ V]]]]]
b. $[_D$ PRO N $[_E$ …… $[_{C=V}$ V]]]]]

The same effects are observed in Czech. Czech does not have gerunds as discussed in section 2.3.1, but the only available reading for infinitives in (424) is that the very same people who destroyed the work environment also reorganized the labor force. In contrast, in nominalizations as in (425), a disjoint subject construal is possible. The examples below are mine:

(424) **✗ (Distinct Subject construal excluded)**

a. ***narušit*** *pracovní prostředí* *znamená* ***reorganizovat*** *pracovní sílu*
disrupt$_{INF}$ work environment$_{ACC}$ means re$_{PF}$.organize$_{INF}$ labor force$_{ACC}$
'To disrupt the work environment means to reorganize the labour force.'

b. ***sjednotit*** *pracovní sílu* *znamená* ***propustit*** *zaměstnance*
unionize$_{INF}$ labor force$_{ACC}$ means $_{PF}$.fire$_{INF}$ workers$_{ACC}$
'To unionize the labor force means to fire workers.'

(425) **✓ (Distinct Subject construal possible)**

a. ***narušení*** *pracovního prostředí* *znamená* ***reorganizování*** *pracovní síly*
$_{PF}$disrupting$_{NT}$ work environment$_{GEN}$ means re$_{PF.}$organizing$_{NT}$ labor force$_{GEN}$
'The disrupting of the work environment means reorganizing of the labor force.'

b. ***sjednocení*** *pracovní síly* *znamená* ***propuštění*** *zaměstnanců*
PFunionizingNT labor forceGEN means PFfiringNT workersGEN
'The unioninzing of the labor force means the firing of workers.'

Due to the fact that passive participles in Czech have a pro_{indef} a distinct subject construal is possible:

(426)
a. *Pracovní prostředí* *bylo* *narušeno* --
work environment AUX.PAST disruptPRT

-- *což znamen-alo, že* *pracovní síla* *byla* *reorganizována.*
which meant that labor force AUX.PAST reorganizePRT
'The work environment was disrupted which meant that the labor force was reorganized.'

b. *Pracovní síla* *byla* *sjednocena* ---
labor force AUX.PAST unionizePRT

--- *což vedlo k tomu, že* *zaměstnaci* *byli* *propuštěni.*
which meant that employees AUX.BE firePRT
'The labor force was unionized which led to the fact that employees were laid off.'

We can conclude from this discussion that Czech nominalizations seem to be passive-like as far as implicit arguments are concerned. On the other hand, we have seen that the behavior of overt arguments in nominalizations with respect to binding data is not exactly the same as those of passive and active structures. Thus, if we put all pieces together, the analysis where nominalizations are intransitive or rather ergative constructions where the process of nominalization has similar consequences as passivisation as suggested by Alexiadou (2017d); (2001) is most appropriate. The rationale behind this lies in the fact that ergative patterns arise due to Case considerations, and since PRO (a null pronoun) possesses a unique null Case, it remains unaffected and can display passive-like characteristics. When Case requirements come into play, the overt arguments behave differently from those observed in verbal passives and active structures.

6.4.3.2 Ergativity Patterns of Czech Nominalizations

As was suggested above, Alexiadou (2001); (2017d) argues that nominalizations better fit into ergative patters cross-linguistically. The aim of this part will be to scrutinize the Case of arguments in transitive and intransitive nominalizations in Czech in order to assess whether Czech nominalizations comply with this statement.

The sole argument of intransitive predicates has two options. It can appear either pre-nominally as or post-nominally: [84]

(427) *(tatínkovo)* ***kýchání*** *(našeho tatínka)*
father$_{POSS}$ sneezing$_{NT.\ (IMPF)}$ our father$_{GEN}$
'father's sneezing/sneezing of the father'

Transitive structures have three slots where arguments can be located, either pre-nominally as Possessives (POSS) or post-nominally in Genitive (GEN) and Instrumental (INS) Cases. There is also a strict ordering rule where the Instrumental Case can never precede the Genitive Case. Both the internal argument (A2) and external arguments (A1) can be marked as GEN or POSS and occur either post-nominally or pre-nominally when they are the sole argument of the Noun (428a-b). However, in the case of perfective Verbs, the A2 argument is forced to have a post-nominal (non-subject) interpretation (428c).

(428) a. **napomínání** $_{A2/A1}$ *Petra*
talking-to$_{(IMPF).NT}$ Peter$_{GEN}$
'talking-to Peter'

b. $_{A1/A2}$ *Pavlovo* ***napomínání***
Paul$_{POSS}$ talking-to$_{(IMPF).NT}$
'Paul's talking to'

c. ***napomenutí*** $_{A2}$ *Petra*
talking-to$_{PF.NT}$ Peter$_{GEN}$
'talking-to Peter'

When a Genitive co-occurs with POSS as in (429), their thematic interpretation can be computed from UTAH. See Veselovská (1998), 2014) for more about their interpretation and the interpretation of Possessives and its complementarity with postnominal Genitives.

(429) $_{A1/*A2}$*Pavlovo* ***napomínání*** $_{A2/*A1}$ *Petra*
talking-to$_{(IMPF).NT}$ Peter$_{GEN}$
'Paul's talking to Peter'

Double Genitives are prohibited in Czech AS Nouns (432) as well as in R-nominals (430):

(430) **obraz* *Evy* *Pavla*
picture Eve$_{GEN}$ Paul$_{GEN}$
'the picture of Eve of Paul'

[84] There are restrictions on Czech Possessives. They must be pre-nominal, bare, animate and marked for +/-FEM. See Veselovská (1998); (2014)

We are now able to carry out a comparison with ergative structures. In order to do that we will utilize the table in (431) which compares the case marking in nominative-accusative languages, ergative languages and nominalizations. This table was introduced in section 6.2.3. What can be observed is that in ergative languages subjects of intransitives receive the same marking as objects of transitives (absolutive case).

(431)	N/A Active	N/A Passive	E/A system	Nominalizations
A-argument (transitive)	**NOM**	**PP**	**ERG**	**PP**
S-argument (intransitive)	**NOM**	**-**	**ABS**	**GEN**
P-argument (transitive)	**ACC**	**NOM**	**ABS**	**GEN**

In the Czech verbal domain, this is not possible. Czech subjects receive NOM Case and objects ACC Case as table (431) summarizes. However, in Czech nominalizations subjects of intransitives as well as objects of transitives can receive GEN as in (427) and (429) respectively.

Ergative languages have special marking for subjects of transitives (ergative case), similarly to Czech example (432) where the external argument is marked by the Instrumental Case:

(432) ***napomínání*** $_{A2}$*Petra* $_{A1}$*Pavlem/*Pavla*
talking-to$_{(IMPF).NT}$ Peter$_{GEN}$ Paul$_{INS}$/Paul$_{GEN}$
'talking to Peter by Paul/ of Paul'

To conclude, unlike a verbal domain which does not exhibit ergative patterns, Czech nominalizations pattern with ergative structures.

6.4.4 Case Licensing

In this subsection I will compare the approaches of both linguists to Case licensing and the derivation of structures with various valency patterns in Czech. Let's begin with Borer and her analysis of nominals derived from mono-transitive Verbs. Borer (2013) puts forward that *of*-phrases in SpecAsp$_Q$ are a spell out of objective Case in the absence of T in English. In the case of the AS nominal mentioned in (433), even though *John* is in SpecD, the object *city* cannot move because the subject *John* has left a copy in functional specifiers and must be Case marked in situ. The problematic aspect of this mechanism involves incorporation of V-to N and then subsequent movement of N-to-D (but not as far as to D in English).

(433) [$_D$ *John's* [$_{F2\text{-}N}$ *painting* [$_{F1\text{-}N}$ ~~*John*~~ [$_N$~~*painting*~~ [$_E$ ~~*John*~~ [$_{AspQ}$ *of the picture*[$_{C=V}$ ~~*malovat*~~]]]]]]

I have argued in section 4.5.5 that N-to D movement is not adequate for Czech because of the surface ordering of Adjectives. They do not normally occur post-nominally, as they should if N were ever in D. Furthermore, I do not suppose that the N layer is even present in Czech. Instead, the verbal part is nominalized by nominal functional layers, either GenP or QP. Now, let's explore the implications of prohibiting N-to-D movement.

The mono-transitive structure (434) can be derived under the assumption that the complex Noun + verb (e.g., *malování* 'painting') does not undergo movement across nominal projections:

(434)
[$_{D}$ *Honzovo* [$_{F2\text{-}N}$ [$_{F1\text{-}N}$ ~~*Honza*~~ [$_{E}$ ~~*Honza*~~ *malování* [$_{AspQ}$ *obrázku*$_{GEN}$ [$_{C=V}$ ~~*malovat*~~]]]]
[$_{D}$ *John*$_{POSS}$ [$_{F2\text{-}N}$ [$_{F1\text{-}N}$ ~~*John*~~ [$_{E}$ ~~*John*~~ *painting* [$_{AspQ}$ *picture*$_{GEN}$ [$_{C=V}$ ~~*paint*~~]]]]

The system of Case licensing also correctly predicts that ditransitives are prohibited as the licensing of the third argument is pre-empted by movement of the logical subject to SpecD[85].

(435) **projektování reformy premiéra*
projecting$_{NT}$ reform$_{GEN}$ Prime Minister$_{GEN}$
'designing the minister's reform'

The derivation can, of course, converge if the third argument is otherwise Case marked. In example (436) the Patient argument *dopis* 'letter' is the carrier of Genitive Case and *Eva/Eve* must be marked by Dative.

(436) *Napsání *(dopisu) Evě trvalo dlouho.*
on$_{PF.}$writing$_{NT}$ letterG$_{EN}$ Eve$_{DAT}$ took a long time
'Writing a letter to Eve took a long time'

The derivation of AS-nominals with one argument would not be problematic in the case of unaccusatives with an Asp$_{Q}$ projection, whereas it would not be feasible for unergatives, as shown in (437):

(437) *časté* ***zívání/skákání/pískání*** *našeho tatínka*
frequent yawning$_{(IMPF).NT}$/ jumping $_{(IMPF).NT}$/whistling $_{(IMPF).NT}$ our father$_{GEN}$
'frequent yawning/jumping/whistling of our father'

The derivation of unergatives would require the movement of the complex Noun+ verb across the EP projection which is not possible:

(438) a. *[$_{D}$ [$_{F2\text{-}N}$ [$_{F1\text{-}N}$ *zívání* [$_{E}$ *tatínka-* ~~*zívaní*~~ [$_{C=V}$ ~~*zívat*~~]]]]]
b. *[$_{D}$ [$_{F2\text{-}N}$ [$_{F1\text{-}N}$ V-C$_{N[V]}$ [$_{E}$ *of* DP1 ~~V~~ [$_{C=V}$ ~~V~~]]]]]

We can now examine the key points put forward by Alexiadou. First of all, Alexiadou (2001) follows Cinque (1980) and expects only V-to-N movement for English. Therefore, this would not pose a problem for my analysis. Regarding the mechanism of Case licensing described in

[85] Two Genitives can occur only if one of them is a lexical Case: *zbavení ženy starostí* 'relieving the woman of worries'. (Panevová, 2000). Also, if the second Genitive modifies the first: *malování domu naší rodiny* '*painting of the house of our family*'.

section 6.2.3, the layer *n*P has properties similar to passives and its task is to turn a transitive verb into passive. More importantly, there is only one head for one argument to agree (presumably AspectP). Alexiadou (2017d) claims that the one argument that receives structural Case is the one which surfaces with Genitive. The only option for the other argument in case of transitive verb is to surface as *by*-phrase or escape *n*P and merge higher in SpecDP.

The proposed mechanism by Alexiadou offers an explanation for the majority of nominalization structures in Czech. However, there are some problematic cases, particularly when it comes to unergative Verbs which as discussed earlier whose arguments might be built on Active Voice. The derivation of nominals from unergative Verbs, as exemplified in (437), poses challenges if nominalizations are akin to passivization and require an unaccusative or passive structure.

The existence of such structures is a subject of debate in Alexiadou (2001), where it is argued that process nominals are not commonly based on ergative structures cross-linguistically. In Alexiadou (2017d), it is proposed that for cases like (437), one would need to assume, in line with Massam (2009), that subjects of unergative Verbs are introduced within the *v*P domain, at least in the context of nominalizations.

Another important consideration emerges when dealing with Czech reflexive Verbs, which, as demonstrated earlier, can be used for nominalizations. In the literature, the behavior of reflexive Verbs is occasionally compared to that of unaccusative Verbs. However, as previously mentioned, Alexiadou classifies them as unergative Verbs. This classification is further supported by Medova & Taraldsen (2007)'s analysis, which highlights that unlike unaccusatives, reflexive Verbs do not permit *ne*-extraction from a postverbal subject.

In Czech analyses, the reflexive element originates lower in the structure (VP) and undergoes raising to a higher position. For instance, according to Panevová (2000), the reflexive clitic SE serves as an anaphoric object within VP. In contrast, Medová & Taraldsen (2007) suggest that this view presents challenges as a single element would accumulate two theta roles. Instead, Medová & Taraldsen propose that the reflexive starts as an oblique within VP and then raises to a higher position. The specific details of these proposals may vary, but the crucial observation is that the SE-reflexives originate lower in the structure.

In section 5.2.2, it has been illustrated that Alexiadou et al. (2015) distinguish between two types of reflexive verbs. This idea can be transferred to Czech where both semantically reflexive verb such as (439a) and anticausative in (440a) can be marked with the reflexive SE. Their syntactic structures are in (439b) and (440b) respectively. What can also be observed is that the reflexive SE 'self' is preserved in the nominalization structures in (c).

(439)	a.	*studenti*	*se*	*přihlásili*	**Semantically reflexive verb**
		student$_{NOM}$	SELF	registered	
		'students registered themselves'			
	b.	**[$_{TP}$ T [$_{Voice\ P}$ DP Voice [$_{vP}$ v REFL]]]**			
	c.	*přihlášení*	*se*	*studentů*	
		registering$_{NT}$	SELF	students$_{GEN}$	
		'registering of students'			

(440)	a.	*dveře*	*se*	*otevřely*	**Reflexively marked anticausatives**
		door$_{NOM}$	SELF	opened	
		'the door opened itself'			
	b.	**[$_{TP}$ T [$_{Voice\ P}$ REFL Voice [$_{vP}$ *v* DP]]]**			
	c.	*otevření*	*se*	*dveří*	
		opening$_{NT}$	SELF	door$_{GEN}$	
		'opening of the door by itself'			

With semantically reflexive verbs the reflexive SE originates lower in the structure, namely the *v*P projection. This is compatible with descriptions of reflexives in the Czech literature, see Medová & Taraldsen (2007) and Panevová (2000) as described in the previous section, leaving aside whether the reflexive SE starts as an oblique or not. On the other hand, reflexively marked anticausative contain expletive Voice which hosts the reflexive SE without its being interpreted as a thematic argument.

For the purpose of this dissertation, I will assume that Czech has both types of reflexives illustrated in (439) and (440). For the first type the reflexive originates in the *v*P and the expletive Voice in nominalizations is also possible. Compare also its inclusion into nominalization structures in Polish by Rozwadowska (2020).

To conclude this part, both theoretical frameworks have the capability to account for various nominalization patterns, with the exception of unergative constructions in Czech. Alexiadou (2017d) proposes a solution to address this issue, suggesting that the arguments of unergative Verbs could be derived within the *v*P domain at least in nominalizations. Hence, although her analysis may be considered somewhat ad-hoc, it appears to be more suitable for explaining the data in Czech.

6.4.5 Morphological Issues

In this section, we will examine the insights provided by morphology regarding the internal structure of verbal Nouns, with a specific focus on whether Czech verbal N/T nominals exhibit similarities to passivization. Interestingly, their surface structure bears resemblance to passive participles, as they are formed by adding derivational affixes *-(e/ě)n, -(a/á)n, -t* which shares similarities with the affixes *-(e/ě)n, (a)n, -t* used in passive participles, as depicted in examples (441) and in table (442).

6.4.5.1 Thematic Role markers

Unlike most Czech deverbal event nominals that attach their derivational suffix directly to the root, derivational suffixes in N/T nominals are attached as late as after the thematic affix of the verbal stem. Therefore, I am going to analyze *thematic marker* first.[86] Table (441) below illustrates that the- *ba* suffix is directly added to the root, whereas the *-ní* suffix is attached to the theme vowel. Caha and Zikova (2016) suggest that the presence of a theme vowel can

[86] see Caha and Zikova (2016)

influence the aspectual interpretation of a verb, such as semelfactivity (441c), iterativity, or signal argument structure alternations (e.g., the causative-inchoative alternation). [87]

(441)	**Verb**		**N/T nominal**	**B/K nominal**	
a.	'he constructed'	*stav-ě$_{TH}$-l*	*stav-ě$_{TH}$-n-í*	*stav-ba*	'construction'
b.	'he closed'	*za$_{PF}$-vír-á$_{TH}$-l*	*za$_{PF}$-vír-á$_{TH}$-n-í*	*zá-věr*	'closing'
c.	'he winked'	*mrk-nu-l*	*mrk-nu$_{TH}$-t-í*	*mrk*	'winking'

There are two types of thematic affixes in Czech: infinitival and present thematic affixes. These are listed in the table below in the second and third column respectively. The initial column uses the classification dividing the Czech Verbs into five 'classes' – you can see that the taxonomy is based on the present thematic vowel. By their combination, we can get all the derivational combinations of verbal Nouns in Czech, see also Čechová (2000, p. 225-226):

(442)	**Infinitive thematic vowel**	**Present thematic vowel**	**VERB** PAST. PART	3.SG.PRES	PASS.PART	**NOMINAL**	
I.i	***Ø***	***-e***	*nes- Ø -l*	*nes-e*	*nes-Ø-en*	*nes-Ø-en-í*	'carrying'
I.ii	***Ø***	***-ne***	*tisk-Ø-l*	*tisk-ne*	*tišť-Ø-en*	*tišť-Ø-en-í*	'printing'
I.iii	***Ø***	***-je***	*kry-Ø-l*	*kry-je*	*kry-Ø-t*	*kry-Ø-t-í*	'covering'
II.ii	***-nu***	***-ne***	*tisk-(nu)-l*	*tisk-ne*	*tisk-nut-t*	*tisk-nu-t-í*	'printing'
III.i	***-e***	***-e***	*tř-e-l*	*tř-e*	*tř-e-n*	*tř-en-í*	'rubbing'
III.iv	***-e***	***-í***	*sáz-e-l*	*sáz-í*	*sáz-e-n*	*sáz-e-n-í*	'setting'
IV.i	***-í***	***-í***	*pros-i-l*	*pros-í*	*proš-Ø-en*	*proš-Ø-en-í*	'begging'
V.i	***-a***	***-e***	*br-a-l*	*ber-e*	*br-á-n*	*br-a-n-í*	'taking'
V.i	***-a***	***-e***	*za-br-al*	*za-ber-e*	*za-br-á-n*	*za-br-á-n-í*	'$_{PF}$taking'
V.ii	***-a***	***-ne***	*po-č-a-l*	*po-č-ne*	*po-č-a-t*	*po-č-et-í*	'conception'
V.iii	***-(ov)a***	***-(u) je***	*kup-ov-al-*	*kup-uj-e*	*kup-ov-á-n*	*kup-ov-á-n-í*	'buying'
V.v	***-a***	***-a***	*děl-a-l*	*děl-á*	*děl-á-n*	*děl-á-n-í*	'doing'

Obviously, if B/K nominals lack the theme suffix, they are often incapable of expressing aspectual distinctions. Therefore, the *ba*-nominal in (443a) is ambiguous and can convey the meaning of the perfective (443b) or secondary imperfective (443c):

[87] To exemplify this, the Adjective *červený- red* can be transformed into a verb by adding a theme marker; *červen-i$_{TH}$-t* means 'to make red', while *červen-a$_{TH}$-t* means 'to become red'.

(443) a. *ob-haj-ob-a* b. *ob-háj-i*$_{TH}$*-t* c. *ob-haj-ova*$_{TH}$*-t*
pref.defence $_{PF}$defending $_{PF}$defending$_{IMPF}$

For these reasons, I will locate the thematic vowel in this thesis in the AspectP functional projections which is missing in type II nominals.

Upon closer examination of the table (442), it becomes evident that there is a significant degree of stem alternation between the present and the past participle:

- softening of the final consonant in I.ii: *tiskl*> *tištěn*
- *i*>e alternation in IV.iv
- vowel lengthening in V.i

As far as i>e alternation is concerned, Medová (2018) argues that this alternation is visible in contexts where the external argument is suppressed. Apart from the passive N/T participle *slaz-E-n-ý* meaning 'sweetened' from the verb *slad-I-t* 'to sweaten', she provides evidence for this alternation translatable by *-able* adjectives as below:

(444)

	INF	**ADJ**	**ADJ**
a.	*vid-ě*$_{TH}$*-t* b.	*vid-i*$_{TH}$*-tel-ný* c.	**vid-ě*$_{TH}$*-tel-ný*
	'visible'	'visible'	'visible'

The contrast between (444a) and (444b) follows if the theme E_{TH} introduces an external argument that is not a proper Agent and that the *able* adjective needs a proper [+HUM] agentive argument. The theme I_{TH} is the canonical introducer of an external volitional argument.

In contrast, we observe that there are hardly any discrepancies between the passive participle and the verbal Noun. In fact, there are only two minor alterations in theme vowels that set them apart:

- a>e alternation in the theme vowel in the class V.ii: *poč-a-t* → *poč-e-t-í*
- vowel-shortening in imperfective stem in the class Vi*: br-á-n* → *br-a-n-í*

In the following section, I will put forward possible explanations for these changes. Regarding the *a* > *e* alternation, it can be viewed as irregular and, as mentioned by Čechová (2000, p. 231), it is historically linked to the I.i class. This parallelism provides a rationale for the characteristic transformation to *-e* observed in the I.i class.

The phenomenon of vowel shortening is more intricate. It is important to note that this change exclusively takes place in the imperfective form (e.g., *br-a-n-í* becomes *br-á-n*). Conversely, in the perfective version, vowel shortening does not occur (e.g., *za-br-á-n-í* remains *za-br-á-n*). Zikova (2016) identifies a lengthening process that is triggered by infinitives in Czech and is further conditioned by the imperfective form. In contrast, the perfective form does not undergo vowel lengthening. She compares it with *-i-e* patterns where the lengthening occurs with prefixed and unprefixed form as (445) exemplifies:

(445) lengthening

INF i/e pattern	PREF-INF	PREF-PAST PART	INF a-pattern	PREF-INF	PREF-PAST PART
CC-í-t	pref-CC-í-t	pref-CC-i/e-l	CC-á-t	pref-CC-a-t	pref-CC-a-l
tř-í-t	*roze-tř-í-t*	*roze-tř-e-l*	*br-á-t*	*roze-br-a-t*	*roze-br-a-l*
'to spread'	'to spread apart'	'spread apart'	'to take'	'to take apart'	'took apart'

It is evident that only the non-prefixed form consistently undergoes changes, either lengthening or shortening. Zikova (2016) provides an explanation for this phenomenon: theme vowels are inherently short and experience lengthening due to the prosodic constraint triggered by the infinitive template. According to Zikova, in the infinitive form, the root and the theme marker must together constitute a unit with a minimum weight of two moras. If the root already contains a vowel, the combination with the theme marker fulfills the templatic requirement without the need for lengthening. However, when the root lacks a vowel, the theme marker must lengthen to satisfy the requirement.

Looking at it from this perspective, the occurrence of lengthening in both simple and prefixed infinitives within the *i/e*-pattern can be explained by assuming that the prefix does not contribute to the infinitival template in the *a*-pattern. Subsequently, we have the two theme-alternating patterns:

(446)	*i/e* pattern	*a*-pattern
	prefix-[root-theme]	[prefix-root-theme]

Interestingly, these patterns do not undergo initial parsing in this manner during the derivation. Instead, according to Zikova (2016) this rebracketing process occurs later in the derivation and follows prefix vocalization, where the prefix and root must form a constituent:

(447)	C-CCVC	V-CC-V
	roz-tříd-i-t	*roze-tř-í-t*
	'sort through'	'spread'

Although I will not try here to make any precise claim as for the specific stage of derivation where theme vowel-shortening occurs in deverbal Nouns, I will assume that these changes are both predictable and align with the notion that nominalizations resemble passivization, given the minimal alterations from the past participle form. Additionally, this perspective is well-suited to Alexiadou's approach, which posits a passive-like/unaccusative nature for all *n*-nominals. This could explain why even forms that typically do not undergo passivization exhibit passive morphology, such as *prš-e-n-í* 'raining'*, sněž-e-n-í* 'snowing' in Czech. In contrast, Borer's perspective suggests that some forms are derived from active forms, which is not supported by Czech morphology.

Consequently, I propose that the passive participle *-n/t* allomorphs in the Czech structure should be viewed as a default Gender marker rather than a passive Voice marker. It cannot be

inserted under a Passive Voice because nominalizations are derived even from nominals structures that do not undergo a process of passivization. Instead, during the process of nominalization, which exhibits passive-like characteristics, the morpheme that originally functions as a passive participle marker in the verbal domain is reinterpreted as a marker of Gender.

What remains to be analyzed, is the *-í* morpheme in Czech nominalizations. It always produces stems with neuter Gender which are either count or mass. Ziková (2007) argues that it is not a Case suffix because if it were a Case marker, it would not show massive syncretism that is unprecedented in other Case paradigms.

(448) a. *kamen-**í*** *stone*$_{\text{NT.MASS}}$
b. *přímoř-**í*** seaside$_{\text{NT.COUNT}}$

Therefore, I will take this *í* as a portmanteau agreement morpheme for Gender and Number that is realized on the root post-syntactically.

6.5 Chapter Summary

In this Chapter, I have contrasted approaches of H. Borer and A. Alexiadou to nominalizations and assessed them with respect to Czech data. After the analysis of Czech verbal and nominalizing morphology (as presented in e.g. and 5.4.2 and 4.5), I have adopted many aspects from Alexiadou's framework because it better reflects Czech data. In particular, her *v* layer accounts for telicity and can help distinguish between the function of prefixes in zero-derived Type II nominals and prefixes in N/T nominals.

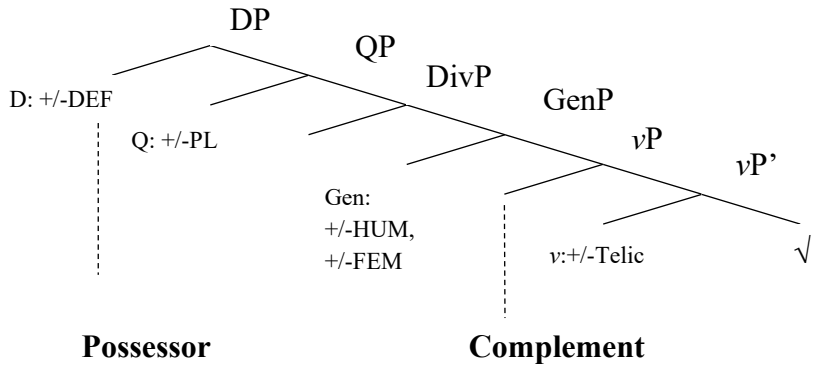
After extensive discussion and analysis, I concluded that indeed B/K nominals have fewer verbal characteristics than N/T nominals. The few verbal properties of the B/K can be explained by the presence of the *v*P projection. On the other hand, the more verbal characteristics of the N/T nominals signal that apart from the *v*P layer they have to project also other verbal functional projections: namely the aspectual projections such as AspectP and ProgP as well as the NegP layer where the prefix *-ne* can be assigned.

On the basis of binding effects investigated in Karlík (2007) I accepted his proposal that arguments of nominalizations exhibit different behavior than their clausal counterparts, I therefore follow Alexiadou (2001) in assigning nominalizations ergative pattern. This has also been corroborated by morphological analysis and the Lebeaux effect (1984), as all deverbal Nouns in Czech are formed analogically to passive participles. Furthermore, I will not assume Borer's N-to-D movement in Czech and consequently adopt the mechanism of Case licensing proposed in Alexiadou (2017d). As verbal parts of nominals can be nominalized by higher functional structures, the passive-like character is not ascribed to the nominalizer *n*. This layer is missing in my analysis. Instead, its roles in Borer's system are accomplished in Czech by any nominal functional projection attached on the top of verbal layers, e.g. GenP, QP.

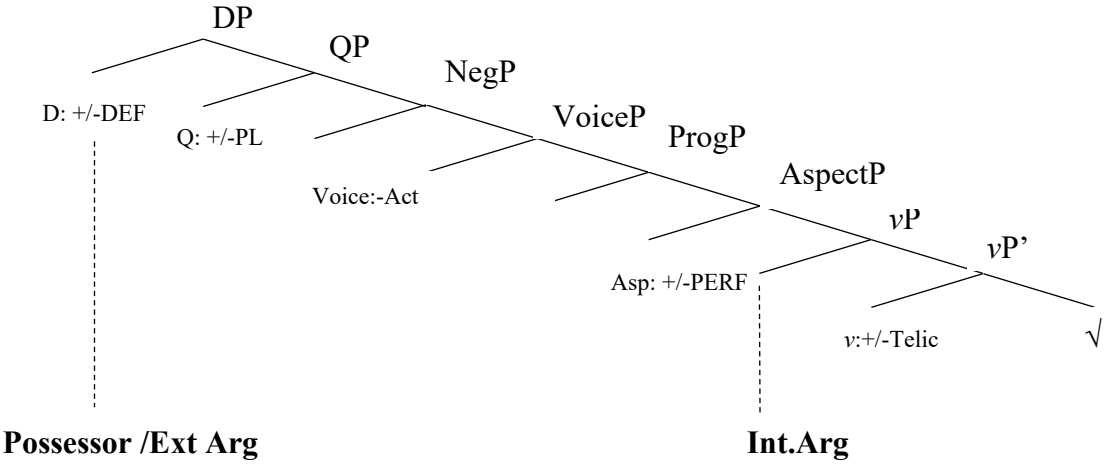
In addition, I agree with both generativists that Adverbs reflect the presence of various functional layers and claim that in Czech, manner Adverbs in derived AS nominals are associated with passive Voice.

These facts have enabled me to assign syntactic structures to two groups of nominals introduced in section 6.4.1: B/K nominals in (449) and N/T nominals in (450). These were carefully described by Veselovská (2001); (2018b) and Karlík in his many studies, most recently in Karlík (2019).

(449) B/K nominals



(450) N/T nominals



I will use these structures for nominalizations in the next chapter where I am going to investigate their nominal layers and their ability to pluralize in more detail.

7 COUNTABILITY OF ARGUMENT STRUCTURE NOMINALS

In the preceding chapters I have discussed issues concerning a theoretical framework, based on the discussion I proposed structures for Czech nominal and verbal projection and finally analyzed a process of nominalization for two distinct types of Czech derived nominals. In this final chapter I will focus on of the features which are used to define distinctions between the two kinds of nominalizations. Namely, I will establish a theoretical foundation for the investigation of countability in derived eventive Nouns based on the parallelism between nominal and verbal domain. In order to do that I am going to include an overview of the perspectives presented by Alexiadou et al. (2010) and Borer (2013) as they specifically address the issue of countability of CENs in English. Subsequently, the introductory framework will be tested comparing the theoretical predictions with the Czech data obtained through corpus research.

In Grimshaw's influential study from 1990, the presence or absence of plural marking serves as a significant parameter for distinguishing between Argument structure (ASNs) and Referential Nominals (RNs), with only the latter permitting pluralization. Grimshaw's framework was properly described in section 2.2.3. She claims that the verbal character of CENs is incompatible with plural marking:

(451) a. *The **assignments** were long*
b. **The **assignments** of the problem took a long time.*

This implies that all ASNs are predominantly mass which in syntactic terms means that they have only verbal layers and insufficient nominal layers to host NumP/QP.

Recent research on ASNs challenges Grimshaw's view and provides cross-linguistic counterevidence to her claims. Plural event nominals have been shown to exist in French and Italian (Roodenburg, 2006); (Knittel, 2011), Romanian (Iordăchioaia & Soare, 2009); (Sleeman & Brito), Dutch (van Hout, 1991), Slavic and Germanic languages (Alexiadou et al., 2010) and English (Borer, 2013).

Both the authors widely cited in this study, i.e. Alexiadou and Borer contribute to the discussion about countability of AS nominals in the English language. Both establish a correlation between the potential of ASNs for countability and aspectual issues.

7.1 Borer's Countability of AS Nominals

Borer (2013)'s analysis is not extensively detailed but she observes that telic derived nominals behave as count Nouns while atelic ones behave like mass. In view of this observation, consider her examples:

(452)
a. *the (regrettable) **dismissals**/**dismissings** of many qualified workers (by newly appointed CEOs)*
b. *the (infrequent) **empowerments**/*empowerings of under-represented groups (by their elected officials)*

c. *the (gradual)* ***promotions/*promotings*** *of these incompetent functionaries (by their superiors)*
d. *the (frequent)* ***replacements/*replacings*** *of many humans with few machines (in thirty years)*
e. *the* ***appointments/*appointings*** *of three musicians to permanent positions (by the management)*
f *the* ***dispossessions/*dispossessings*** *of rural land owners (by the military authorities)*

(453)
a. *a* ***dismissal*** */*a* ***dismissing*** *of a qualified worker (by newly appointed CEOs)*
b. *an* ***empowerment***/*an ***empowering*** *of an under-represented group (by its elected official)*
c. *a* ***promotion***/*a ***promoting*** *of an incompetent functionary (by his superior)*
d. *a* ***replacement***/*a ***replacing*** *of a worker with a machine*
e. *an* ***appointment***/*an ***appointing*** *of a musician to a permanent position (by the management)*

Whereas, the suffix $ING_{N[V]}$ is homogeneous (atelic), the so called ATK (*-ation* and *-kin* nominals) nominals do not share the same uniformity and can pluralize. ATK nominals refer to the set of phonological realizations associated with the C-functor, $C_{N[V]}$ in English: *-ation*, *-ance*, *-ence*, *-ancy*, *-ency*, *-ment*, *-al*.

Being homogeneous, $ING_{N[V]}$ cannot occur in the context of psychological predicates or statives:

(454) a. *#The wall's* ***touching*** *of the fence*
b. *#Kim's* ***hearing*** *of the symphony*

A non-quantity construal is not possible with achievement Verbs (which must be quantity) either:

(455) a. **Kim's* ***reaching*** *of the summit*
b. **Pat's* ***ending*** *of the flood*
c. **the* ***arriving*** *of the train*

The nominalizer *-ing* bars the projection of Asp_Q and it merges at EP. The resulting structure is in (456):

(456) [DP... [$_{NP}$ V-*ing* [$_{EP}$ DP ~~V-ing~~ <e>$_E$ ….[$_{VP}$ ~~V~~]]

Interestingly, the anti-telic property of the nominalizer *-ing* is not present in verbal gerunds and progressive *-ing* forms, it seems to be neutral to telicity/anti-telicity. First of all, verbal gerunds (457) as well as progressive *-ing* (458) are compatible with achievement verbs unlike nominalizer *-ing* in (455). The examples are given in Borer (2005b, p. 164, 174, 230).

(457) **VERBAL GERUND**

a. *Kim's **reaching** the summit*

b. *Pat's **ending** the flood*

(458) **PROGRESSIVE**

a. *Kim **was reaching** the summit.*

b. *Pat **was ending** the flood*

Second, whereas verbal gerunds (459) are licit in the presence of telicity modifiers such as *in X-time,* nominal gerunds do not allow them (460):

(459) **VERBAL GERUND**

a. *Kim **formulating** government policy* *(for two weeks/in two weeks/twice).*

b. *Pat **organizing** a complex event* *(for three minutes/ in two minutes/twice).*

(460) **NOMINAL GERUND**

a. *Kim's **formulating** of several procedures* *(for the past few weeks/*in a few weeks)*

b. *Pat's **organizing** of many committees* *(for three months /*in three months)*

Both *-ing* forms can block the culmination of events but their status is different. While the gerund assigns interpretation to (457), nominal gerund prevents such structure ever from arising (455). Thus, verbal gerund and progressive *-ing* are compatible with Asp_Q projection but take scope over it. While the nominalizer *-ing* must be viewed in terms of inner Aspect, gerund and progressive *-ing* is an instance of outer Aspect. As an outer Aspect it takes scope over event template much like negation (e.g. *the train did not arrive* means that there was no event of a train arriving, and not that there was an event of a train not-arriving) or like the *for-X-time* phrase which is capable of leaving argument assignment intact within inner aspectual domain.

Some more compelling examples discussed originally in Chomsky (1970) and repeated in Borer (2005b, p. 240) can be provided:

(461) a. *Kim **was writing** up the letter.*

b. *? Kim **was writing** the letter up.*

(462) a. *Kim **writing** up the letter.*

b. *Kim **writing** the letter up.*

(463) a. *Kim's **writing** up of the letter.*

b. **Kim's **writing** of the letter up.*

We can see that the separation of the Verb from the particle leads to ungrammaticality when using the nominalizer *-ing* (463b). It is easily explainable if we note the contrast in (464) where Asp_Q is obligatory when the particle is separated from the verb:

(464) a. *We **ate** up sandwiches (for hours/ all afternoon/*in three hours).*
b. *?? We **ate** sandwiches up (for hours/ in three hours).*
Source: Borer (2005b, p. 241)

From this perspective, the nominalizer *-ing* in (463b) blocks the projection of Asp_Q which is required by the particle. Consequently, the ungrammaticality emerges, which is not observed in (461b) and (462b) with progressive and gerundive *-ing* that are neutral to the projection of Asp_Q.

To conclude this discussion, Borer (2012) assumes that that whereas nominalizer *-ing* is an inner Aspect which blocks the projection of Asp_Q altogether, progressive, gerundive *-ing* and *for-X-time* phrases are cases of outer Aspect (G-ASP) which take scope over an event template constructed independently. Telic derived nominals are also instances of inner Aspect but do not pose any constraint on countability. I will come back to this conclusion later on.

7.2 Alexiadou and Countability of AS Nominals

Alexiadou et al. (2010) use not only English but provide data from Romanian, German and Spanish, as well as Polish and Bulgarian ASNs. Similar to Borer (2013), they accept the correlation between inner and outer Aspect and the nominal characteristics. Both the authors propose that count Nouns are similar to telic and perfective events in being BOUNDED, and mass Nouns to atelic and imperfective events in being UNBOUNDED. This explains why it is possible for telic and perfective (ASNs) to undergo pluralization.

Alexiadou et al. (2010) also accept Borer's analysis of the nominalizer *-ing* (their nominal gerund), referring to its being sensitive to inner Aspect (in contrast to the verbal gerund which is not). To support this claim, Alexiadou et al. (2010) provide the following examples. [88]

(465)	a.	**the **arriving** of the train*	Nominal Gerund [+TELIC]
	b.	**the **erupting** of Vesuvius*	Nominal Gerund [+TELIC]
(466)	a.	*the **sinking** of the ship*	Nominal Gerund [-TELIC]
	b.	*the **jumping** of the cows*	Nominal Gerund [-TELIC]
(467)	a.	*The train **arriving** at 5 pm is unlikely.*	Verbal Gerund [+TELIC]
	b.	*John's **reading** books until late in the night worries his mother.*	Verbal Gerund [-TELIC]

These examples can be explained by the fact that nominal gerunds inherit the inner aspect of the verb while verbal gerunds project an outer Aspect which can scope over the inner Aspect. Consequently, it follows that nominal gerunds do not have the ability to trigger an Aspect shift.

[88] Alexiadou et al. (2010) do not discuss various sub-types of gerunds as for example Abney (1987) does. Namely Acc-ing, PRO-ing, and Poss-ing. Also, the authors claim that verbal gerund is not strictly as progressive *-ing* but leave this issue for further research.

However, according to Alexiadou et al (2010), the inner Aspect sensitivity of the nominalizer *-ing* and the ability to pluralize also has to do with the availability of other nominal suffixes for the same structure. This can be observed in examples (468), where there are no other available nominal suffixes for Verbs like *kill* and *cross* (which are telic Verbs). In such cases, the nominalizer *-ing* is grammatically acceptable and can appropriately indicate plurality:

(468) a. *I heard of repeated **killings** of unarmed civilians.*
b. *On his frequent **crossings** of the Atlantic he has often be accompanied by his wife.*
c. *In my many/frequent **readings** of this book I failed to see its structure.*
d. *The frequent late **arrivals**/***arrivings** of the train made me take the bus.*

In contrast the impossibility of pluralization of verbal gerund in (469) results from the fact that it contains outer Aspect which is in complementary distribution with Number (see also Fassi Fehri, 2005 for similar proposal).

(469) **He could not stand her **criticizings** me.*

If an outer aspect is in complementary distribution with Number, we need to explain how can perfectivity (which is defined at the outer aspectual level) tally with countability. First of all, let us have a look at some examples below quoted by Alexiadou et al. from Polish which is rich in aspectual morphology:

(470) a. *częste* *opóźnione* ***przyby-cia / odejś-cia*** *pociągu*
frequent delayed arrive$_{PF.CIE.PL}$/depar$_{PF.CIE.PL}$ train$_{GEN}$
'The frequent delayed arrivals/departures of train.'

b. *częste* ***odkrycia*** *nowych terapii* *raka*
frequent discover$_{PF.CIE.PL}$ new treatments cancer

przyniosly naukowcom slawe
brought researchers fame
'The frequent discoveries of cancer treatments brought the researchers international fame.'

(471) a. **częste* *opóźnione* ***przybywania/odjezdzania*** *pociągu*
frequent delayed arrive.$_{IMPF.NIE.PL}$/depart.$_{IMPF.NIE.PL}$ train$_{GEN}$

b. **częste* ***odkrywania*** *nowych terapii* *raka* *przyniosly …*
frequent discover.$_{IMPF.NIE.PL}$ new treatments cancer brought …

A first important fact to notice about the ASNs in (470) is that perfective stems tolerate a plural morphology while their corresponding imperfective pairs (471) are ungrammatical with a plural marking. It is also noteworthy that *-wa* suffix in Polish is considered as a secondary

imperfective marker rather than an unmarked imperfective form. While Alexiadou et al. do not explicitly address this distinction, as they view both forms as instances of outer Aspect, it is crucial to acknowledge this differentiation. The contrast between these two types of imperfectivity has been demonstrated in the Czech language in section 5.4.1.1 and will play a significant role in our subsequent analysis and discussion.

To reconcile the issues of the simultaneous presence of countability and perfectivity, Alexiadou et al. claim that these are in fact *n*P nominalizations. The presence of an *n* head is according to these authors typically indicated by several linguistic characteristics, such as:

- Genitive PP object
- Gender features
- Adjectival modification
- Possibility to combine with all types of Determiners

What is evident from the examples in (470) is that the Polish nominals permit the modification by adjectives and the Genitive marking of their objects – both these provides clear evidence in support of the *n*-head analysis.

In contrast, verbal gerunds in English are a DP nominalization. Obviously, they are not an *n*P nominalization as they lack all these above-mentioned properties, see section 2.2 for the properties of verbal gerunds. In Emonds' (2000) terminology we could talk about the derivational and inflectional distinctions between nominalizations.

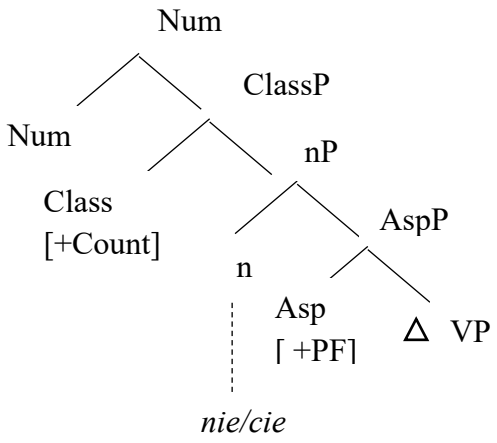
Structurally, the interactions between the verbal and the nominal domain can be explained if the projection of the ClassP can access the features within the c-commanded VP domain, which can be formalized in terms of an Agree relationship. For English ASNs nominals as in (468) a [±Count] feature on ClassP is posited which agrees with the inner Aspect that is calculated in the VP. ASNs with the telic inner Aspect have ClassP [+Count] and project NumberP, while ASNs with atelic inner Aspect have ClassP [-Count], which blocks the realization of NumberP. The verbal layers that would be projected in English telic ASNs are represented in the tree (472b) below.

The structure for the verbal gerund (459) in English is depicted in (472c). In this structure the only nominal layer is the DP projection which explains why these projections have *external* syntax of DPs. The dotted lines in (472c) mark that there can be additional verbal layers irrelevant for out discussion here. The main conclusion here is that the verbal gerund is imperfective/unbounded and it excludes NumP projection.

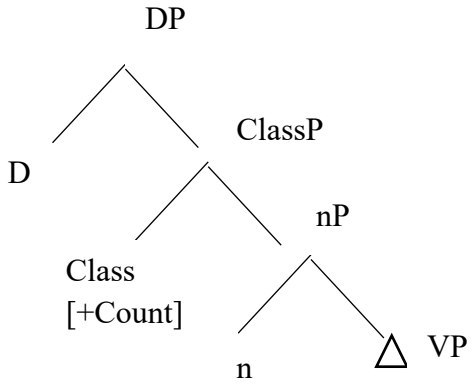
For Polish examples in (470), the *n* head attaches on the top of Aspect P which is believed to be present in Polish nominals, e.g. Rozwadowska (1997). This structure (472a) is reminiscent of English telic ASNs nominals as they both host the feature [+Count] in ClassP. The distinction lies in the fact in Polish this feature correspondents to outer Aspect while in English, it is an inner Aspect. Despite this difference, both Aspects are bounded and therefore nothing prevents from treating them similarly.

(472)

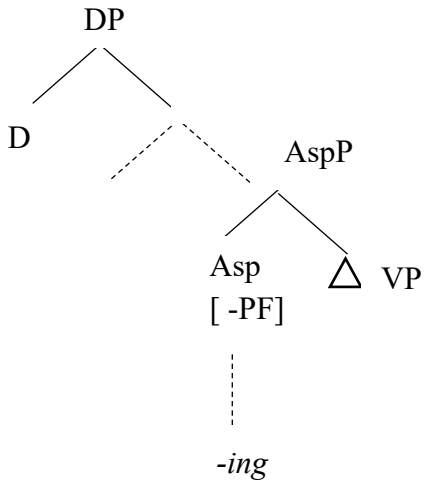
a. Polish Perfective CENs



b. English telic CENs



c. English verbal gerund



7.3 Czech Deverbal AS- Nominals and Countability

In this section, I will present the countability patterns of deverbal nominals in Czech as extracted from corpora. This basic pilot study is aimed to find out the signals of interplay between the nominal and verbal domains with respect to the concept of countability. Based on the data (and the preceding theoretical discussion) I will propose a syntactic mechanism in order to explain the process of nominalization. By establishing parallels between the N and V domains, I will suggest potential paths in the derivation. Crucially, I will propose the possibility of substituting layers in the nominal domain due to the *analogous features* in domain of the Verb. If this proposal can be confirmed, it would be able to cross-linguistically predict possible kinds of nominalizations.

We can start our description with B/K nominals. As discussed in section 6.4.1, these nominals can be classified into two distinct types, each exhibiting a specific structure as illustrated in (473). The first type is characterized by the presence of features related to telicity resulting from the presence of the projection of *v*P, while the second type refers to tangible objects and lacks these telicity-related features. Czech examples are given on the right. The relevant nominals are in bold.

(473) a. [D [QP [DivP [GenP[**vP**[√]]]] *rychlá **stav-ba*** 'a quick construction'

b. [D [QP [DivP [GenP[[√]]]] *železobetonová **stav-ba*** 'the reinforced concrete construction'

Both types of B/K nominals do not exhibit any constraints on countability, as demonstrated in the examples in (474) for RNs and (475) for SENs. The Czech B/K nominals like English simple event nominals (e.g. *the trip, concert, movie*) – both can be eventive and countable. The Czech examples below are taken from the Czech national corpus.[89]

(474) a. *dvě* *železobetonové* ***stavby***
two$_{F.PL}$ reinforced concrete$_{F.PL}$ contructions$_{F.PL}$

b. *dvě* *dřevěné* ***ná-stav-by***
two$_{F.PL}$ wooden$_{FEM.PL}$ $_{pref}$.additions$_{F.PL}$

(475) a. ***Obě*** ***stav-by*** *se budou odehrávat* *na dálnici D 46.*
both construction$_{PL.F.NOM}$ REFL AUX$_{FUT}$ take place on the highway D46
'Both constructions will take place on highway D46.'

b. *Sloužila* *při* ***třech*** ***plav-bách*** *jako* *chirurg.*
serve$_{PAST}$ during three sailing$_{PL.F.LOC}$ as surgeon
'She served as a surgeon during three sailings.'

c. *Po* ***třech nebo čtyřech*** ***pře-mal-bách*** *ztratil všechny půvaby.*
after three or four pref.paint.$_{PL.F.LOC}$ lost all charms
'After three or four re-paints, it lost all its charms.'

d. *Palác* *prošel* ***několika*** ***pře-stav-bami.***
Palace undergo$_{PAST}$ several re$_{PF}$.building$_{F.PL.INS}$
'The palace underwent several rebuildings.'

[89] For my pilot search I used two corpora: the Czech corpus CsTenTen17 and the Syn (2020). The CsTenTen17 corpus is made up of texts collected from the Internet containing 10.5 billion words. The Syn (2020) is the Synchronic Representative Corpus, which is a part of the Czech National Corpus. This work has 121,826,797 positions and is therefore quite representative of modern Czech data.

The examples above show that the B/K nominals can pluralize irrespective of their inner Aspect (telicity/atelicity) in *v*P. The reasons are as follows: First of all, they do not have an outer Aspect that would be in complementary distribution with Number. Furthermore, they can exhibit Gender features, as exemplified by the feminine Gender in our examples, but they can also manifest masculine Gender, such as *jásot* 'exultation$_{MASC}$' and *dupot* 'stamping$_{MASC}$'.

The countability of B/K nominals stands in contrast to N/T nominals, which typically appear with a default neuter Gender marking. The literature has often discussed a correlation between Gender and Number agreement. Picallo (2006) proposes that Gender is associated with the presence of the Classifier projection ClassP and, implicitly, with the ability to trigger Number agreement. These facts imply that these nominals will possess a full array of nominal layers but at the same time will have fewer verbal layers.

Now let's turn our attention to N/T nominals and compare their behavior to that of B/K nominals. N/T nominals can be either R-nominals or AS- nominals. When they are R- nominals, e.g. *stavení* 'building', they can pluralize freely as already illustrated in previous sections. In their argument taking capacity, N/T are more constrained with respect to countability but they are under certain circumstances countable.

To select the N/T nominals, I was extracting sequences from a large Czech corpus CsTenTen17 based on the following criteria that distinguish B/K nominals from N/T nominals and demonstrate their status as AS-nominals:

- AGENTIVITY: [Cardinal numeral] [Nominal N/T] [Substantive in GEN] [Substantive in INSTR],
- Ne-PREFIXATION: [Cardinal numeral] [Nominal N/T beginning with *-ne*],
- Reflexivity: [Cardinal numeral] [Nominal N/T] [Reflexive *SE*].[90]

Upon extracting these sequences, the search yielded the following number of results:

(476)	**Cardinality 1**	**Cardinality 2 and more**	**Total**
1, Agentive	18	12	30
1, -*Ne* prefix	113	26	139
1, Reflexive	93	33	126

The table shows that the cardinal numeral *jedna/jeden/jedno* 'one' is the most frequently used, but in Czech, its presence does not necessarily indicate countability of Nouns. The Czech cardinal is characterized by being both [+DIVIDER] and [-DIVIDER], unlike its English counterpart, which is solely [+DIVIDER]. For a detailed analysis, refer to section 4.1.1, where

[90] I used the following Corpus Query Codes to extract the concordances for the criteria in question:
Agentivity:[tag=””k4.*xC.*””][lemma=””.*ní|.*tí””&tag=””k1.*””][][tag=””k1.*c2.*””][tag!=””k7.*””][tag=”” k1.*c7.*””]
Ne-Prefixation: [tag=””k4.*xC.*””][lemma=””ne.*ní|ne.*tí””&tag=””k1.*””]
Reflexivity: [tag=””k4.*xC.*””][lemma=””.*ní|.*tí””&tag=””k1.*””][word=””se””]
For the sake space, I only include CQL codes for the combinations with cardinal numbers. The sequences with group and kind nominals are analogous.

the grammaticality of Czech phrase *jedno listí* is discussed, highlighting the contrast with the ungrammatical English phrase **one foliage*.

The second column of the table displays the results for the premodification by cardinal numerals higher than one. As we can see these sequences are permissible. We can compare the number with standard modifiers such as *dvoje*/*dvojí* 'two$_{GROUP}$/two$_{KIND}$' that are recommended by Czech grammars for abstract Nouns. A visual representation of the results is below:

(477)	***Dvoje/dvojí and higher numerals***
1, Agentive	19
2, *-Ne* Prefix	27
3, Reflexive	24

Czech group and kind numerals do not directly quantify individual elements as Dočekal (2012) explains. Instead, group numerals quantify sums or groups, while kind numerals quantify sub-kinds. For example, a Noun Phrase like *dvoj-e klíče* 'two sets of keys' refers to any two sums or groups of keys, regardless of the specific cardinality within each group. On the other hand, *dvoj-í víno* or 'two kinds of wines' implies the presence of two sub-kinds of wine, such as red wine and white wine. The group and kind numerals will play a role in our discussion as that there has been a tendency in Czech to replace these numerals with cardinal numerals.

We can now proceed to examine examples from the Czech CsTenTen17 corpus that demonstrate the three criteria mentioned. The first criterion, agentivity, is illustrated by examples (478a-b). We can observe that N/T nominals are premodified by a cardinal numeral and postmodified by direct objects in the Genitive and agentive modifiers in the Instrumental:

(478)

a. *Dojde* ***ke*** *<u>třem</u>* ***měřením*** *hluku* *<u>krajskou hygienou.</u>*
happen three measurement$_{(IMPF).NT.PL}$ noise$_{GEN}$ Health Station$_{INS}$
'There will be three instances of noise measurement by the National Heath Station.'

b. *Ten je složen* ***ze*** *<u>čtyř</u>* ***vyprávění*** *příběhu* *<u>různými lidmi.</u>*
That AUX$_{BE}$ compose$_{PRT}$ of four telling$_{(IMPF).NT.PL}$ story$_{GEN}$ various people$_{INS}$
'That is composed of four kinds of story-telling by different people.'

This pattern provides supporting evidence for the countability of Czech AS nominals. I also include examples with group or kind numerals as in (479) to illustrate that AS nominals in Czech can commonly occur with group and kind numerals:

(479) *Stavba…. připomíná* *<u>dvojí</u>* ***obsazení*** *města* *<u>Francouzi</u>.*
The building commemorates two$_{KIND}$ $_{PF}$occupation$_{NT}$ city$_{GEN}$ French$_{INS}$
'The building commemorates occupations of the city by French two times.'

Examples (480a-b) demonstrate the criterion of *ne*-prefixation. Again, we can see that N/T nominals which are pre-modified by a *ne*-prefix and postmodified by direct objects in Genitive co-occur with cardinal numbers.

(480)

a. *příčinám vévodí … stav vozidla a ---*
causes are … condition of a car and

tři	***ne-dání***		*přednosti v jízdě*
three	non-giving$_{PF.NT.PL}$		way$_{GEN}$

'The …condition of the car and the three (instances of) non-giving-way dominate the causes.'

b. *Nastává až ---*
come into effect

po	*dvou*	***ne-vysloveních***	*důvěry*	*vládě*
after	two	non-out$_{PF.}$expression.$_{NT.PL}$	confidence$_{GEN}$	government$_{DAT}$

'It comes into effect after expression of no-confidence in Government twice.'

The example (481) is an example with a *ne*-prefixation and a group numeral:

(481) *Navrhli …neschválit zprávu. ---*
proposed …not approve report

Její	*dvojí*	***ne-přijetí***	*znamená pád rady ČT.*
its	two$_{GROUP}$	non-$_{PF}$approval$_{.NT}$	means fall Board ČT

'They propose not to approve the report. Its double non-approval means the fall of ČT'

The *ne*-prefixation criterion in these examples confirms the claim that Czech AS nominals can be made countable.

Lastly, examples (482a-b) exemplify the criterion of reflexivity. What these constructions demonstrate is that the reflexive *se* 'self' collocates with cardinal numbers in N/T nominals.

(482)

a. *Termíny jsou určeny **pro** nejvýše ---*
deadlines AUX$_{BE}$ intend$_{PRT}$ for at most

tři	***přihlášení***	***se***	*daného studenta*	*na zkoušku*
three	$_{PF}$.registration$_{NT.PL}$	SELF	given student$_{GEN}$	for an exam

'The deadlines are intended for at most three self-registration of a given student for an exam.'

b. *.....volby pokazila i* <u>*dvě*</u> ***zdržení*** ***se.***
election disrupted two $_{PF.}$abstention$_{NT.PL}$ SELF
'The election were disrupted by two abstentions.'

In order to compare the above-mentioned examples with examples containing group numerals, the structure in (483) is provided:

(483) ***po*** <u>*trojím*</u> ***ptaní*** ***se*** *na cestu*
after three$_{GROUP}$ asking$_{PF.NT}$ SELF about the way
'After asking three times about the way.'

It can be observed that most of the examples provided are in the perfective Aspect. However, primary imperfectives can also combine with cardinal numerals, as seen in example (478a) and (478b).This observation contrasts with the expectations of Alexiadou et al. (2010). I provide an explanation for this discrepancy.

The examples that Alexiadou and her colleagues cited from Polish and that were discussed above were primarily secondary imperfectives. There is, in fact, notable distinction between these two types of imperfectivity in markedness. Primary imperfectives are considered unmarked, while secondary imperfectives bear the marked suffixes, e.g. *-ova*. Being unmarked, primary imperfectives have the capacity to refer to bounded and unbounded reading.

In the domain of Verbs, a similar phenomenon can be observed where primary imperfectives can acquire a bounded reading, resulting in the plurality of the event and habitual reading discussed in section 5.4.2.2. I repeat here the example quoted by Dočekal and Kučerová (2012) in their *Bound Reading of Imperfective Verbs*. The bounded reading is achieved by the adverbial modifier za *dvě hodiny* 'in two hours':

(484) *Když Petr studoval rychločtení, tak* ***četl*** *vojnu a mír* *za dvě hodiny.*
When Petr studied fast-reading, then read$_{(IMPF)}$ war and peace in two hours
'When Petr took a course in fast-reading, he was reading War and Peace in two hours.'

This becomes even more intriguing when we take into account that secondary imperfective Verbs such as *přemalovávat* 're-paint' *in* (485) can be also coerced syntactically into habitual reading with multiple instances of bounded events:

(485)

a. *Když byl Petr malý, tak* ***přemal-ová-va-l*** *obrázky* *za dva dny*
When be Peter young, then re$_{PF.}$paint$_{TH.IMPF}$ picture$_{GEN.PL}$ in two day
'When Peter was young, he used to re-paint pictures in two days.'

b. *V minulosti stavební firmy* ***předěl-á-va-ly*** *domy* *za kratší dobu.*
In the past construction companies re$_{PF.}$work$_{TH.IMPF}$ houses$_{GEN.PL}$ in a shorter time
'In the past construction companies used to re-build houses in a shorter time.'

The corresponding deverbal nominal counterparts with secondary imperfectives in (486) can achieve a similar interpretation of multiple instances of bounded events if postmodified by an adverbial modifier za *dva dny* 'in two days'. Yet, the nominals with secondary imperfectives cannot be counted as the examples below demonstrate:

(486)	a.		*(*dvě)*	***pře-prac-ová-vá-ní***	*textu*	*(za dva dny)*
			two	$re_{PF}.work_{TH.IMPF.NT.PL}$	$text_{GEN}$	in two day
	b.	*(*po*	*dvou)*	***vy-bruš-ová-ních***	*skla*	*(za dva dny)*
		after	two	$out_{PF}.grind._{IMPF.NT.PL}$	$glass_{GEN}$	in two days
	c.	*(*po*	*třech)*	***pře-děl-á-vá-ních***	*textu*	*(za dva dnym)*
		after	three	$re_{PF}.do_{TH.IMPF.NT.PL}$	$text_{GEN}$	in two days

This is different from N/T nominals with primary imperfective morphology, which had the ability to be made countable, as demonstrated above. I propose to ascribe this phenomenon to the nature of the secondary imperfective Aspect, which functions as an outer Aspect parallel to the outer Aspect found in English verbal gerunds. Recall that verbal gerunds can also take a telic modifier *in X-time* but they cancel their culmination by taking scope over it, as demonstrated in (459). As a result, both gerunds and secondary imperfectives exhibit a lack of countability, which reinforces Fassi Fehri's assertion that outer Aspect and Number are mutually exclusive. This statement will provide supports to the idea proposed by Borer (2013) and that is also adopted in my theory that there is a distinction between perfectivity/primary imperfectivity and secondary imperfectivity. Borer suggests that secondary Imperfectives in Czech are characterized by outer Aspect, referred to as G-ASP. However, this distinction is not made by Alexiadou et al. (2010).

7.3.1 Factors Contributing to the Countability of AS Nominals in Czech

In this section I am going to introduce a factor which may be a plausible reason of why Czech speakers are able to opt for cardinal premodification of AS- nominals. First, Czech linguists notice that there is a noticeable decline in the usage of group and kind numerals in oblique Cases and in contexts that express larger numerals. Moreover, there is a gap in productivity of B/K nominals which results in the usage of N/T nominals as an alternative.

Synková (2017) claims that there has been a noticeable trend since 80s for cardinal numbers to replace group and kind numerals in oblique Cases. Oblique Cases in Czech are defined by Veselovská (2018a) as morphological Cases other than NOM or ACC, which in Czech appear after Prepositions, which select anything other than ACC. There are also NOM-ACC prepositionless Case-marked DPs selected by some Verbs, Adjectives, or Nouns. She assumes that oblique Cases are always assigned by a (possibly empty) Preposition that subcategorizes for a specific Case.

Synková's examination of the Czech national corpus data reveals that when it comes to pluralia tantum words such as (*dveře* 'door'*, brýle* 'glasses'*, kleště* 'pliers'), the usage of *dvoje dveře- bez dvou dveří* 'two_{GROUP} doors- without two_{CARD} doors' is more prevalent than using

dvoje dveře bez dvojích dveří ‘two$_{GROUP}$ doors- without two$_{GROUP}$ doors’. In spoken form, this tendency is even greater.

Additionally, Synková highlights that group/kind numerals and cardinal numerals are often interchangeable in their meaning. She provides the following example where group, kind and cardinal numeral refer to the number of occurrences of a certain event rather than to some groups or kinds:

(487) *dvoje/dvojí /dvě* *střídání v poločase*
two$_{GROUP}$/two$_{KIND}$/two$_{CARD}$ exchange in halftime

Furthermore, the forms for group numerals higher than three are rarely used. This is clearly visible in examples below with cardinal numbers such as twenty or thousand:

(488)

a. *Celkem bylo zaznamenáno* ---
total AUX$_{PAST}$ record$_{PRT}$

pět tisíc ***porušení*** *sovětských hranic* *americkými letadly.*
five thousand $_{PF}$violation.$_{NT.PL}$ soviet border$_{PL.GEN}$ American aircraft$_{INSTR}$
‘A total of five thousand border violations by American aircraft have been recorded.’

b. *Podmíněná pravděpodobnost toho, že* ---
The conditional probability that

po *dvaceti* ***nepadnutích*** *šestky,* *šestka padne je stale stejná.*
after twenty non-falling$_{PF.NT.PL}$ six$_{GEN}$ six will fall, remains the same
‘The conditional probability that after twenty non-occurrences of six, the six will occur, remains the same.’

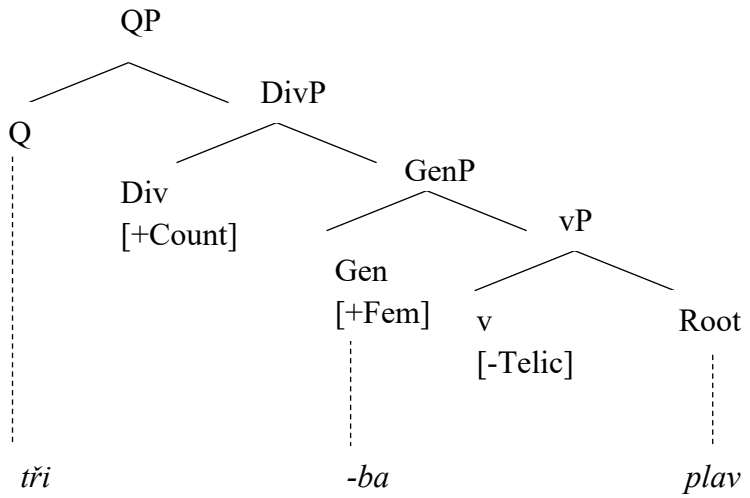
Another factor contributing to the preference for pluralization of CENs is the presence of gaps in Type II nominals, as discussed in chapter 2, section 2.3. Unlike N/T nominals, Type II nominals cannot be derived from all words. This means that while we have *pršení* ‘raining’, there is no corresponding form like **prš-ba*. In fact, when examining the examples used in the plural form, we observe Nouns that lack an alternative form. For instance, we have *měření* ‘measuring’ in (478a) but no **měřitba*, *dání* ‘giving’ in (480a) but no **datba*, *výslovení* ‘pronouncing’ in (480b) but no **výslov-ba*, and *zdržení* ‘abstention’ in (482b) but no **zdržba*.

7.3.2 Syntactic Mechanisms

Having described the nominals and the factors contributing to their pluralization, we can now provide their structural description. In Czech, B/K nominals with the interpretation of simple events can be categorized as either telic or atelic, while N/T nominals with the interpretation of complex event Nouns can be perfective or imperfective. Both types possess the capacity to interact within the nominal domain, which requires the feature bound.

However, unlike N/T nominals, B/K nominals are not restricted in terms of their countability and can freely form plurals and be pre-modified by cardinal numbers. One proposed explanation for this phenomenon is that B/K nominals lack outer Aspect, which would otherwise exclude the Number and the QP projection. Additionally, in Czech, B/K nominals can exhibit feminine or masculine Gender, in contrast to N/T nominals, which are limited to the default neuter Gender. According to Picallo (2006), this Gender distinction may be correlated with the dividing function within ClassP and implicitly with QP. As a result, the structure of B/K nominals would have fewer verbal layers and a comprehensive set of nominal projections, see the structure (489) for the nominal phrase *tři plavby* 'three sails':

(489) Structure of B/K nominals*: tři plavby* 'three sails'



I assume that the root can raise only to *v*P as Czech has no N-to-D movement. In contrast, there is no T in nominalization and verb movement is possible. In order to get the structure with plural, the Number feature of QP has to be lowered post-syntactically.

In contrast to B/K nominals, N/T nominals are characterized as being more verbal in nature and less nominal. They do not display Gender distinctions. If we consider this lack of Gender correlation in relation to the presence of the Div function, it suggests that this particular layer might be absent, providing an explanation for the restricted pluralization of these nominals. Thus, my perspective diverges from Alexiadou et al. that DivP is present in AS nominals that can be made countable. Therefore, I explore alternative explanations for the dividing function in these nominals. In fact, these nominals should contain QP. The presence of aspectual adjectives *časté* 'frequent' in these nominals aligns with Alexiadou's analysis (2001), which associates them with the QP layer.

(490) a. ***to/takové*** ***časté*** *uchylování* *se* *k fyzické akci*
that/such frequent PF.resorting$_{\text{IMPF.NT}}$ SELF to physical action
'that/such frequent resorting to the physical action'

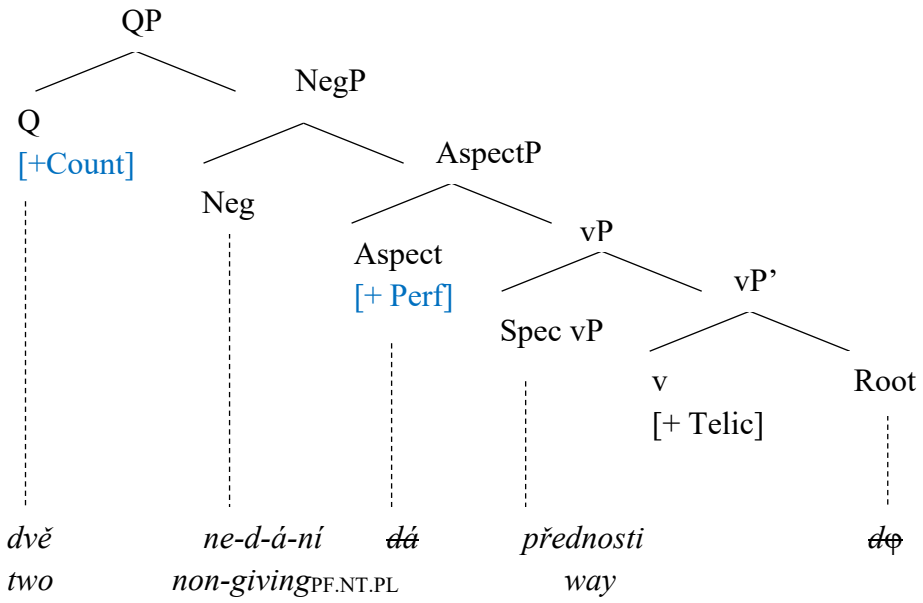
b. ***to/takové*** ***časté*** *přizpůsobování* *se* *rozdílným lidem*
that/such frequent PF.adjusting$_{IMPF.NT}$ SELF different people$_{DAT}$
'that/such frequent adjusting to different people'

Additionally, these nominals have the potential to be pre-modified by Determiners, which, as discussed in section 4.5.3 originate from the QP projection. Therefore, my analysis requires the QP to see the features within the verbal domain. As a result, I propose that the projection containing the [+BOUND] feature in the verbal domain can serve as a substitute for the DivP projection, eliminating the necessity for its projection.

We can now proceed to the derivation of individual structures. The picture in (491) represents the Perfective N/T nominals such as *nedání přednosti* 'non-giving way'. It includes the feature [+PERF] in the AspectP layer, which may be interpreted by the syntactic structure as [+COUNT] because it is [+BOUND]. This characteristic allows the nominal to contribute to the QP layer and be counted accordingly.

The derivation process proceeds as follows: the root can raise up to the NegP layer and undergo incorporation with the theme vowel and the negative prefix *-ne*. However, it is unable to raise any higher, resulting in the remaining nominal feature being lowered. The morpheme *-n* represents the neuter Gender, which is assigned to the structure by default. I have argued that it is reinterpreted from the *n* allomorph used in passive participles due to the fact that nominalization is akin to passivization. The portmanteau morpheme *-í* is realized on the Noun-verbal complex post-syntactically through agreement with Gender and Number features, as defined in section 3.1.2.

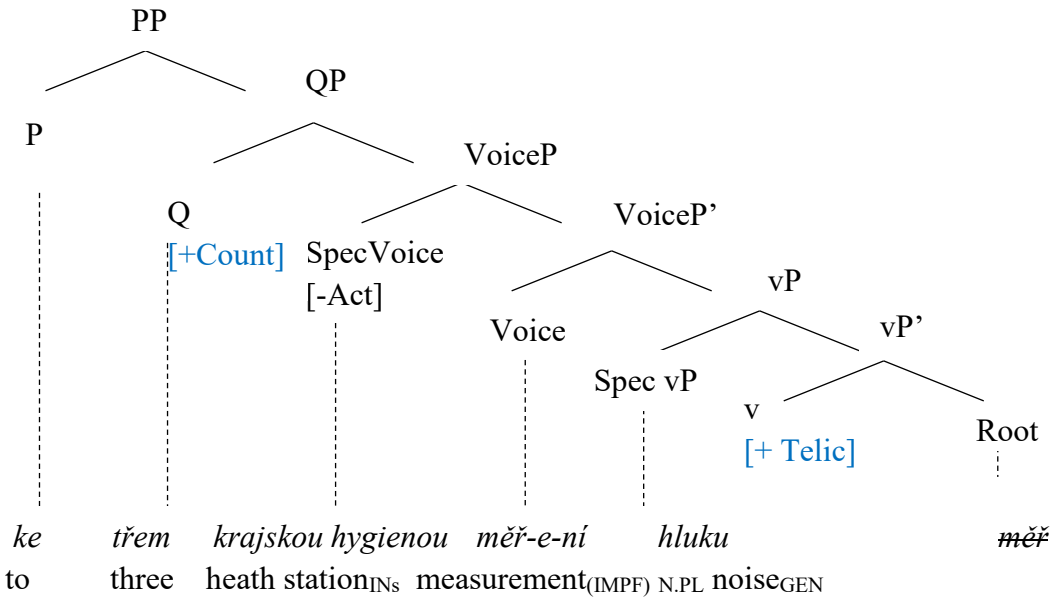
(491) Structure of perfective N/T Nominals: *nedání přednosti* 'non giving way'



A second option is the imperfective structure in (492). As previously suggested, that the primary imperfective represents an unmarked form in Czech. We observe that the AspP layer

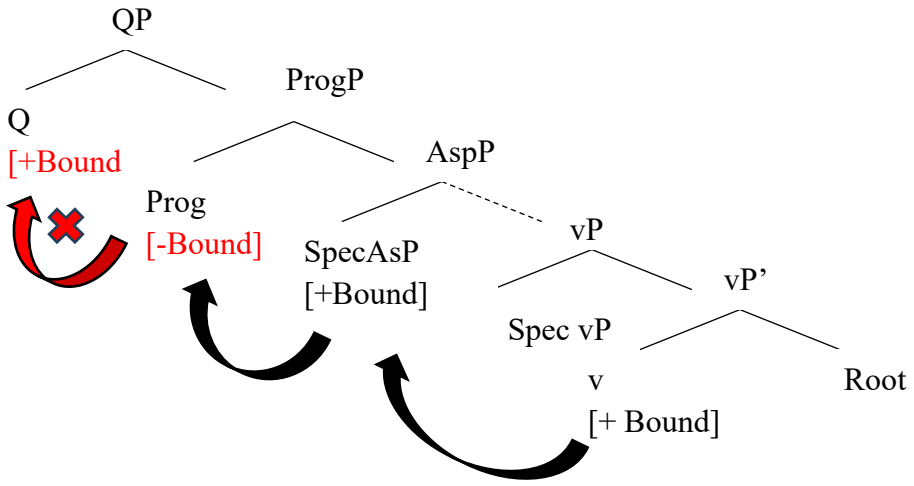
is absent in this structure. Consequently, it has the capacity to be interpreted as both bounded and unbounded. Boundedness can be achieved at the telicity level as argued in section 5.4.2.2. As a result, the QP is assigned the feature [+COUNT], allowing the structure to be plural:

(492) Derivation of Imperfective N/T nominals: *měření hluku* 'measurement of noise'



Lastly, the ungrammatical structure for Czech AS nominals with secondary imperfectives is * *dvě přemalování obrázku* * 'two re-paintings of the picture'. Some more examples can be found above in (486). The derivation of secondary imperfectives occurs after the perfective stage. However, the layer for secondary imperfectives is higher, as the tree in (493) illustrates, and alters the value from [+BOUND] to [-BOUND]. As a result, the structure does not possess the required [+BOUND] feature for QP and the derivation fails.

(493) The role of ProgP in the derivation



7.4 Chapter Summary

Recent research on ASNs challenges Grimshaw's view that complex event nominals are mass nouns which in syntactic terms correlates with stating that AS nominals have a mainly verbal internal structure (including Aspect) and insufficient nominal structure to be made countable. Recent research provides cross-linguistic counterevidence to the claim that CENs cannot be made countable. Scholars such as Alexiadou et al. (2011) and Borer argue that the ability of CENs to pluralize is tied to aspectual issues. Telic derived nominals behave as count Nouns while atelic ones behave like mass. Alexiadou et al. (2010) further emphasize the role of perfectivity as being bounded and contributing to pluralization of AS nominals. In contrast, Borer views perfectivity as morphological marking confined to the inner aspect level in Slavic languages.

These conclusions can be applied to Czech. Aspectual factors influence the countability potential of AS nominals This is evident in N/T nominals, which can under specific circumstances be made countable. Countability occurs when they are bounded by the +Perf feature or, when imperfective, they need to be bound by the +TELIC feature. Conversely, nominals based on secondary imperfective Verbs cannot pluralize due to the presence of outer Aspect, similar to the Aspect found in verbal gerunds in English, which excludes their countability in QP.

We have seen that there is a trade-off between verbal and nominal properties. B/K nominals not having higher aspectual level, can contain the full array of nominal projections. In contrast, N/T nominals, possess more verbal layers and fewer nominal projections. They can, however, substitute their DivP projection by features that have similar properties in the verbal domain, supporting the hypothesized parallelism between functional layers in verbal and nominal structures. When, N/T nominals contain even higher aspectual levels such as ProgP, the countability is excluded totally. It is this property which Grimshaw mistakenly took as general, and which other authors as illustrated in this work argued to be more restricted.

8 CONCLUSION

This dissertation has analyzed nominalizations in English and Czech in terms of the functional projections which are the crux of interpretation. A central focus has been on the countability of Czech deverbal argument structure nominals and their comparison with their counterparts in English.

Since Grimshaw's influential study from 1990, there has been a prevailing assertion that argument structure nominals in English are considered mass Nouns and, therefore, not countable. This viewpoint has also been extended to Czech by Veselovská (2019) and Karlík (2019), who made similar arguments. However, more recent studies conducted by Alexiadou et al. (2010) and Borer (2013) have challenged this claim. These researchers have presented evidence that contradicts the previous notion by investigating the relationship between Aspect and Number in argument structure Nouns. This dissertation has shown that similar arguments can be transferred to Czech deverbal nominals.

To address this matter comprehensively, a thorough examination of both nominal and verbal functional projections and their interplay in nominalizations was essential as it has not been performed in previous studies of Czech nominalization. As for a specific framework, I have chosen the studies of two prominent linguists, Artemis Alexiadou and Hagit Borer, who have extensively contributed with valuable cross-linguistic data on nominalizations. This thesis analyzed and contrasted the works related to the topic of categorial projections and nominalizations in order to subsequently apply them to Czech data. In addition to some other Czech linguists, this work benefited above all from the insights found in the studies by Petr Karlík and Ludmila Veselovská since these authors made the most significant contributions to the generative analysis of Czech nominalizations.

The approach adopted in this thesis was the generative one. To establish the theoretical foundation, Chapter 2 presented an overview of the key principles of generative linguistics. Additionally, the study involved categorizing deverbal argument structure nominals in both languages based on the work of linguists in the field. It has previously been shown that English has at a superficial level three types of deverbal nominalizations:

(494)	a.	*The teacher's* ***examination*** *of the students*	**Derived nominal**
	b.	*The teacher's* ***examining*** *of the students*	**Mixed nominal**
	c.	*The teacher's /The teacher* ***examining*** *the students*	**Gerund**

In Chomsky (1970)'s study derived nominals in (494a) were relegated to Lexicon while gerunds (494c) were clearly deverbal. Mixed nominals (494b) were assumed to have intermediate properties. Grimshaw (1990) shed new light on research on nominalization and paved the way for reintegrating derived nominals within the realm of syntax.

Veselovská (2018b), who develops Emonds' (2000) model of nominalizations, and Karlík (2019) demonstrate that Czech has the types of nominals that can be compared to derived nominals in English but lacks higher verbal complexes such as verbal gerunds in (494c). Czech nominals that are comparable to English derived nominals in (494a) surface with *-ní/tí* suffixes and hence are called N/T nominals.

In Chapter 3, the fundamental principles of Alexiadou's theoretical framework of Distributed Morphology and Borer's Exo-skeletal model were established and then utilized in subsequent chapters.

In Chapter 4 more detailed analysis in both the relevant frameworks is presented focusing on the nominal projection. First summarizing the research by Borer and Alexiadou, then applying the concepts of functional domains to Czech. I concluded that the functional layers for the Czech nominal functional projection are as suggested in the Table below compared with layers used in Alexiadou (2020)'s and Borer (2005)'s theory:

(495)	Comparing the functional layers in the nominal domain		
	Czech model	**Alexiadou (2020)**	**Borer (2005a)**
	DP (Determiner P)	**DP** (Determiner P)	**DP** (Determiner P)
	QP (Quantifier P)	**#P/ NumP** (Number P)	**#P** (Number P)
	DivP (Divider P)	**DivP** (Divider P)	**CL** (Classifier P)
	GenderP	***n*** (Nominaliser P)	-

In Czech, there is a GenderP level which is associated with the features [+/-HUMAN], [+/-FEM]. Although this level is not employed by the other two linguists, Gender is important for interpretation and agreement at least at PF in Czech that qualifies it as a separate functional projection.

Moreover, I follow Borer (2005a)'s work in assuming that mass-count distinction is syntactic and carried out in the DivP layer requiring the feature [+/-COUNT]. However, a noteworthy difference arises: unlike Borer's CL which hosts plural morphology and does not correspond to a canonical singular, the DivP in Czech model is by default singular. The DivP is selected by Q in QP, which hosts the plural morphology in Czech. A scenario similar to that in Czech is envisaged by Alexiadou (2021) with the Counting Plural in her NumP. In addition, she introduces the concept of Dividing plural situated within the DivP which is employed in her subsequent analyses.

I believe that the positioning of plural morphology within QP aligns with Jackendoff (1991)'s notion of boundedness. According to Jackendoff, the plural function has the potential to introduce unboundedness even within structures that are inherently bounded within the DivP projection. His concept of boundedness is an integral part of this study as it enables the parallelism between the nominal and verbal domain that is central to my work.

Furthermore, I assume the presence of the DP in Czech despite the fact that Czech is an articleless language. The main arguments are presented in Veselovská (2018a) who shows that the ordering within the DP field is not completely free. Additionally, I diverge from Borer (2005b) and do not expect N-to-D movement. N-to-D movement is not supported by the ordering of Adjectives within Czech Noun phrases.

In Chapter 5 I covered the functional projection of Verbs. I followed the same method, i.e. first summarizing the theories of by Alexiadou and Borer and after some comparative analysis I applied the model to Czech data. A schematic comparison of the functional verbal domains is provided below:

(496)	Comparing the functional layers in the verbal domain		
	Czech Model	**Alexiadou (2020)**	**Borer (2005a)**
	CP (Complementizer P)	**CP** (Complementizer P)	**EP** (Event P)
	TP (Tense P)	**TP** (Tense P)	**TP** (Tense P)
	VoiceP		
	ProgP (Progressive P)	**AspectP**	
	AspectP	**VoiceP**	-
	***v*P** (telic P)	***v*P** (verbaliser P)	**Asp$_Q$** (Aspect P)

The table above shows that my dissertation has proposed in Czech three aspectual projections, *v*P responsible for telicity, Aspect P for features related to perfectivity and ProgP, a site of secondary imperfectives in Czech. This treatment of aspectual projections in Czech differs from Borer, as it separates telicity and perfectivity into distinct categories rather than equating them in Asp$_Q$. The arguments for separating telicity from perfectivity in Czech was based on the length alternation of Czech prefixes developed by Caha and Ziková (2022) which would be unexplainable without these two domains. Furthermore, my proposal deviates from Alexiadou's approach, which also distinguishes telicity and perfectivity but does not specifically single out secondary imperfectives.

Moreover, I have shown that perfectives and telic predicates are bounded unlike imperfectives and atelic predicates which are unbounded. Jackendoff (1991)'s boundedness helped me establish interactions and parallelism with the nominal domain in the field of nominalizations.

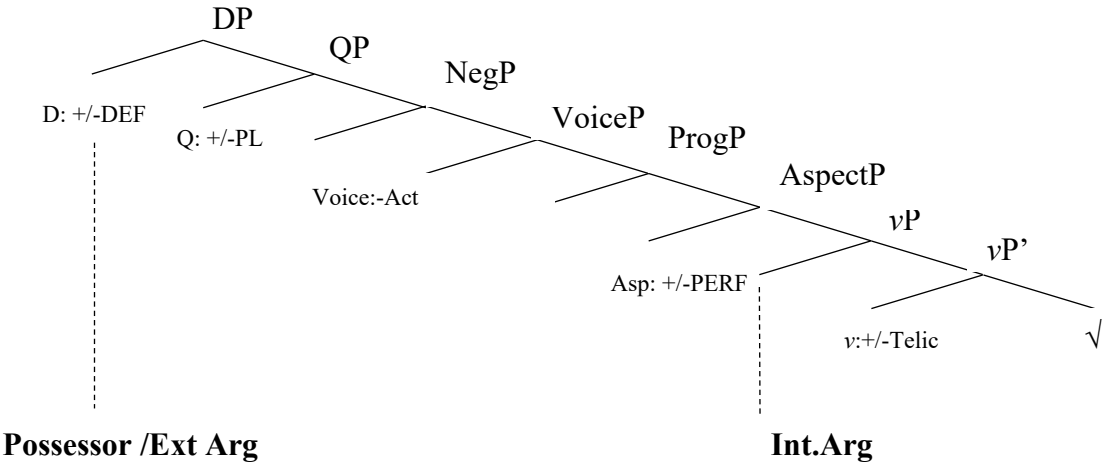
I have also argued for the inclusion of the Voice projection employed in Alexiadou's framework, which might or might not be projected, rather than the analogical EP layer in Borer's theory, which must be present in the verbal domain. If combined with constraints dividing verbs into externally and internally caused etc. and resolved at the level of the Encyclopedia, the Voice projections can help us avoid the massive overgeneration of structures. Also, I locate VoiceP above AspectP unlike Alexiadou (2020) where the order is reversed.

Another notable difference between my approach and that of both linguists lies in the treatment of Tense-related concepts, which are typically realized in the highest VP in Czech (my Voice P) as described by Veselovská and Emonds (2016). They argue that the TP level in Czech is not associated primarily with Tense but Mood.

Chapter 6 concentrated on the process of nominalization based on the previously established characteristics of both nominal and verbal domains. I introduced the approaches and diagnostics used by Borer and Alexiadou for detecting various functional layers. These criteria are diagnostics for Czech nominalizations. Confirming the basic division as it appears in Czech generative tradition there are two clearly distinguishable types of deverbal nominals: Type I: the N/T nominals and Type II: the B/K nominals.

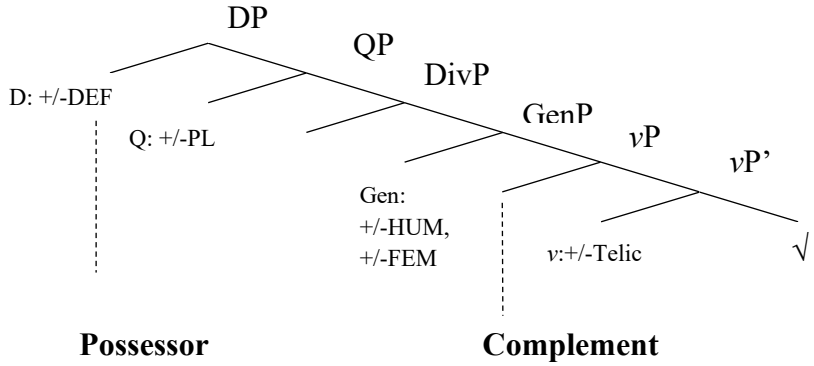
The former N/T nominals are syntactically derived with the structure in (497) and can also function as result nominals.[91] The rich verbal projection of the Czech N/T nominals explains their argument taking capacity built on their three aspectual levels, passive Voice and negation phrase NegP. The nominal layers of the Czech N/T nominals, however, are radically impoverished when compared with B/K nominals.

(497) N/T nominals



B/ K nominals, on the other hand, are lexically derived nominals exhibiting characteristics similar to simple event nominals with the structure in (498) and have the ability to transform into result nominals.

(498) B/K nominals



Chapter 6 has also demonstrated that Czech nominalizations exhibit ergative patterns, as proposed by Alexiadou (2001) and (2017d). This was also corroborated by morphological analysis, Case marking of arguments within nominalizations and the Lebeaux effect (1984), whereby all deverbal Nouns in Czech are formed analogically to passive participles. In this

[91] When N/T nominals function as result nominals, their verbal layers are impoverished. On the other hand, they can have a full array of nominal layers, allowing all determiners and Quantifiers.

respect, Czech nominalizations diverge from assumptions made in Borer (2013) for whom some nominalizations are active-like and some are passive-like.

In Chapter 7 I provided the results of a pilot study focusing on the countability of Czech derived nominals. Corpus data research of CsTenTen17 (the Czech Web Corpus) has revealed that Czech N/T nominals can under specific circumstances be made countable. The data extracted from the corpora based on the three criteria (*ne*-cliticization, reflexivity and Agentivity) not only confirmed the AS-nominal status but also demonstrated that they can be modified by cardinal numerals. To illustrate this, N/T nominal in (499) is pre-modified by a *ne*-prefix and postmodified by direct objects in the Genitive and at the same time can co-occur with cardinal numbers.

(499) *příčinám vévodí … stav vozidla a ---*
causes are … condition of a car and

tři ***ne-dání*** *přednosti v jízdě*
three non-giving$_{PF.NT.PL}$ way$_{GEN}$
'The …condition of the car and the three (instances of) non-giving-way dominate the causes.'

Similarly in (500), it can be observed that the N/T nominal is pre-modified by a cardinal numeral and postmodified by a direct object in the Genitive and an agentive modifier in the Instrumental:

(500) *Ten je složen* ***ze*** *čtyř* ***vyprávění*** *příběhu různými lidmi.*
That AUX$_{BE}$ compose$_{PRT}$ of four telling$_{(IMPF).NT.PL}$ story$_{GEN}$ various people$_{INS}$
'That is composed of four kinds of story-telling by different people. '

Based on these examples found in Czech corpora I demonstrated that the countability of arguments structure nominals can be correlated with aspectual issues. These proposals have been advanced by Alexiadou et al. (2010) in their cross-linguistic studies and Borer (2013) for English whose mechanisms have been transferred to Czech data.

Countability occurs when AS-nominals are bounded by the +Perf feature or, when imperfective, they need to be bounded by the +Telic feature. Conversely, nominals based on Czech secondary imperfective Verbs (501) cannot be made countable due to the presence of outer Aspect, similar to the Aspect found in verbal gerunds in English, which excludes the manifestation of their countability in QP.

(501) *(*dvě)* ***pře-prac-ová-vá-ní*** *textu* *(za dva dny)*
two re$_{PF}$.work$_{TH}$.$_{IMPF.NT.PL}$ text$_{GEN}$ in two days

In this chapter I also mentioned other factors that allow the rare but attested countability of Czech N/T nominals, noting a decline in the usage of group and kind numerals in oblique Cases and their replacement by cardinals (500) as well as in contexts that express larger numerals

(502). Moreover, there is a gap in productivity of Czech B/K nominals which seems to be compensated by the extensive use of N/T nominals as their alternative.

(502) *Podmíněná pravděpodobnost toho, že ---*
The conditional probability that

po	*dvaceti*	***nepadnutích***	*šestky,*	*šestka padne je stale stejná.*
after	twenty	non-falling$_{PF.NT.PL}$	six$_{GEN}$	six will fall, remains the same

'The conditional probability that after twenty non-occurrences of six, the six will occur, remains the same.'

The analysis of countability of argument structure nominals have confirmed that there is a trade-off between verbal and nominal properties. B/K nominals not having higher aspectual level, can contain the full array of nominal projections. As a result, they can be made countable without any constraints. In contrast, N/T nominals, possess more verbal layers and fewer nominal projections. They have only the QP layer but lack the DivP layer responsible for mass-count distinction in nominalization. They can, however, substitute their DivP projection by features that have similar properties in the verbal domain, namely bounded features. When, N/T nominals contain even higher aspectual levels such as ProgP, the countability is excluded totally, presumably because outer Aspect is mutually exclusive with Number as proposed by Fassi Fehri (2005).

In spite of the fact that the corpora search was only a pilot one, its results supported the parallelism between functional layers in verbal and nominal structures which is the core of this study. Apart from the theoretical discussion, this study of Czech data, paradigms and proposed analyses has also demonstrated a more general and not always obvious fact: the present-day Generative Grammar linguistic models are applicable for the analysis of entirely current Czech language, and, moreover, the detailed analysis of Czech complex overt morphology can contribute to the development of the formal generative framework in a new and revealing way.

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