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## **A Nanosyntactic Approach to Event/Result Nominalization in English**

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### **Abstract**

The main concern of the present study is to shed light on nominalization in English adopting nanosyntactic approach (Starke, 2009, 2011; Caha, 2011; Taraldsen, 2010). This paper analyzes the semantico-syntactic contribution of some selected deverbal nominalizers such as {-ing, -ation, -ment and -ism}. In addition, the researchers use Ramchand's (2008) classification of verbs to get a profound understanding for the process of nominalization. It is hypothesized that the nouns formed by the deverbal nominalizers are the carriers of the semantico-syntactic features of verbal root. These features are atomic parts of the semantic features that are decomposed by split vP. The study finds that the noun formed by adding {-ing} has a hierarchical structure composed of three features: Case, process and Referential and as a result of Superset Principle it can lexicalize three structures: gerundive nominal that bears all three features, mixed nominal which has lost its case marking capability as a result of losing Case feature, and result/referential nominal that carries just one feature namely Referential.

### **1. Introduction**

Nominalization is the process of deriving nouns from verbs during which verbs lose some semantico-syntactic features such as tense, aspect and person agreement but preserve some others like argument structure. The topic of nominalization has been investigated intensively in different schools of linguistics.

Nonetheless, within the new trend of linguistics especially in nanosyntax English nominalization nominalization emphasizing event/result ones

has not attracted the attentions of scholars. This paper aims to study English deverbal from the perspective of nanosyntax, a non-lexicalist generative approach in which it is assumed that all structure from morphemes to clauses are generated by syntax and morphology component is ruled out from the theory of language; further, no lexicon similar to what the proponents of both lexicalist approach and Distributed Morphology is recognized. When nominalizer affixes are attached to verbal roots,

they lose their capability to take functional heads such as *Tense* and *Agreement*; but these verbal nominals preserve some properties of the verbal root, some of them more, some less. The main question raised is that what the semantic contribution of affixes is so that they have so great influence on verbal roots in general and nominalizations in specific.

In the literature, some criteria of identity or defining property for nouns has been taken for granted that distinguish them from other categories. Among many researchers, Baker (2004: 95-100) proposes some: nouns can refer to something, only nouns can appear with articles that mark distinctions like definite versus indefinite and specific versus nonspecific, only nouns adopt morphological marking for singular and plural, only nouns can be the antecedents of pronouns, reflexives, and traces, just nouns can occupy the core argument positions of the clause, including subject, direct object, and object of a preposition; That is only nouns take structural or abstract case. Semantically, deverbal nouns can bear either eventive/processual and resultative properties.

To make distinctions between event/result nouns, Sleeman(2009:6) provides the following features for process and result nouns.

- process nominals do not obligatorily take internal arguments
- process nominals can pluralize and can combine with an indefinite determiner or a (contrastive) demonstrative
- some process nominals can combine with an of-phrase instead of a by-phrase
- result nouns can take internal arguments
- result nouns can combine with a by-phrase.

This paper is organized as follows: after the introduction in section one, review of the literature comes in section two. Section three introduces the nanosyntax theory and section

four analyzes some nominalizer suffixes of English based on nanosyntactic assumptions. Section five provides some concluding remarks of the paper.

## 2. Literature review

English Nominalizations have been broadly discussed by both morphologists and syntacticians from various aspects. Lees (1960) studied nominalization from structuralist point of view. Whereas, Chomsky (1970) and Grimshaw (1990) are pioneers in the generative tradition who investigated nominalization from different aspects.

Lees (1960) assumed that nominalizations are either deverbal or desentential which means that verbs and sentences are the basis of nominalizations. Lakoff (1965/1970) tackled nominalization from the same perspective of generativists (Newmeyer, 2009).

Chomsky (1970) who adopted a lexicalist approach classifies nominalization into three types:

Gerundive nominal (2), Derived nominal (3) and Mixed nominal (4), having the suffix {-ing} like gerundive nominals, but shares many properties with derived nominal. Chomsky argues that gerundive nominals are desentential, since, as the following data show, they exhibit all of the hallmarks of full sentences (Chomsky, 1970:15).

- (1) a. John is eager to please.  
b. John has refused the offer.  
c. John criticized the book.
- (2) a. John's being eager to please  
b. John's refusing the offer  
c. John's criticizing the book
- (3) a. John's eagerness to please  
b. John's refusal of the offer  
c. John's criticism of the book
- (4) a. John's refusing of the offer  
b. John's criticizing of the book

Chomsky assumes that the gerundive nominals are derived from sentences by the process of transformation whereas he proposes a lexical treatment of the derived nominal. This status is based on the productivity property of the gerund not found in derived nominal as sentences are more productive than derivation of nouns.

One of the seminal works on nominalization is Grimshaw (1990) that divides English nominalizations into Complex Event Nouns and Result ones, the first class of which inherit and preserve most verbal root's properties such as processual nature, argument structure, aspect, etc. while the second class loses almost all characteristics of the verb and make a lexical item which denotes a thing; hence they are just result or referential.

Grimshaw (1999) states that *complex event nouns* take internal arguments obligatorily but result nouns are like object/entity nouns and do not select arguments (Sleeman, 2009:3). Furthermore, she claims that only *result nouns* can be pluralized, preceded by an indefinite determiner and a demonstrative determiner, she also concludes that result nouns combine with possessors, while event nouns combine with agents.

Sleeman (2009) rejecting the above criteria, revises Grimshaw's classification and argues for a five-class dichotomy building on Ramchand's (2008) split vP which is made up of initiator Phrase, process Phrase and result Phrase. According to Ramchand's split vP hypothesis (2008) verbs are classified into four types: (a) Initiation-Process verb, e.g. *push*, (b) Initiation-Process-Result verb, e.g. *break* (transitive) (c) Process verb, e.g. *melt* (intransitive) and (d) Process Result verb, e.g. *arrive*. Sleeman (2009) shows that four types of nominalizations contain these four types of verbs as a lexical root. She argues that the result nouns which are

not eventive only contain ResP. She adds that object nouns and result nouns are not the same as Grimshaw confirms since result nouns are the result of an event and contain a vP while object nouns contain no vP and consequently no eventive property.

In contrast to Grimshaw (1999) who claims the addition of a suffix to a verbal root leads to derive process or result nouns. Sleeman and Brito (2009) reject such a clear dichotomy and propose a five-part classification based on presence or absence of vP (+/-agentive) and AspP (+/-result) as in the following table.

Table (1): values of deverbal nominalizations

|                | Asp [-result]   | Asp [+result]   |
|----------------|---|---|
| vP [+agentive] | Process nouns with a by-phrase  | Result nouns that admit a by-phrase                       |
| vP [-agentive] | Process nouns that admit two of-phrases<br>Unaccusative process nouns | Result nouns with of-phrases<br>Unaccusative result nouns |
| No vP, no AspP | Object / entity nouns   |   |

Lundquist (2008) who tackled three de-verbal suffixes in Swedish given in (5) within nanosyntax framework claims that they are semantically extremely light and only provide a suitable morphological shape for the verbal stem so that 'The interpretation of the nominal and participle is determined more or less completely by the structure that the suffixes attach to' (Lundquist 2008:237).

(5) V + -nde = N/Adj      V + -ing = N      V + -te/de = Adj

Pointing out that not every verbal structure can be nominalized, regarding -nde, he states that it attaches to something that is already to some extent nominal something that doesn't require a specifier a non-predicable individual. It mainly provides gender information. Concerning the suffixes, he generally adopts that 'they don't create a predicable individual, but rather provide the verbal root/stem with the right morphological shape to act as an adjective/ a noun. This means that the verbal structures that

the participial/nominalizing suffixes attach to already have some kind of category value (Lundquist 2008:238).

It can be implied from Lundquist’s argument that a suffix such as *-nde* has no semantic contribution and it just paves the way to transfer one category to the other, here from verb to noun. This goes against Lieber’s (2004, 2016) who believes that affixes own some independent semantic contribution, subsequently they own some semantic features (Lieber 2004:18).

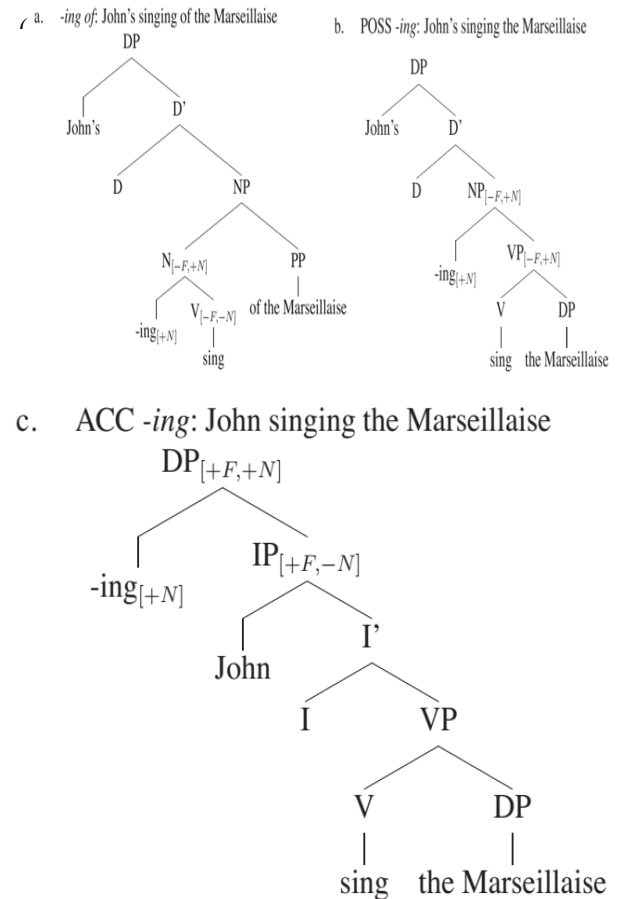
Abney (1987 cited in Lundquist 2008:12) claims that  $\{-ing\}$  has no feature but  $+N$  and its position in the syntactic structure leads to various interpretations. Let’s review his argument with presenting the following data in (6) and their tree diagrams in (7).

- (6) a. *-ing of*: John’s/the writing of the book
- b. *POSS -ing*: John’s/his writing the book
- c. *ACC -ing*: John/him writing the book

Abney claims that  $\{-ing\}$  being a syntactic affix contains the feature  $+N(oun)$  and its various functions stem from its site attachment in the tree diagram not syncretism. He believes that in (6a)  $\{-ing\}$  attaches to *V* (giving *-ing of* nominals), in (6b) it attaches to *VP* (giving *POSS -ing*) and in (6c) it attaches to *IP* (giving *ACC -ing*).

Following Chomsky’s (1970) view that Nouns and Verbs are  $[+N, -V, -F]$  and  $[+V, -N, -F]$  respectively, Abney asserts that *-ing* has no  $-F(unctional)$  feature. It has just one feature  $+N$ . “The  $\{-ing\}$ -suffix provides a  $+Noun$  feature to a verbal projection. The phrase resulting from the adjunction of  $\{-ing\}$  to the verbal projection inherits the bar level and the  $+/-$  functional feature from the verbal projection. Adjoining an *-ing* to a *V*  $[-F, -N]$  gives a *N*  $[-F, +N]$  (7a). When  $\{-ing\}$  adjoins to a *VP*  $[-F, -N]$ , the result is an *NP* (7b). In the case of *ACC-ing*,  $\{-ing\}$  attaches to something that is specified as  $[+F, -N]$ , i.e., an

*IP*. The result is something with the features  $[+F, +N]$ , which is defined as a *DP* (7c) (Lundquist 2008:12).



we believe that  $\{-ing\}$  as a syntactic element should not have a feature as large as  $+N$ , the feature supposed to exist in the lexical category noun; since the content and behavior of affixes and nouns are totally distinct. Instead, following Lieber (2004, 2016) and the approach taken in Nanosyntax, we claim that  $\{-ing\}$  has finer primitive features which will be pointed out as follows.

The only recent work that takes on the entire range of nominalizations in English is Bauer et al. (2013), which is largely a descriptive work as Lieber claims (2016:4).

Lieber (2016) analyzes the full range of various readings of English nominalizations in various syntactic contexts within lexical semantic framework (LSF) on the basis of corpus data.

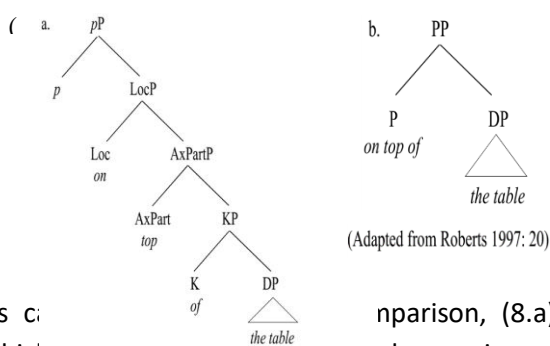
Contrary to other works, she tries to consider all sorts of nominalizations, including Event/Result, personal nominalizations, as well as collective and abstract nominalizations and a few other seldom-discussed areas of nominalization.

### 3.Theoretical Framework

Nanosyntax is a recent generative approach that follows the major tenets of principle and parameters. It adopts cartographic assumptions. It uses three major tools: Semantics, syncretism and morphological containment/ nesting along with the two principles; Uniformity and Mirror principle. It tries to map out the universal fine-grained structure of language (Baunaz and Lander 2018:20). In the first subsection of this section namely 3.1, cartography approach will be introduced. Then in 3.2 an over view of nanosyntax will be introduced.

#### 3.1 Cartography

Cartography, adopting the X-bar schema of Chomsky (1970, 1986) as its core structure aims to provide a simple fine-grained illustration of syntactic structures focusing on functional projections. To clarify the point Saeed (2016:10) gives the following diagrams both of which are the syntactic structure of the PP *on top of the table*.



As c: nparison, (8.a) which schema gives a detail internal structure of the PP. (Adapted from Svenonius 2010: 134)

In earlier works within the domain of Principle and Parameters, the motivation to give a fine-

grained structure for Clauses and Noun Phrases (CP-IP-VP and NP, as in Chomsky 1981, 1986), the functional head D dominating NP by Abney (1987) and splitting of the category Inflectional Phrase/IP tempted researchers to draw “maps as precise and complete as possible of syntactic configurations” (Rizzi, 2013:1 cited in Baunaz and Lander, 2018:5).

One of the major adopted proposals of cartography is the “one feature–one head” maxim or better to say “one morphosyntactic property – one feature – one head (Cinque and Rizzi, 2008:50, cited in Baunaz and Lander, 2018:5) which refers to the view that the units of syntax are as small as syntacticosemantic features occupying terminal nodes of universal hierarchies called the functional sequences (fseq). Cartography also assumes ‘the universality of syntactic structure and the rigid Specifier-Head-Complement order (Cinque, 2005 as cited in Pantcheva, 2011:35).

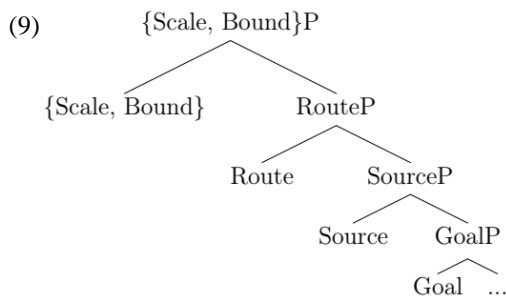
#### 3.2 An overview of nanosyntax

In nanosyntax, the terminal nodes contain elements smaller than morphemes i.e., morphosyntactic features and the derivation of the structures begin with merging features and the lexicon is presyntax and syntax generates all items from morpheme (the smallest meaningful unit of language) to clause (syntax all the way down principle). This means that in nanosyntax no morphological component is assumed. It also follows the rigid universal functional sequence order of Specifier–Head–Complement that is based on the principle one morphosyntactic property-one feature-one head. For instance, morphemes are, in a binary way, derived from merging morphosyntactic features, and then they are mapped on lexical entries stored in lexicon. If they match with lexical entries that contain <phonological content, tree diagram, conceptual content>, they will spell out (Starke, 2009:3, Pantcheva, 2011:106).

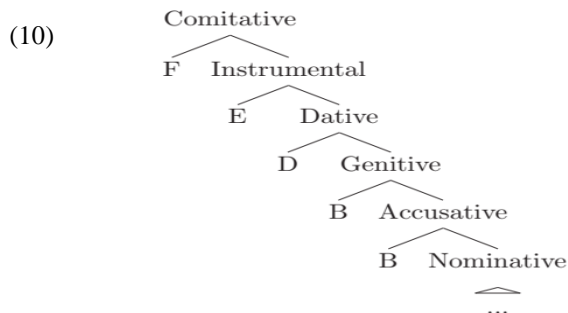
### 3.2.1 Main tools of nanosyntax

Nanosyntax uses three tools; semantics, syncretism, and morphological containment/nesting and the two principles Uniformity Principle and Mirror Principle tries to map out the universal fine-grained structure of a language (Baunaz and Lander 2018:20).

(I) Semantics: via semantic compositionality, Pantcheva (2011) gives a universal hierarchy of Path features. ‘Route, for instance, which can be paraphrased as ‘from X to Y,’ can be seen as being composed of the features for Source and Goal’. She argues that each head in the structure of the following structure has a particular semantic function.



(II) Syncretism: Caha (2009:6) defines the phenomenon of syncretism as “a surface conflation of two distinct morphosyntactic structures.” He Proposes the following universal structure for Case (Ibid:108). What Caha means is that ‘syncretism arises when two or more distinct grammatical functions are spelled out by a single form’ (Baunaz and Lander 2018:20).



Consider the following data adapted from Caha (2009:5) explaining syncretism.

Syncretism

|      |    |      |                     |     |
|------|----|------|---------------------|-----|
| (11) | a. | o    | maxiti-s            | NOM |
|      |    |      | the.NOM fighter-NOM |     |
|      |    |      | ‘the fighter, nom’  |     |
|      | b. | t-on | maxiti-Ø            | ACC |
|      |    |      | the-ACC fighter-ACC |     |
|      |    |      | ‘the fighter, acc’  |     |
|      | c. | t-u  | maxiti-Ø            | GEN |
|      |    |      | the-GEN fighter-GEN |     |
|      |    |      | ‘the fighter, gen’  |     |

In b and c, the Accusative and Genitive cases are syncretic. This means that ‘the shape of the noun maxiti- is the same for the accusative and the genitive: maxiti-Ø. In other words, genitive and accusative are syncretic’ (Caha 2009:6).

(III) Morphological containment or nesting: Considering Comsky’s (2001:2) *uniformity principle* and Baker’s (1985) *mirror principle*, Pantcheva (2011:37) provides the following data from the Daghestanian language Tsez to show that the directional case affix contains the locative one. Following this kind of reasoning and using data from more the 70 languages, Pantcheva (2011) proposes the tree diagram (9) above for directional adpositions of all languages.

|      |    |               |
|------|----|---------------|
| (12) | a. | besuro-xo     |
|      |    | fish-at       |
|      |    | ‘at the fish’ |
|      | b. | besuro-xo-r   |
|      |    | fish-at-to    |
|      |    | ‘to the fish’ |

(13) Uniformity Principle (Chomsky 2001:2):

In the absence of compelling evidence to the contrary, assume languages are uniform, with variety restricted to easily detectable properties of utterances (Pantcheva 2011: 42). In other words, the Uniformity Principle means that the underlying syntactic structures in all languages are the same even though in many languages

they are different and not transparent morphologically.

(14) The Mirror Principle (Baker 1985)

Morphological derivations must directly reflect syntactic derivations (and vice versa) (Pantcheva 2011: 109).

It is implied from this principle that via the study of the morphological constituents of an expression one can discover the syntactic structure underlying it; since the former is a reflection of the second.

**3.2.2 Lexicon**

As a matter of fact, the nature of lexicon in a theory of language made linguists revise their assumptions from (M)inimalist (P)rogram (MP) to (D)istributed (M)orphology (TM) and Nanosyntax. In the latest theory, it is believed that “there is no lexicon before syntax” as, Starke (2011:6) states. As a result, Caha (2009:52) illustrates his status. on the architecture of language as in (1).

Starke’s Version of the Y Model of Grammar

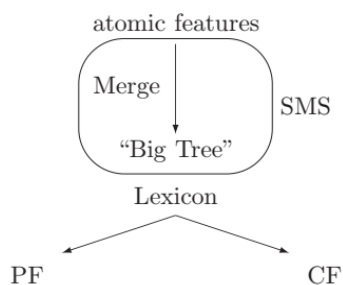
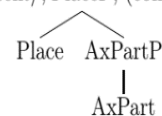


Figure (1) the architecture of NS adapted from (Caha, 2009: 52)

According to this diagram, everything starts with syntacticosemantic features. This means that syntax merges the features in trees. These trees generated by SMS/ Syntax-Morphology-Semantics are sent to lexicon to obtain phonological structure and/or conceptual structure through matching with stored lexical entries that are made up of one, two or all three parts of the lexical entries such as in (15)

taken from Bagvalal language (Pantcheva, 2011:107):

- (15)  $a \Leftrightarrow \langle / \text{phonological content} /, \text{PlaceP}, (\text{conceptual content}) \rangle$ .



This diagram shows that ‘lexical entries will be minimally of the form  $\langle$  phonological information, syntactic tree, conceptual information  $\rangle$ , (Starke 2009:2). The parentheses refer to optionality of conceptual structures as in functional items such as *of* in English. Though phonological part has not been put in parentheses, it may be deleted as in null morphemes which lack the phonological structure. In effect, the sole obligatory part has the syntactic tree which denotes not only the syntactic structure but the semantic skeleton of the morpheme. So, ‘the tree is responsible for aspects of grammar which are traditionally considered not to be part of syntax proper. Besides the domain of the traditional morphology, it covers much of what is traditionally thought of as formal semantics’, (Caha 2009:52).

According to the above diagram, the lexicon and the syntax are related directly without the intermediation of rules that modify the shape of one to make it readable to the other (Fabregas 2007:2).

**3.2.3 Architecture of the theory**

Three core ideas of the Nanosyntax framework as quoted from Caha (2021:1) are :(i) the idea that the atoms of syntax are just single features; (ii) the idea that insertion of phonology and/or concepts happens after syntax (Late Insertion); and (iii) the idea that lexical insertion targets phrasal nodes.

The following diagram illustrates the architecture of language with special emphasis on late insertion (Caha 2021:7).

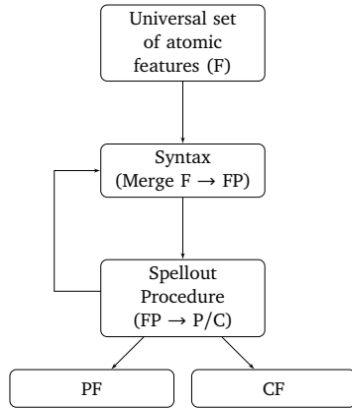


Figure 1. A late-insertion model of grammar (Nanosyntax)

According to this diagram, everything starts with single semantic features fed into syntax. Syntax merges these features to make syntactic phrases (FPs) “fed into the lexicon and mapped onto phonological form (PF) and conceptual form (CF) by the so-called spell-out procedure”, “a (language-invariant) procedure that searches the postsyntactic lexicon (FP→P/C) for lexical items matching the syntactic configurations (FPs) provided by syntax”. In Nanosyntax, the postsyntactic lexicon links syntactic constituents (FPs) to phonology (P) and/or concepts (C)” (Caha 2021:7).

### 3.2.4 Spellout/ lexicalisation

As mentioned above, syntax merges the semanticosyntactic features in tree diagrams called functional sequences which lack any phonological structure or conceptual content and lexicon encompass lexical entries described above. Thus, the tree diagrams derived through syntax are shipped into lexicon. A type of search takes place in the lexicon in order to find appropriate lexical entries to match with syntactic trees. This process is called Spellout/lexicalization which can be defined as ‘an operation matching the tree constructed by syntax to the (sub-)trees stored inside lexical entries (Starke 2009:2). Accordingly, ‘the lexicon identifies syntactic structures directly,

or, in other words, that syntactic structures are lexicalized directly’ (Fabregas 2007:2).

The question of how exactly the process of lexicalization takes place is expected to be replied by the advocates of this theory since scarcely it is the case that a one to one correspondence between the syntactic tree and a lexical entry stored in the lexicon is accessed. In contrast, most of the time two or more lexical entries compete between themselves to lexicalize a certain syntactic tree. Therefore, the principles governing lexicalization is a challenge both in nanosyntax and previous generative approaches. In following subsections some crucial principles involved in Spell out will be explained.

Let’s clarify this spell out by reviewing the following data from the Daghestanian language Karata (Pantcheva 2011:135).

- (16) bajdan-t’-a  
square-ON-LOC  
‘on the square’

Exploring the semantic contribution of -t’ Pantcheva (2011:137) suggests the following lexical entry:

- (17) -t’ ⇔ </t’/, AxPartP , ON>  
|  
AxPart

First the Axial Part -t’ is merged with a DP as in

- (18) (18) AxPartP  
AxPart DP

Having been constructed, the tree in (18) is sent to lexicon to be spelled out. The lexicon is searched and the appropriate lexical entry of (17) is found. Since in the tree of lexical entry in (17) there is no branch attached to DP, in order for (18) to match with (17), DP should move. Therefore, DP moves and the following diagram is attained and (17) is inserted. Then merging continues with the feature Place.



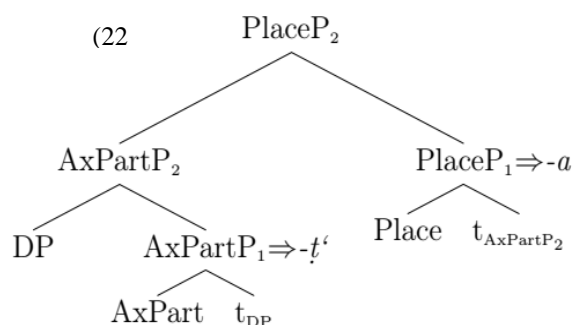


Regarding the semantic contribution of -a, the following lexical entry is suggested:

$$(21) \quad -a \Leftrightarrow \langle /a, i, o, \emptyset/ \rangle, \quad \text{PlaceP} \rangle$$

|  
Place

Having been constructed (20) is sent to the lexicon and it is searched to find a right lexical entry. Then, (21) is found. But before insertion, AxPartP<sub>2</sub> should move to pave the way for the lexical entry (21) to be inserted. Thus, it moves and (21) is inserted and the following tree is attained which is the consistent with (16).



### 3.2.4.1 Superset principle

In DM it is believed that if the set of the features of the lexical entry is a subset of the features of the syntactic tree spellout can take place. This is called subset principle in DM. In NS an opposite status is taken in which it is assumed that the syntactic tree of the lexical entry stored in lexicon must be larger than the syntactic tree made via syntax. This is called superset principle first presented by Starke (2009) then revised in Pantcheva (13) as follows:

#### (23) The Superset Principle

A lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node (Starke 2009:3).

A vocabulary item matches a node if its lexical entry is specified for a constituent containing that node, ignoring traces (Pantcheva 2011:137).

According to this principle, it is implied that all features of the syntactic tree must be lexicalized and more than one lexical entry compete to spell out the syntactic tree. Hence, some rules determine which lexical item should be elected via searching the lexicon. These rules will be introduced in upcoming subsections.

### 3.2.4.2 Exhaustive Lexicalization Principle

According to Exhaustive Lexicalisation Principle all features of the syntactic tree must be spelled out, on the contrary it will crash and no grammatical linguistic item will be generated.

(24) Exhaustive Lexicalisation Principle (Fabregas 2007:2)

Every syntactic feature must be lexicalised.

### 3.2.4.3 The elsewhere principle

As pointed out above, to spell out a syntactic tree, lexical entries compete and the first priority is to the lexical entry which is totally the same as the syntactic tree. As a matter of fact, such a situation is scare. Then the next step is choosing from the lexical entries that contain the syntactic tree to say that they are superset to the set of features of the syntactic tree. According to elsewhere principle the lexical with less extra feature is selected to lexicalize the syntactic tree:

(25) The elsewhere principle

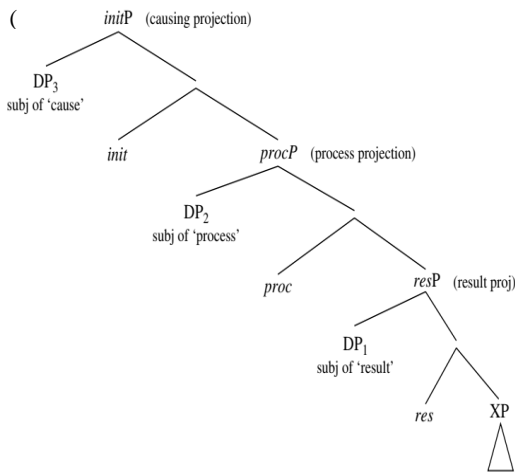
“At each cycle, if several lexical items match the root node, the candidate with least unused nodes wins” (Starke, 2009:4).

Let’s imagine that the tree diagram X, made up of two features, generated by syntax is sent to the lexicon to spelled out and there exist three lexical entries A (composed of five features including the features of X), B (composed of four features including the features of X) and C

(composed of three features including the features of X) in the lexicon that are right candidates to lexicalize X. According to this principle, from these three lexical entries, C is selected since it has one extra feature while A and B have three and two extra features respectively.

### 3.3 Verb structure in Nanosyntax

As pointed out above, in NS it is believed that lexical categories are composed of semantico-syntactic features merged in hierarchical structures named functional sequences. Pantcheva (2011) and Caha (2009), based on data analysis of many languages, have proposed structures for Cases and Adpositions respectively, as shown in (9) and (10). As the core of this study is nominalization, namely de-verbal nouns, in this subsection the internal structure of verbs from the perspective of NS will be reviewed which is mainly adapted from Ramchand (2008:39).



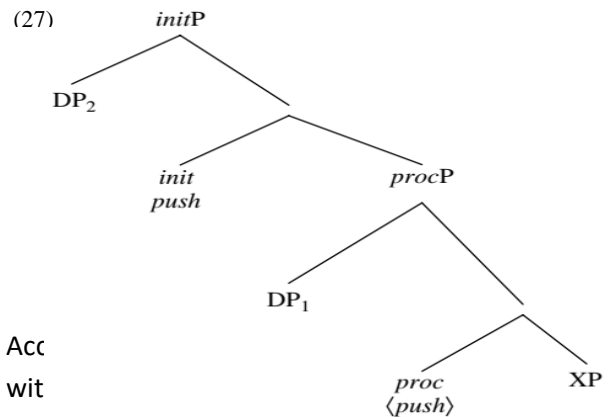
Ramchand (2008:40) defines the top most heads as follows:

- *initP* introduces the causation event and licenses the external argument ('subject' of cause = initiator)
- *procP* specifies the nature of the change or process and licenses the entity undergoing change or process ('subject' of process = undergoer)

- *resP* gives the 'telos' or 'result state' of the event and licenses the entity that comes to hold the result state ('subject' of result = resultee)

From these generalizations, it is implied that *init* (for initiation) represents the outer causal projection that is responsible for introducing the external argument; in many ways it is similar to the external argument introducing *v* as invoked in the recent literature. *procP* (for process phrase) represents the dynamic process and change through time which is the heart of the dynamic predicate and may exist without either the *init* or *res* elements. The *resP* only exists when there is a result state explicitly expressed by the lexical predicate; it does not correlate with semantic/aspectual boundedness in a general sense (Ramchand, 2008:40).

Ramchand (2008:40) assumes that *push* is specified as [*init*, *proc*] meaning that 'it has lexical-encyclopedic content that identifies a process/transition as well as conditions of initiation.' As a result, the following structure can be proposed for *push*.



Acc  
wit  
label. Since it also has an *init* feature, *push* can now be Remerged with *procP*, which now projects the *init* label. This new syntactic object now Merges with the specifier to project an *initP*. The semantic computational rules at the interface will interpret this as a process of change characterized by translational motion of which *DP2* is the undergoer, and *DP1* is the

initiator, specified as possessing the physical force properties to put such translational motion in train.

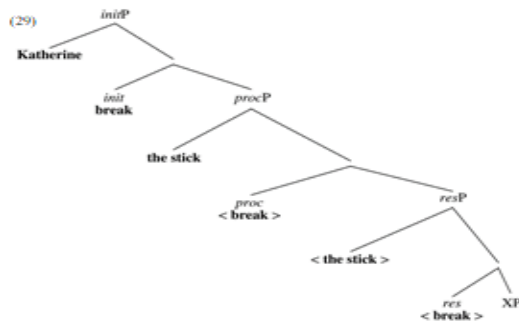
### 3.4. Verb classification in Nanosyntax

Based on the three features Initiator, Process and Resultee, Ramchand (2008) classifies the verbs which will be reviewed here.

#### 3.4.1 Initiation–process–result verbs

As seen, this group of verbs is composed of three features which make them able to identify the result state of a process; examples are transitive verbs such as *break*, *throw*, *find*, *explode*, *enter*, and intransitives such as *arrive*, *disappear* (Ramchand 2008:74). The verbs of the former group can be divided into two subgroups: the verbs in which the initiator and undergoer are not the same (*break*) and the ones in which the initiator and undergoer are occupied by the same argument (*enter*). Let's first study the transitive verb *break* from the first subgroup given in (28) whose internal structure is shown in (29).

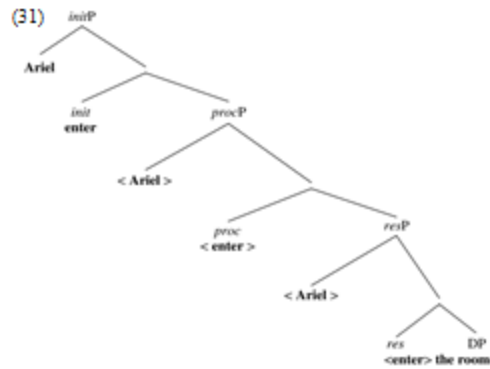
(28) Katherine broke the stick.



The diagram shows that the verb *break* encodes three sub-events/features whose initiator is Katherine merged in the specifier of *iniP* whereas stick is both undergoer and the resultee of the process; thus, it is merged in both specifiers of *procP* and *resP*.

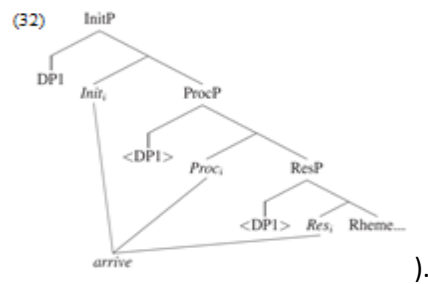
In verbs like *find* and *enter*, which belong to the second subgroup, the object is not undergoer of the process or holders of any result state, but rhematic DPs describing the final result.

(30) Ariel entered the room.



As seen in the above diagram, Ariel is merged in both the specifiers of *iniP* and *procP* as well as *resP* since she initiates the process and undergoes the event and finally is located in a place meaning that she bears the resultee role of attaining and the DP room is merged in the rhematic status.

*Arrive* is an intransitive verb with the following semantico-syntactic structure as shown in (32) below. As seen, this intransitive verb contains the same features that the transitive verb *enter* does and in both the specifier of all features are filled with the same argument. Lastly, the adjunct of *arrive* and the object of *enter* merge in the same status. Ramchand (2008:79) illustrates the structure of *arrive* in a sentence like (33) in a diagram like (34

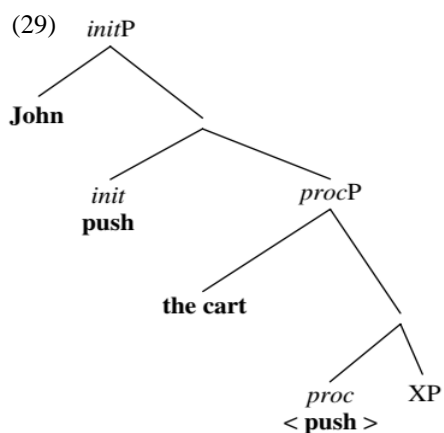


(33) Michael arrived.

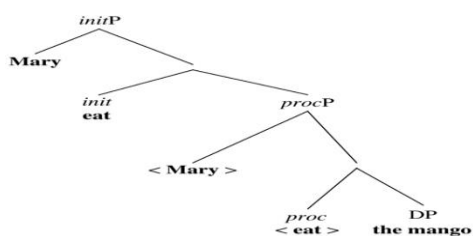


### 3.4.2 Initiation–process verbs

As obvious, these verbs include only two features and need solely two arguments: the initiator and the undergoer. Here again the same as the previous class of verbs with three features, the initiator can fill just the specifier of the *initP* or it may occupy both the specifiers of *initP* and *procP*. Additionally, the change the internal argument undergoes differs in each one: In *push* and *drive*, it is a change of location; In *melt* or *reddden*, some (noninherent) property of the internal argument changes. The lexical encyclopedic content of the verb identifies the initiational transition as well as the process. In this regard Ramchand (2008:64) states that “the internal differences among these verbs, e.g. whether the process in question is position along a spatial path or degree of attainment of a property, are part of the lexical-encyclopedic properties of the root that identifies the process, and are not directly encoded in the syntax”.



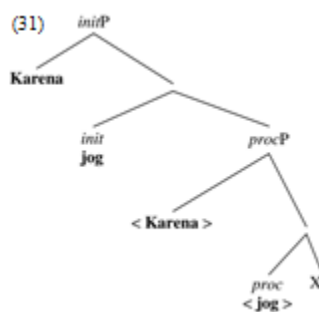
In some transitive verbs the internal argument does not undergo a change but a path as in (28). The internal structure of (28) is given in (29). (28) Mary ate the mango.



As seen in this diagram, Mary the initiator, is in the specifier of both *initP* and *procP* and the internal argument in the complement of the *proc* since the internal argument does not undergo a change but a path.

A class of intransitive verbs, as in (30), are composed of two features *initP* and *procP* either. The internal structure of (30) is given in (31).

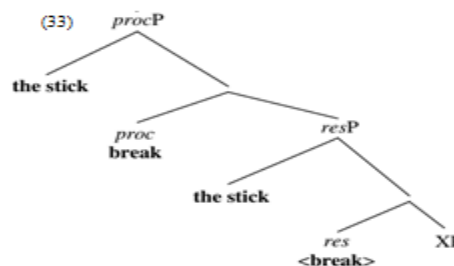
(30) Karena jogged.



### 3.4.3 Process-result verbs

As we know, verbs like *break*, *melt* and *tear* can be used as transitive and intransitive. To analyze these sorts of verbs Ramchand (2008:88) proposes the null causative head according to which these verbs have a null causative head that is optional; meaning that while they are transitive they are composed of three feature: *Init*, *Proc*. and *Res*. Whereas they bear two features *Proc*. and *Res* when they are intransitive. Hence in cases like (32) whose internal structure is shown in (33), the *init* feature is inactive and verb contains only two features *proc* and *result*. The same story is true about process verbs such as *melt* which will be analyzed in the next subsection.

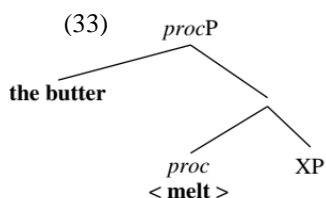
(32) The stick broke.



### 3.4.4 Process verbs

As we know verbs like melt can be used in both transitive and intransitive forms. When they are transitive, they are made up of two features, namely *init.* and *proc.* but their *init.* head can be null or optional. In this case it can appear as an intransitive verb that contains just one feature: *Proc.* Ramchand (2008:86) illustrates the structure of one such a verb namely *melt* (34) in a diagram like (35).

(32) The butter melted.



### 4. Event/Result nominalization in English

Nouns naturally refer to an entity/concrete object, an idea/abstract noun or even an event. Logically when nominalizer affixes are added to the verbal roots, the derived nominals should denote one of those classes: concrete, abstract and event. In the literature, deverbal nominalizations are thought to be Event or Result. Event nouns are nouns that denote things that happen or undergoes a process while Result nouns are nouns that refer to the result of an event. In the literature to best of our knowledge nothing has been mentioned about the event/result nouns which are mostly abstract nouns. This study focuses on Event/Result nominalizations.

#### 4.1. {-ing} Nominalizer

Originally, this suffix is an inflectional suffix that can be added to the verbs whose syntactic function is related to progressive/incomplete aspect. In some cases, this suffix is attached to the verb so as to form the nouns. The common consensus so far is that {-ing} is the most controversial suffix that shows quirky behavior and bears multiple functions including

nominalization and making adjectives. This means that {-ing} is a prominent syncretic suffix. In this part we only focus on its nominalizing function.

As pointed out before, syncretism is one of the tools applied in nanosyntax to draw out the functional sequences and lexical entries. The following data adapted from Lundquist (2008:3) show that {-ing} is syncretic to spell out three functions stating that {-ing} derivative nominals have three interpretations as in the following.

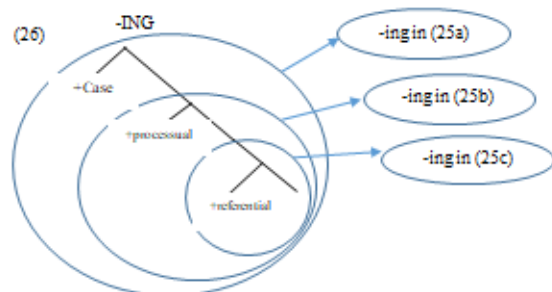
(25) a. [John's painting a picture featuring the recent disturbances in Los Angeles] caused a huge riot among the art people.

b. A classic example is [John L's painting of a picture featuring the recent disturbances in Los Angeles].

c. [A painting (\*of picture featuring the recent disturbances in Los Angeles) by John L] hung on the wall.

d. John painted a picture featuring the recent disturbances in Los Angeles. (Lundquist 2008:3)

Regarding the behavior of {-ing} in the above, following nanosyntax, one is tempted to suppose that it has a lexical entry, each part of which according to superset principle is represented in the structure of 25(a,b and c) above. This means that {-ing} has a lexical entry given in (26) that can lexicalize three sorts of trees generated by syntax.



What made us put forward such a proposal is that the {-ing} derivative in (25a), namely *painting*, is very similar to the verb in (25d) from which it has been derived: *painting* in

(25a) assigns case to its internal argument, and it denotes an event, just like the finite verb *paint*. In (25b), *painting* keeps the eventive property but it cannot assign case. In (25c), painting is nothing more than a referential noun without denoting an event or capability to case assignment. What can be concluded from this discussion is that all properties of {-ing} is reflected in the lexical entry given in (25). According to superset principle the following lexical entry can spell out three lexical items: in (25c), it spells out only a noun that has no argument structure and no ability to assign case. This sort of name is called result nominalization in the literature and Lieber (2004, 2016) states that it bears the atomic primitive +Matter. Here, we use referential to denote its semantic contribution and its role to refer to an entity in the real world as in painting in (25c).

#### 4.2. {-ism} Nominalizer

The deverbal nominalizer {-ism} is a suffix that joins to both verbs and nouns to derive nouns. Due to its relevance to the topic, in this section the deverbal ones will be discussed. To achieve this goal, its functions are studied in comparison with {-ing}.

The nominalizer{-ing} bears an event structure due to containing the feature +Dynamic as Lieber (2004, 2016) states. Here the feature processual is used. Lastly, in (25a) the lexical item containing {-ing} can assign case mark as well since it carries the feature Case which is necessary to do this function. This feature case proposed in this study since every noun must be assigned a case, be it abstract or structural.

Chomsky, building on earlier work on nominalizations, mainly Lees (1964), differentiates three types of nominalizations:

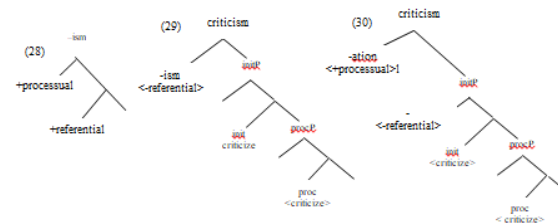
(27) a. Gerundive nominals: John's criticizing the book

b. Derived nominals: John's criticism of the book

c. Mixed nominals: John's criticizing of the book

From these data one can imply that the role of the {-ism} as a suffix nominalizer and that of{-ing} in mixed nominals are the same; meaning that both, contrary to gerundive nominals, have lost their case marking capabilities hence of the case marking of in (27b) and (27c). Clearly speaking, in gerundive nominal (27a) almost all properties of the main verb has been preserved while in derived nominals and the mixed nominals they cannot case mark their internal argument.

Returning to the lexical entry of {-ing} in (26), it was concluded that the {-ing} used in mixed nominals is a subset of the{-ing} seen in gerundive nominals; on the other hand, the contribution of {-ism} and{-ing} in mixed nominals are the same. From this, one can conclude that {-ism} is a subset of the gerundive {-ing}. Consequently, the following tree diagram is proposed as the lexical entry of {-ism}. This means that this suffix can derive nouns that refer to both event and result nouns as in (29) and (30) respectively.



#### 4.3. {-ation} Nominalizer

The nominalizer {-ation} along with its various forms, namely {-ion, -ition, -sion and -tion}, adhere solely to verbal roots leading to derive nouns that refer to events or instances of that event which is called resultative nouns as the data in (31) illustrate.

(31) a. The professor's examination of the student was thorough.



root. As a matter of fact, we have no answer to this problem since according to the rules of movement in nanosyntax seen in (39), only constituents containing the head-noun can be moved; while no NP is observed in the above diagrams. The answer to this question needs more research. The point that deserves mentioning is that every syntactic head can be moved whether it is lexical or functional.

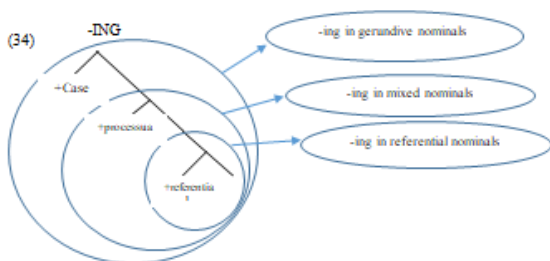
(39) Rules of movement: Cinque (2005) (Caha 2009:28)

- a. Movement is only to the left
- b. Move only constituents containing the head-noun

## 5. Conclusion

The following conclusions are drawn from the present study:

1. It has been found that the event/result nominalizer suffix {-ing} has the following hierarchical lexical entry such as (34) which means that the conflation of more than two atomic features of the structure of the verbal root as shown below.



This proposal is based on {-ing} behavior that is syncretic between gerundive nominals, mixed nominals and referential nominals. Regarding the superset principle which can justify lexicalization and syncretism and a lexical entry can represent all syntactic trees equal to or smaller than it, provided that there are no other lexical entries to spell out the smaller syntactic trees., the tree diagram (34) can spell out all its subsets leading to various interpretations of {-ing}. In case {-ing} contains all three features of (34), it resembles verbs more: it can case mark,

it denotes a process and even it can be referential; referring to an event.

2. When{-ing} bears the two features process and referential, the derived noun containing{-ing} is the same as nominals derived from {-ation, -ment, and -ism} in that both express an event and/or an entity. In effect, the structure in (34) can be deployed to spell out the suffixes {-ation, -ment, and -ism} as well and the role of superset principle is responsible for lexicalization of event or result readings of these deverbal nouns.

3. Our study shows that the semantic contribution of {-ation, -ment, and -ism} is a subset of -ing's semantic function; to say that {-ation, -ment, and -ism} create both event and result nouns while -ing, besides creating event and result nouns, can carry a feature called Case here that enables it to case mark its internal argument.

4. The study shows that the semanticosyntactic features of the {-ation, -ment, and -ism} are the same; this means that they have seemingly no distinction in their semantic contribution. What we can guess is that their difference is in the degree of their productivity and selection of the base they attach to that remain as open questions.

## References

1. Abney, Steven P. (1987). *The English Noun Phrase in Its Sentential Aspect*. Ph.D. dissertation, Cambridge, Mass: MIT Press.
2. Baker, Mark. (1985). The Mirror Principle and morphosyntactic explanation. *Linguistic Inquiry* 16 3: 373–415.
3. Baker, Mark (2004). *Lexical categories Verbs, Nouns and Adjectives*. Cambridge: Cambridge University Press
4. Bauer, Laurie, Rochelle Lieber, & Ingo Plag 2013. *The Oxford Reference Guide to English Morphology*. Oxford: Oxford University Press.
5. Baunaz, L. and Lander, E. (2018). Nanosyntax The Basics. In Lena Baunaz, Karen De Clercq, Liliane Haegeman & Eric Lander (eds.), *Exploring nanosyntax*, 3–56. Oxford: Oxford University Press.



6. Borer, Hagit (2013). *Taking Form*. Oxford: Oxford University Press.
7. Caha, Pavel. 2009. *The Nanosyntax of Case*. Ph.D. thesis, CASTL, University of Tromsø.
8. Caha, Pavel (2021). Minimalism and Nanosyntax: Reconciling Late Insertion and the Borer-Chomsky Conjecture
9. Chomsky, Noam. (1970). "Remarks on Nominalization." In: R. Jacobs and P. Rosenbaum (eds.), *Readings in English Transformational Grammar*, Ginn, Waltham, MA, 184-221.
10. Chomsky, Noam. (1981). *Lectures on Government and Binding*. Foris, Dordrecht.
11. Chomsky, N. (1986). *Barriers*. Cambridge, MA: MIT Press.
12. Cinque, Guglielmo. (2005). "Deriving Greenberg's Universal 20 and Its Exceptions." *Linguistic Inquiry* 36 (3): pp. 315–332.
13. Embick, David & Robert Noyer. (2007). Distributed morphology and the syntax/morphology interface. In Gillian Ramchand and Charles Reiss (eds.), *The Oxford Handbook of Linguistic Interfaces*, 289-324. Oxford: Oxford University Press.
14. Fábregas, Antonio. (2007). An exhaustive lexicalization account of directional complements. In *Tromsø Working Papers on Language and Linguistics: Nordlyd 34.2, Special issue on Space, Motion, and Result*, edited by Monika Basic, Marina Pantcheva, Minjeong Son & Peter Svenonius (eds.), University of Tromsø, Tromsø, pp. 165–199.
15. Grimshaw, Jane. (1990). *Argument Structure*, MIT Press, Cambridge, MA.
16. Halle, Morris, and Alec Marantz. 1994. Some key features of distributed morphology. MIT working papers in linguistics 21: papers on phonology and morphology, ed. by A. Carnie, H. Harley and T. Bures, 275–88. Cambridge: MIT Working Papers in Linguistics.
17. Harley, Heidi and Rolf Noyer. (1999). State-of-the-Article: Distributed Morphology. *GLoT* 4.4: 3–9.
18. Kruger, Erin (2011). The Nanosyntactic Structure of the Afrikaans Passive Participle. MA thesis. Stellenbosch University <http://scholar.sun.ac.za>
19. Lakoff, George. 1965/1970. *Irregularity in Syntax*, Holt, Rinehart, and Winston, New York.
20. Lieber, Rochelle. (2004). *Morphology and Lexical Semantics*. Cambridge: Cambridge University Press.
21. Lieber, Rochelle (2016). English nouns: The ecology of nominalization. *Cambridge: Cambridge University Press*.
22. Lundquist, Bjorn. (2008). Nominalizations and Participles in Swedish. Ph.D. thesis, University of Tromsø.
23. Pantcheva, Marina. (2011). *Decomposing Path: The Nanosyntax of Directional Expressions*. Ph.D. thesis, University of Tromsø, Tromsø.
24. Moradi, Ebrahim (2017). The Study of Prepositional Phrases in Kurdish language (Hawshāri Sorāni Dialect) Based on Nanosyntax [In Persian], Sistan and Baluchestan University (Zahedan, Iran), 2017.
25. Ramchand, Gillian. (2008). *Verb Meaning and the Lexicon: A First-Phase Syntax*. Cambridge: Cambridge University Press.
26. Rizzi, Luigi. (2013). "Syntactic Cartography and the Syntacticisation of Scope-Discourse Semantics." In *Mind, Values and Metaphysics—Philosophical Papers Dedicated to Kevin Mulligan*, edited by Anne Reboul, pp. 517–533. Dordrecht, Te Netherlands: Springer.
27. Saeed, Sameerah, Tawfiq. (2016). *Events and Space: Motion VPs and Spatial PPs*. Newcastle: Cambridge Scholars Publishing.
28. Savu, Carmen. Florina. (2013). "Lexicalizing Romanian path in Nanosyntax". Available at <http://ling.auf.net/lingbuzz/001806>.
29. Sinclair, John (2005) English word formation, Tehran: Sobh e Sadegh publication.
30. Sleeman, Petra & Ana Maria Brito. 2009. "Nominalization, Event, Aspect, and Argument
31. Sleeman, Petra (2009). DEVERBAL CATEGORIES AND THE SPLIT vP HYPOTHESIS. *Bucharest Working Papers in Linguistics* XI (1).
32. Starke, Michal. (2009). Nanosyntax. A short primer to a new approach to language. In *Nordlyd 36: Special issue on Nanosyntax*, edited by Peter Svenonius, Gillian Ramchand, Michal Starke, and Tarald Taraldsen, pp. 1–6. University of Tromsø, Tromsø.
33. Starke, Michal. (2011). Towards elegant parameters: Language variation reduces to the size of lexically-stored trees. In *Linguistic Variation in the Minimalist Framework*, edited by M. Carme Picallo, pp. 140–152. Oxford University Press, Oxford.
34. Taraldsen, Knut. Tarald. (2010). The Nanosyntax of Nguni Noun Class Prefixes and ConCORDS. *Lingua*, 120(6): 1522-1548.
35. Wasow, Thomas. (1977). Transformations and the lexicon. In Peter Culicover, Thomas Wasow and Joan Bresnan, eds., *Formal Syntax*, 327–60. New York: Academic Press.