

Dutch Nominalization and the Architecture of Grammar

MA Thesis

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1. Introduction

Intuitively, we understand that the concepts underlying the verb *observe* and the noun *observation* are closely related. Linguists have, however, not yet reached a consensus as to the precise nature of this relation. Is one form derived from the other or do they spring from a common acategorial root? Furthermore, where and when in a derivation does this process of (re)categorization take place?

These questions reflect a fundamental disagreement among linguists as to the architecture of grammar. More specifically, it relates, on one hand, to the fundamental question of “what kind of information is stored, and which information is computed by the grammar,” as put by Booij (2012, p.21), and, on the other, in what module of the grammar these computations are performed. In the case of related nouns and verbs, these questions come down to the extent of computational, as opposed to conceptual, information stored in the lexicon, and the operations it is capable of.

The concept of the lexicon was introduced by Chomsky (1965) as a repository for words and their associated meaning and structure. It was subsequently also endowed with the ability to produce new words from related ones. This was first argued for in Chomsky (1970) in relation to the present topic: nominalization. Baker (1988), however, argued that some processes related to word formation were more appropriately viewed as syntactic rather than lexical in nature, an idea that has since become widely accepted. The Theta System, for example, put forth in Reinhart (2000/2016) and the works coming up to it, uses the

possibility for operations to occur in either the lexicon or syntax to explain certain instances of cross-linguistic variation.¹

However, over time more and more operations were transferred from the lexicon to syntax, resulting in such frameworks as Svenonius (2012)'s *spans*-framework or Borer (2013), where the role of the lexicon is greatly reduced. The most widely used of these frameworks is Distributed Morphology, developed in Halle and Marantz (1993) and (1994), where the lexicon is stripped of everything but roots, consisting of sound-meaning pairings, with all categorization and manipulation accomplished solely in syntax. In this framework, the lexicon consists merely of one or more lists of the smallest possible atomic morphemes with their associated meanings.

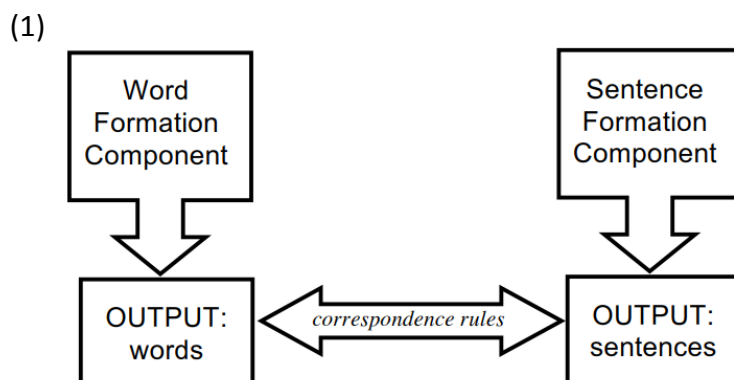
The appeal of frameworks assuming an impoverished lexicon is that they consolidate the computational requirements previously dispersed over two modules into a single one, reducing the previously assumed lexical operations to independently required syntactic operations. In theory, this diminishes the total number of available operations that need to be assumed for the grammar as a whole, reducing complexity and more tightly circumscribing possibilities. As Marantz (1997), points out, however, "there are [no] a priori reasons to reject the [l]exicon" and theories doing without are not necessarily "conceptually superior" (Marantz 1997: p. 223). Rather, "the question is which theory is right:" a matter for empirical rather than conceptual investigation (ibid.). In answering that question, the burden of proof lies on the theory with the least computational options: any data that can be accounted for under a system without an active lexicon can, by definition, be accounted for

¹ See Siloni (2003), Reuland (2011), and Marelj (2016), among others, for further development of the Theta System.

by that system plus an active lexicon. Therefore, if it can be shown that a piece of data can only be accounted for with an active lexicon, an active lexicon must be assumed. Only if all data is able to be accounted for without an active lexicon is such a theory, by Occam's razor, to be preferred.

This thesis focuses on the question of whether an active lexicon, or, more broadly, a pre-syntactic computational module, is necessary. On the one hand we have the traditional multiple generative engine conception of the grammar, consisting of a separate computational module, syntax, which works compositionally, and an active lexicon, which works non-compositionally. An example of such a framework is the Theta System referred to earlier. Alternatively, other models, such as that espoused in Alexiadou (2008), among others, use a system of syntactic cycles rather than a syntax/lexicon divide, in which one cycle is non-compositional and the other is compositional. Yet another approach is used by Ackema and Neeleman (2007), who posit related but distinct systems for the syntax of words and phrases. These types of model are, however, functionally equivalent to having a separate active lexicon: in Harley (2015)'s typology of frameworks, they all fall in the lexicalist category, which is defined as having the "word as an independent level of grammatical organization" and in which "words are built by distinct mechanisms, which are encapsulated from the mechanisms that create syntactic structures" (Harley 2011: p. 1138).

Simplified, such frameworks work as in (1).

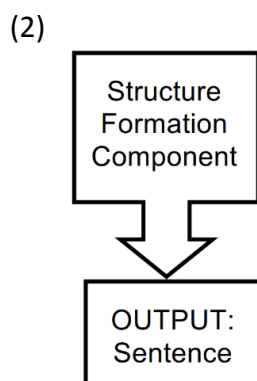


(ex. 15, Harley 2011)

Harley's typology further divides these into strong and weakly lexicalist theories. In strong lexicalist frameworks, all morphology happens in the lexicon, while in weak lexicalist frameworks some morphology also happens in syntax. For the purposes of this thesis, this division is irrelevant, however, as both types of lexicalism require a multiple generative engine architecture.

On the other hand, we have a single generative engine conception of grammar, in which the functions otherwise ascribed to the active lexicon are merged into the syntax, working fully compositionally. In Harley's typology these are non-lexicalist frameworks, "in which the syntactic component constructs words and phrases alike" (Harley 2011: p. 1142).

Simplified, such frameworks work as in (2).



(ex. 17, Harley 2011)

The most prominent and consequential non-lexicalist framework is Distributed Morphology. As mentioned, such theories are inherently more limited in generative capabilities compared with theories assuming a multiple generative engine architecture, and, therefore, the burden of proof lies with them.

The phenomenon of nominalization is of special significance in this debate, as it involves categorization, argument structure, and transformation, which are all issues which in the multiple generative engine conception are, in whole or partly, associated with the lexicon or non-compositional cycle. Consequently, it has already gained considerable attention in the context of this discussion. Chomsky (1970)'s proposal for lexical operations was based on an inability to derive nominalizations via transformative rules in the syntax. Some, such as Siloni (1997), have continued to defend this idea, while others, such as Hazout (1995), Marantz (1997) and (2000), Fu, Roeper and Borer (2001), and Harley (2008) have, instead, argued that nominalization is accomplished mainly or entirely in syntax, making it a prominent phenomenon in arguing for a reduced role for the lexicon in models of language.

In this thesis, I focus on the empirical issue of nominalization in order to explore the theoretical issue of the architecture of grammar. My empirical domain is Dutch. I find that the chosen theory of nominalization, rooted in Distributed Morphology, being the most prominent and consequential single generative engine framework, is unable to account for Dutch nominalization. Furthermore, abstracting away from specific theories to the single generative engine framework itself, I find that the Dutch nominalization data poses fundamental problems for a single generative engine framework, making it empirically implausible.

This thesis is structured as follows: in Chapter 2 the empirical domain of Dutch nominalization is presented. In Chapter 3, several accounts of nominalization are presented, rooted in different types of grammatical architecture. In Chapter 4, Harley (2008)'s account of nominalization, rooted in the single generative engine framework Distributed Morphology, is applied to the Dutch data. In doing so, several serious challenges are encountered. These are subsequently discussed with regard to the single generative framework in general and the assumptions inherent in it, finding that the framework runs into serious challenges in accounting for the Dutch data, making it an empirically implausible model of natural language. Chapter 5 briefly summarizes the preceding chapters and suggests various possibilities for further research into nominalization and the architecture of grammar.

2. The Empirical Domain of Dutch Nominalization

The seminal study on nominalization is Grimshaw (1990). Her central thesis is that nominals can be categorized into those with and without argument structure, with various concomitant properties. In presenting the empirical domain of Dutch nominalization, this chapter starts by presenting Grimshaw's theory. Secondly, the types of Dutch nominals examined in this thesis are presented. Thirdly, Grimshaw's categorization is shown to be valid for Dutch. Lastly, the Dutch nominals are tested for various verbal and nominal characteristics, giving a dataset against which to evaluate theories of nominalization and the single generative engine architecture of grammar.

2.1 Grimshaw (1990)

The seminal work on nominalization is Grimshaw (1990). She argues that while verbs have an argument structure, not all nominals related to them do. Specifically, only what she refers to as *complex event nominals* have argument structure.

2.1.1 Complex event nominals versus non-complex event nominals

Grimshaw divides verb-related nouns into two types: *result nominals* and *event nominals*.

Result nominals indicate the result of the process denoted by the corresponding verb.

- (1) a. John avidly collects stamps.
b. His collection grows ever larger.

For example, *collection* in (1b) is the entity resulting from the process indicated by *collects* in (1a). Result nominals never have argument structure and, therefore, no arguments.

- (2) a. The observation occupied many scientists.
 b. The observation of stellar movements occupied many scientists.

Event nominals, on the other hand, denote the process itself, as *observation* does in (2).

These can have arguments: *stellar movements*, in the case of (2b).

Grimshaw further divides event nominals into *simple event nominals*, lacking argument structure and an aspectual dimension, and *complex event nominals* (CENs), with argument structure and an aspectual dimension. For convenience, Grimshaw groups result nominals and simple event nominals, both lacking argument structure, together under the label *non-complex event nominals* (non-CENs).

Thus, *observation* in (2a), lacking arguments is a non-CEN, while *observation* in (2b), with the argument *stellar movements*, is a CEN.

2.1.2 CEN tests

As shown by the identical form of the nominal *observation* in the non-CEN case in (2a) and the CEN case in (2b), the presence or lack of argument structure is not always apparent from the morphology of a nominal. To disambiguate nominals as being CENs or non-CENs, Grimshaw proposes a number of tests, presented below.²

² Though some of these tests have been subsequently criticized in, for example, Garcia Mayo (1994), Alexiadou (2008), and San Martin (2009), these criticisms are orthogonal to the present investigation, and Grimshaw's central point regarding the difference in argument structure properties between different classes of verb-related nominals has been generally accepted. The exception is San Martin (2009)'s finding that many languages allow some CENs to pluralize, which is discussed below.

Aspectual dimension

By Grimshaw's definition, only CENs have an aspectual dimension. Gerundive nominals, which take *-ing* morphology in English, have progressive aspect and must, therefore, be CENs, as shown in (3).

(3) The felling *(of the trees)

(ex. 3.6a, Grimshaw 1990)

Modification by aspectual modifiers like *constant* or *frequent* (4a) temporal modifiers such as *in only two days* or *while the army pillaged* (4b) likewise require an aspectual dimension.

(4) a. The constant/frequent expression *(of one's feelings) is desirable.

(ex. 3.7c (adapted), Grimshaw 1990)

b. The total destruction *(of the city) in only two days/while the army pillaged appalled everyone.

(ex. 3.28a (adapted), Grimshaw 1990)

Note that *constant* and *frequent* are also compatible with plural non-CENs (5). This test is, therefore, only valid for singular nominals.

(5) a. The constant/frequent assignments put him under a lot of stress.

b. *The constant/frequent assignment put him under a lot of stress.

Agentivity

Due to the lack of argument structure, non-CENs cannot assign an agent theta role. Non-CENs can have possessives that can be interpreted as having an agentive role related to the nominal. However, these are not actual agents. This is shown in (6).

(6) John's (*intentional) book

The agentive adverb *intentional* is only licensed by an agentive theta role. As it is not licensed in (6), *John* is not an agent, but an abstract possessor of *book*. This can be interpreted as John being the book's writer, but also as John being, for example, the one in physical possession of the book, or the one who recommended it. An actual agent can only be interpreted agentively.

Mass versus count noun

Singular non-CENs require a determiner (9a), only non-CENs can be pluralized (9b), and CENs cannot be preceded by *one* or *a* (9c).

- (9) a. Assignment *(of difficult problems) always causes problems.
(ex. 3.18c (adapted), Grimshaw 1990)
- b. The shootings *(of rabbits) are illegal.
(ex. 3.22c (adapted), Grimshaw 1990)
- c. A/one shooting *(of rabbits) is illegal
(ex. 3.22b (adapted), Grimshaw 1990)

In order to explain this behaviour, Grimshaw (1990) argues CENs behave as mass nouns and non-CENs as count nouns: (10a) shows singular count nouns, such as *table*, require a determiner while mass nouns, such as *water*, do not. (10b) shows that pluralizing mass nouns turns them into count nouns, as demonstrated by the ability to take a cardinal number. The same is true for mass nouns preceded by *one* or *a*.

- (10) a. Water/*(the) table
b. Two waters

Entity versus event reference

Only non-CENs can be used predicatively or with equational *be* (11a), non-CENs cannot engage in event control (11b),⁴ and CENs cannot be preceded by a demonstrative (11c) or indefinite subject (11d).

- (11) a. That was the/an assignment *(of the problem).
(ex. 3.21b (adapted), Grimshaw 1990)
- b. The translation₁ *(of the book) (in order) PRO₁ to make it available to a wider readership
(ex. 3.26b (adapted), Grimshaw 1990)
- c. That shooting *(of rabbits) is illegal
(ex. 3.22b (adapted), Grimshaw 1990)
- d. A teacher's assignment (??of the problem)
(ex. 3.19a (adapted), Grimshaw 1990)

⁴ In event control, the verb or CEN controls the PRO that is the subject of the subordinate clause.

These properties seem related to a difference in reference: non-CENs refer to entities and CENs refer to events:^{5,6} predicative use or use with equational *be* associates one entity with another; a demonstrative picks out a specific entity or set of entities from the set the nominal refers to; and only events can engage in event control. The reason for the severe markedness of CENs with an indefinite subject is less clear. It seems that events, and therefore CENs, cannot be indefinite.

CP complements

Grimshaw argues a nominal with a CP complement must be a non-CEN. This is shown in (12).

(12) Their (*frequent/constant) announcement that they were the greatest eventually became tiresome.

(ex. 3.64a (adapted), Grimshaw 1990)

The inclusion of *frequent* or *constant* with a singular nominal, only possible for CENs, as explained in 2.1.2, is infelicitous as the complement of *announcement* is a CP, meaning it must be a non-CEN.

Why this should be the case is not immediately apparent. Verbs are capable of taking CP complements, and CENs have more verbal characteristics than non-CENs. One would, therefore, expect CENs to be capable of taking CP complements and non-CENs not, which is the opposite of what is found. However, we can speculate that CENs can only be formed from verbs that assign a theme thematic role, while CP complements have a subject matter role.

⁵ Note that this means simple event nominals are abstractly treated as entities rather than events.

⁶ This may also be cause for the impossibility for CENs to take a possessive phrase: entities can be possessed, events cannot.

2.2 Types of Dutch Nominals under Investigation

Dutch has many different types of nominalization. As Broekhuis and Keizer (2012) point out, however, most of these are relatively unproductive and do not take arguments. This thesis examines a subset of Dutch nominalizations that is both highly productive and capable of taking arguments. In this way, we will not bias our testing of the single generative engine framework on the Dutch data by including quirky constructions but, instead, focus on the core phenomenon of nominalization. We are only interested in the argument-taking event nominals, as these have a mixture of verbal and nominal properties, while result nominals are unambiguously nominal.

2.2.1 INF nominals

Dutch INF nominals take the infinitival form of the associated verb. They are roughly equivalent to English -ing nominals, and, similar to them, come in two morphologically identical types, as first described for English by Lees (1960).

- (13) a. Het behandel-en van de patiënt verliep voorspoedig.
 the treat-INF of the patient go.PST fortunately
 ‘Treating the patient went well.’
- b. Hem behandel-en verliep voorspoedig.
 him.ACC treat-INF go.PST fortunately
 ‘Treating him went well.’

(13a) shows an *OF-INF nominal*. These require a *van* (“of”)-phrase to introduce its internal argument. (13b) shows an *ACC-INF nominal*. These assign accusative case to their internal arguments which, therefore, does not require a preposition.

(14) a. *Behandel-en hem verliep voorspoedig.
 treat-INF him go.PST fortunately
 Intended: 'Treating him went well.'

b. dat Jan de auto pakte
 COMP Jan the car take.PST
 'that Jan took the car'

Note that with ACC-INF nominals the argument must precede the nominal, as shown by the ill-formedness of (14a). This mirrors the behaviour of objects in subordinate clauses, as in (14b). This shows, along with the fact that the argument receives accusative case, that the pre-nominal argument of an ACC-INF nominal is in fact an internal argument. As INF nominals behave differently depending on the presence of a determiner they are examined with and without a determiner separately.

2.2.2 -ing nominals

Dutch nominals taking *-ing* or *-atie* morphology correspond to English *-ation* or *-ment* nominals. As these behave identically, they are collectively referred to as *-ing nominals*.

(15) shows some examples of *-ing* nominals. Unlike with INF nominals, the presence or lack of a determiner does not impact any relevant properties.

(15) a. De belon-ing van de hond was buitensporig.
 the reward-NMLZ of the dog is.PST outrageous
 'The dog's reward was outrageous.'

b. Henk-s verass-ing zorg-de voor veel plezier.
 Henk-GEN surprise-NMLZ cause-PST for much merriment
 'Henk's surprise caused much merriment.'

c. De arrest-atie van de dief verliep voorspoedig.
 the arrest-NMLZ of the thief go.PST fortunately
 'Arresting the thief went well.'

d. Marie-s observ-atie van haar werknemer-s bracht haar in de problem-en.
 Mary-GEN observe-NMLZ of her employee-PL take.PST her in the problem-PL
 'Marie's observation of her employees put her in trouble.'

2.2.3 Transitive verbs and simple nouns

In addition to these nominalizations, transitive verbs (16) and simple nouns (17) are also examined, forming a baseline of canonical verbal and nominal behaviour.

- (16) a. Henk overwon de kampioen.
 Henk defeat.PST the champion
 'Henk defeated the champion.'
- b. Esther behandel-de de patiënt.
 Esther treat-PST the patient
 'Esther treated the patient.'
- c. De hond-en bewak-en het huis.
 the dog-PL guard-PL the house
 'The dogs guard the house patiently'
- (17) a. Henk-s handschoen
 Henk-GEN glove
- b. Esther-s medijcijn-en
 Esther-GEN medicine-PL
- c. het huis
 the house

2.3 Grimshaw (1990) and Dutch Nominalization

In laying out her theory, Grimshaw (1990) only makes use of English data. Since then, several other researchers have tested her theory on other languages. For instance, Garcia Mayo (1994) applied Grimshaw's classification and tests to Spanish, concluding that Spanish patterns largely with English, but differs in the behaviour of CP complements and control into infinitival purpose clauses. Zlatić (1997) does the same for Serbian, again finding strong correlations with English. Dealing with Basque, French, Czech, Russian, German, Portuguese, and Romanian, San Martin (2009) argues that the ability to pluralize is not dependent on the classification of the nominal as a CEN or non-CEN, contra Grimshaw's assertion.

Such multilingual inquiry is useful in determining which parts of Grimshaw's theory are specific to English, and which have the potential to be universal. Below, we find that Grimshaw's classification of nominals into CENs and non-CENs and most of her tests to determine which is which hold for Dutch.

2.3.1 The CEN/non-CEN distinction in Dutch

Grimshaw argues only CENs have argument structure. Therefore, if a nominal requires an argument, it is a CEN. If it is capable of having an argument but does not require one, it is ambiguous and can be both a CEN and non-CEN. If it does not allow arguments, it is a non-CEN.

This is how a simple noun behaves:

- (18) a. De tafel (*door Jan) zal indruk mak-en.
 the table by Jan will impression make-INF
 'The table (of/by Jan) will make an impression.'
- b. *De opzettelijke tafel van Jan zal indruk maken.
 the intentional table of Jan will impression make-INF
 'The table (of/by Jan) will make an impression.'
- c. De tafel van Jan_{POSS/*TH} zal indruk mak-en.
 the table of Jan will impression make-INF
 'The table of Jan will make an impression.'

Tafel ("table") does not allow an agent: modification by an agentive by-phrase (18a) or an agentive adjective (18b) is not possible. (18c) shows it also does not allow a theme argument. As *tafel* is a non-CEN, this is expected.

(19) (Het) *(ministerie-s) opheff-en zal indruk mak-en.
 the ministry-PL abolish-INF will impression make-INF
 'Abolishing (ministries) will make an impression.'

(19) shows an ACC-INF nominal with and without a determiner. In both cases, the sentence requires an argument for the nominal *opheffen* ("abolishing") to be felicitous. ACC-INF nominals, therefore, have argument structure and are CENs. (20) shows the same for OF-INF nominals with and without a determiner:

(20) (Het) opheff-en *(van ministerie-s) zal indruk mak-en.
 the abolish-INF of ministry-PL will impression make-INF
 '(The) abolishing (of ministries) will make an impression.'

Example (21) shows that -ing nominals are felicitous with or without an argument, making them ambiguous between CEN and non-CEN status.

(21) De belon-ing /arrest-atie (van de werknemer-s_{TH}) zal indruk mak-en.
 the reward-NMLZ/arrest-NMLZ of the employee-PL will impression make-INF
 'The (employees') reward/arrest will make an impression.'

Grimshaw correlates CENs and argument structure with the presence of an aspectual dimension. If her theory holds for Dutch, we would expect to find that simple nouns are incapable of aspectual modification.

(22) De (*frequent-e) tafel zal indruk mak-en.
 the frequent-ADJ table will impression make-INF
 'The (frequent) table will make an impression.'

(22) shows this to be the case: the sentence becomes infelicitous when the aspectual marker *frequente* ("frequent") is added.

(23) a. (Het) frequent ministerie-s opheff-en zal indruk mak-en.
 the frequent ministry-PL abolish-INF will impression make-INF
 'Frequently abolishing ministries will make an impression.'

b. (Het) frequent opheff-en van ministerie-s zal indruk mak-en.
 the frequent abolish-INF of ministry-PL will impression make-INF
 '(The) frequent abolishing of ministries will make an impression.'

Being CENs, INF nominals should be capable of aspectual modification under Grimshaw's theory. The examples in (23) bear this out.

Lastly, Grimshaw's theory predicts -ing nominals, ambiguous between CEN and non-CEN status, to be forced into their CEN interpretation when aspectually modified, as only CENs have an aspectual dimension. (24) shows this to be the case:

(24) De frequent-e belon-ing *(van de werknemer-s_{TH}) zal indruk mak-en.
 the frequent-ADJ reward-NMLZ of the employee-PL will impression make-INF
 'The frequent reward (of the employees) will make an impression.'

Concluding, Grimshaw's classification of nominals into CENs and non-CENs, with only the former having argument structure and an aspectual dimension, is fully applicable to Dutch.

2.3.2 CEN tests in Dutch

Aspectual dimension

If the nominal has an aspectual dimension it must be a CEN. Gerundive-type nominals, containing progressive aspect, take the INF morphology in Dutch. (25) shows this test holds for both types of Dutch gerundive nominals: both the OF-INF (25a) and the ACC-INF type (25b) require an argument to be felicitous.

(25) a. het omhakk-en *(van de bom-en)
 the fell-INF of the tree-PL
 'the felling (of the trees)'

b. het *(bom-en) omhakken
 the *(tree-PL) fell-INF
 'felling (trees)'

If a singular nominal is aspectually modified or modified with a *while*-phrase, it must have an aspectual dimension, and, therefore, be a CEN. (26-27) shows this holds for Dutch.

(26) de vernietig-ing *(van de stad) over een periode van week-en/tijdens de veldslag
 the destroy-N of the city over a period of week-PL/during the battle
 ‘the destruction (of the city) over a period of weeks/during the battle’

(27) a. de observ-atie (van de werknemer-s)
 the observe-NMLZ of the employee-PL
 ‘the observation (of the employees)’

b. de frequent-e /constant-e observ-atie *(van de werknemer-s)
 the frequent.ADJ/constant.ADJ observe-NMLZ of the employee-PL
 ‘the frequent/constant observation (of the employees)’

Agentivity

If the nominal has an unambiguous agent, it must be a CEN.

(28) a. Jan-S_{AG} opzettelijk-e observ-atie *(van zijn buurman)
 Jan-GEN deliberate-ADJ observe-N *(of he.GEN neighbor)
 ‘Jan’s deliberate observation (of his neighbor)’

b. het opzettelijk uitt-en *(van agressiev-e gevoel-en) door patiënt-en_{AG}
 the deliberate.ADV express-INF of aggressive-ADJ feeling-PL by patient-PL
 ‘the expression (of aggressive feelings) by patients’

As the agentive *opzettelijk* (“deliberate”) is only licensed in the presence of an unambiguous agent, (28) shows this test holds for Dutch.

Possessives

Only non-CENs can take a possessive phrase. However, Dutch does not allow temporal possessives, and post-nominal possessives in Dutch are not marked with genitive case and are, therefore, ambiguous with arguments. Moreover, Dutch prenominal genitive phrases are also ambiguous between possessives and arguments, as in English. Therefore, this test does not give clear results in Dutch.

Mass versus count noun

Singular non-CENs require a determiner (29a,b), only non-CENs can be pluralized (29c), and

CENs cannot be preceded by *one* or *a* (29d).

- (29) a. *(De) behandel-ing verliep niet probleem-loos.
 the treat-NMLZ go.PST not problem-less
 Intended: '(The) treatment did not go without a hitch.'
- b. Behandel-ing *(van deze ziekte) verloop-t zelden probleem-loos.
 treat-NMLZ of this disease go-3SG seldom problem-less
 'Treatment (of this disease) seldom goes without a hitch.'
- c. Jan-s belon-ing-en (*van de werknemer-s)
 Jan-GEN reward-NMLZ-PL of the employee-PL
 'Jan's rewards (of the employees)'
- d. een belon-ing (*van werknemers)
 a/one reward.NMLZ of employee-PL
 'a/one reward (of employees)'

(29a,b) show that in absence of a determiner an argument is necessary. The plural *beloningen* ("rewards") is (29c) is infelicitous in the presence of an argument, and must, therefore, be a non-CEN. (29d) shows that *one* and *a*, both *een* in Dutch, are indeed incompatible with a CEN.

(29d) supports the idea that CENs can only be mass nouns: *beloning* ("reward") loses its CEN status when counted. However, San Martin (2009) shows that Dutch, along with many other languages, does allow some CENs to be counted and pluralized. An example is given in (30).

In Dutch, this is only possible with a subset of -ing CENs.

- (30) tijdens de martel-ing-en van de politiek-e gevangen-en door de brigade-s
 during the torture-NMLZ-PL of the political-ADJ prisoner-PL by the brigade-PL
 'during the torture of the political prisoners by the brigades'
 (ex. 8a, Van Hout 1991, qtd. as ex. 23 (adapted) in San Martin (2009))

This test, then, holds only partly for Dutch.

Entity versus event reference

Only non-CENs can be used predicatively or with equational *be* (31a), non-CENs cannot engage in event control (31b), and CENs cannot be preceded by a demonstrative (31c).

- (31) a. dat is de observ-atie (*van de sterr-en) (*door de wetenschapper-s)
 DEM is the observe-NMLZ of the star-PL by the scientist-PL
 'that is the observation (of the stars) (by the scientists)'
- b. de observ-atie₁ *(van de werknemer-s) om PRO₁ te controler-en op het
 the observe-NMLZ₁ *(of the employee-PL) to PRO₁ to monitor-INF on the
 nalev-en van de regel-s
 comply-INF of the rule.PL
 'the observation (of the employees) to monitor their compliance with the rules''
- c. die belon-ing (??van werknemer-s)
 DEM reward-NMLZ of employee-PL
 'that reward (of employees)'

(31) shows these tests hold for Dutch.

Per the tests laid out in 2.1.2, a nominal with an indefinite subject should be a non-CEN. (32)

shows this holds for Dutch.

- (32) a. een dokter-s behandel-ing (??van patiënt-en)
 a doctor-GEN treat-NMLZ of patient-PL
 Intended: 'treatment of patients by a doctor'
- b. een wetenschapper-s observ-atie (??van de sterr-en)
 a scientist-GEN observe-NMLZ of the star-PL
 Intended: 'observation of the start by a scientist'
- c. *een werkgever-s belon-en van werknemer-s
 a employer-GEN reward-INF of employee-PL
 Intended: 'rewarding of employees by an employer'

CP complements

Grimshaw argues a nominal with a CP complement must be a non-CEN.

(33) Hun frequent-e /constant-e verkondig-ing dat ze de best-e war-en
 their frequent-ADJ/constant-ADJ announce-NMLZ COMP they the best-ADJ are.PST-PL

werd vermoei-en-d.

become.PST tire-INF-ADV

'Them frequently/constantly announcing they were the best became tiresome.'

As (33) shows, this does not hold for Dutch. Even though *constante* ("constant") requires a CEN and the nominal has a CP complement, which should require it to be a non-CEN per this test, the sentence is felicitous. Thus, CP complements are possible with CENs in Dutch.

2.4 Properties of Dutch Nominalizations

Nominalizations share characteristics associated with both the verbal and nominal domain.

As presented by Broekhuis and Keizer (2012, p. 53), the canonical verbal characteristics of nominalizations are:

- the presence of arguments;
- accusative case;
- adverbial modification.

The canonical nominal properties are:

- genitive case;
- adjectival modification;
- definiteness;
- realization of a theme as a postnominal PP;
- indefiniteness;
- quantification;
- pluralization.

The Dutch nominalizations under investigation are tested for these characteristics, as well as some further properties.

The verbal property of having arguments is a special case, as this is the defining feature of CENs. As shown, of the selected nominalizations only the -ing type is ambiguous between

CEN and non-CEN status. Both types of INF nominals, regardless of the presence or lack of a determiner, are always CENs. Consequently, only the -ing type is examined separately for its non-CEN and CEN versions. Pluralization is used to force the non-CEN interpretation of the nominalization, and the aspectual-like *frequente* (“frequent”) the CEN interpretation, in line with Grimshaw’s tests.⁷

Further verbal characteristics that are tested are the possibility for an external argument, the possibility for an agentive by-phrase, the possibility to be the matrix and/or subordinate predicate in exceptional case marking constructions, and the possibility for having a manner phrase.

The nominal characteristic of realizing a theme as a postnominal PP is directly related to the presence of accusative case, and is therefore not separately tested. Similarly, quantification is so tightly linked to pluralization that it is not separately tested. An additional nominal characteristic that is tested is the possibility to go without an internal argument. For non-CENs, this is trivial as they cannot have an argument. However, as shown below, some CENs can also omit internal arguments, despite their argument structure, which is not possible with verbs.

⁷ As shown above, some -ing CENs allow pluralization. In order to ensure that pluralizing the -ing nominals ensures non-CEN status, these are not used in the examination below.

The examined categories and properties are summarized in (34) and (35), respectively.

(34) Categories

- Verb
- ACC-INF -D
- ACC-INF +D
- OF-INF -D
- OF-INF +D
- -ing CEN
- -ing non-CEN
- Simple noun

(35) Verbal

- External argument
- Accusative case
- Adverbial modification
- Agentive by-phrase
- Matrix predicate of ECM construction
- Subordinate predicate of ECM construction
- Manner phrase

Nominal

- Genitive case
- Adjectival modification
- Definiteness
- Indefiniteness
- Pluralization
- Lack of internal argument

2.4.1 External argument

Transitive verbs require an external argument, while simple nouns lack any arguments.

Simple nouns can take a prenominal possessive phrase (36b,d), but these are not considered arguments.

(36) a. *Henk-S_{AG/TH} handschoen
*Henk-GEN glove

b. Henk-S_{POSS} handschoen
Henk-GEN glove
'Henk's glove'

c. *Esther-S_{AG/TH} medicijnen
*Esther-GEN medicines

d. Esther-S_{POSS} medicijnen
Esther-GEN medicines
'Esther's medicines'

External arguments and determiners are incompatible in Dutch. Consequently, Dutch INF nominals with a determiner cannot have an external argument:

- (37) a. *het Henk-S_{AG} kampioen-en_{TH} overwinn-en
 *the Henk-GEN champion-PL defeat-INF
 Intended: 'Henk defeating the champions'
- b. *het Esther-S_{AG} patiënt-en_{TH} behandel-en
 the Esther-GEN patients-PL treat-INF
 Intended: 'Esther treating the patients'
- c. *het hun_{AG} huiz-en_{TH} bewak-en
 the they.GEN house-PL guard-INF
 Intended: 'them guarding the houses'
- (38) a. *het Henk-S_{AG} overwinn-en van de kampioen-en_{TH}
 the Henk-GEN defeat-INF of the champion-PL
 Intended: 'Henk's defeating of the champions.'
- b. *het Esther-S_{AG} behandel-en van de patiënt-S_{TH}
 the Esther-GEN treat-INF of the patient.PL
 Intended: 'Esther's treating of the patients'
- c. *het hun_{AG} bewak-en van het huis_{TH}
 *the they.GEN guard-INF of the house
 Intended: 'their guarding of the house'

Without a determiner, INF nominals can have an external argument. This results in somewhat marked sentences in the case of ACC-INF nominals (39), however. Such constructions seem to prefer the use of OF-INF nominals (40):

(39) a. ?Henk-S_{AG} kampioen-en_{TH} overwinn-en
 Henk-GEN champion-PL defeat-INF
 'Henk defeating the champions'

b. ?Esther-S_{AG} patiënt-en_{TH} behandel-en
 Esther-GEN patiënt-PL treat-INF
 'Esther treating the patients'

c. ?hun_{AG} huiz-en_{TH} bewak-en
 they.GEN houses-PL guard-INF
 'them guarding houses'

(40) a. Henk-S_{AG} overwinn-en van kampioen-en_{TH}
 Henk.GEN defeat-INF of champions-PL
 'Henk's defeating of champions'

b. Esther-S_{AG} behandel-en van patiënt-en_{TH}
 Esther-GEN treat-INF of patient-PL
 'Esther's treating of patients'

c. hun_{AG} bewak-en van huiz-en_{TH}
 them.GEN guard-INF of house-PL
 'their guarding of houses'

The reason for the markedness of the sentences in (39) seems to be that the internal argument is incorporated into the nominal, which results in markedness if this is not a lexicalised argument+nominal form such as *autorijden* in (41).

(41) Jan-s autorijden is levensgevaarlijk
 Jan-GEN car.driving is life.dangerous
 'Jan driving (cars) is horribly dangerous'

This is corroborated by the observation that interposing an element between the internal argument and the nominal results in infelicity:

- (42) a. *Henk-_{SAG} kampioen-en_{TH} snel overwinn-en
 Henk-_{GEN} champion-PL quick defeat-INF
 Intended: ‘Henk quickly defeating the champions’
- b. *Esther-_{SAG} patiënt-en_{TH} tijdens de Ramadan behandel-en
 Esther-_{GEN} patients-PL during the Ramadan treat-INF
 Intended: ‘Esther treating the patients during the Ramadan’
- c. *hun_{AG} huiz-en_{TH} met zorg bewak-en
 they-_{GEN} house-PL with care guard-INF
 Intended: ‘them carefully guarding houses’

CEN -ing nominals are fine taking an external argument:

- (43) a. Henk-_{SAG} frequent-e belon-ing van de werknemer-_{STH}
 Henk-_{GEN} frequent-ADJ reward-NMLZ of the employee-PL
 ‘Henk’s frequent reward of the employees’
- b. hun_{AG} frequent-e behandel-ing van de patiënts_{TH}
 them-_{GEN} frequent-ADJ treat-NMLZ of the patient-PL
 ‘their frequent treatment of the patients’
- c. Esther-_{SAG} frequent-e observ-atie van de werknemer-_{STH}
 Esther-_{GEN} frequent-ADJ observe-NMLZ of the employee-PL
 ‘Esther’s frequent observation of the employees’

Non-CEN -ing nominals cannot take arguments, of course. Like simple nouns, however, they can take a prenominal possessive phrase:

- (44) a. Henk-_{SPOSS} belon-ing-en
 henk-_{GEN} reward-NMLZ-PL
 ‘Henk’s rewards’
- b. hun_{POSS} behandel-ing-en
 them-_{GEN} treat-NMLZ-PL
 ‘their treatments’
- c. Esther-_{SPOSS} observ-atie-s
 Esther-_{GEN} observe-NMLZ-PL
 ‘Esther’s observations’

Note that the case assigned to the external arguments of all examined nominalizations, as well as that of the prenominal possessive phrases, is genitive.

2.4.2 Accusative and/or genitive case

Verbs assign accusative case to their complements, while simple nouns do not. As shown above, of the examined nominalizations, only the ACC-INF type assigns accusative case.

As shown in the previous section, the case assigned to the external argument of all examined CENs is genitive. The same is true for prenominal possessive phrases of simple nouns and non-CEN -ing nominals.

2.4.3 Adverbial and/or adjectival modification

Dutch adjectives take the form of adverb+e, except when modifying a singular indefinite neuter noun (45e). In that case they are indistinguishable from adverbs:

- (45) a. Ze sprak hem voorzichtig /*voorzichtig-e toe.
 she speak.PST him.ACC careful.ADV/careful-ADJ toward
 'She carefully spoke to him.'
- b. een /de *voorzichtig/voorzichtig-e toespraak
 ART.INDEF.SG/ART.DEF.NON-N careful.ADV /careful-ADJ speech.NON-N
 'a/the careful speech'
- c. het *voorzichtig/voorzichtig-e gesprek
 ART.DEF.SG.N careful.ADV /careful-ADJ conversation.N
 'the careful conversation'
- d. (de) *voorzichtig/voorzichtig-e gesprekk-en
 ART.DEF careful.ADV /careful-ADJ conversation-PL
 '(the) careful conversations'
- e. een voorzichtig/*voorzichtig-e gesprek
 ART.INDEF.SG. careful.ADJ/careful-ADJ conversation
 'a careful conversation'

As expected, verbs and simple nouns can only be modified adverbially and adjectively, respectively, as illustrated by (46-47).

- (46) a. Henk overwon de kampioen snel /*snell-e.
 Henk defeat.PST the champion quick.ADV/ quick-ADJ
 'Henk defeated the champion quickly.'
- b. Esther behandel-de de patiënt professioneel /*professionel-e.
 Esther treat-PST the patient professional.ADV / professional.ADJ
 'Esther treated the patient professionally.'
- c. De hond-en bewak-en het huis geduldig /*geduldig-e.
 the dog-PL guard-PL the house patient.ADV/ patient.ADJ
 'The dogs guard the house patiently.'
- (47) a. de *verdacht /verdacht-e handschoen
 ART.DEF.NON-N suspicious.ADV/suspicious-ADJ glove.NON-N
 'the suspicious glove'
- b. Esther-s *nieuw /nieuw-e medicijn-en
 Esther-GEN new.ADV/new-ADJ medicine-PL
 'Esther's new medicines'
- c. het *vermakelijk /vermakelijk-e huis
 ART.DEF.N amusing.ADV/ amusing-ADJ house.N
 'the amusing house'

ACC-INF nominals differ in their possibilities for modification depending on the presence of a determiner or external argument and the position of the modifier, as shown in (48-50).

- (48) a. (Geduldig / *geduldig-e) kampioen-en (geduldig / *geduldig-e) overwinn-en
 patient.???/ patient-ADJ champion-PL patient.???/ patient-ADJ defeat-INF
 'patiently defeating champions'
- b. (Snel / *snell-e) patiënt-en (snel / *snell-e) behandel-en
 quick.???/ quick-ADJ patient-PL quick.???/ quick-ADJ treat-INF
 'quickly treating patients'
- c. (Constant / *constant-e) huiz-en (constant / *constant-e) bewak-en
 constant.???/ constant-ADJ house-PL constant.???/ constant-ADJ guard-INF
 'constantly guarding houses'
- (49) a. Het (geduldig /geduldig-e) kampioen-en (geduldig / *geduldig-e) overwinn-en
 the patient.ADV/patient-ADJ champion-PL patient.ADV/ patient-ADJ defeat-INF
 'patiently defeating champions'
- b. Het (snel /snell-e) patiënt-en (snel / *snell-e) behandel-en
 the quick.ADV/quick-ADJ patient-PL quick.ADV/ quick-ADJ treat-INF
 'quickly treating patients'
- c. Het (constant /constant-e) huiz-en (constant / *constant-e) bewak-en
 the constant.ADV/constant-ADJ house-PL constant.ADV/ constant-ADJ guard-INF
 'constantly guarding houses'
- (50) a. Zijn (*geduldig / geduldig-e) kampioen-en (*geduldig / *geduldig-e)
 he.GEN patient.ADV/patient-ADJ champion-PL patient.ADV/ patient-ADJ
 overwinn-en
 defeat-INF
 'his patiently defeating champions'
- b. Haar (*snel /snell-e) patiënt-en (*snel / *snell-e) behandel-en
 she.GEN quick.ADV/quick-ADJ patient-PL quick.ADV/ quick-ADJ treat-INF
 'her quickly treating patients'
- c. Hun (*constant /constant-e) huiz-en (*constant / *constant-e) bewak-en
 they.GEN constant.ADV/constant-ADJ house-PL constant.ADV/constant-ADJ guard-INF
 'them constantly guarding houses'

Per Grimshaw's tests in 2.1.2, a CEN must have a definite external argument. Furthermore, the only acceptable determiner for INF nominalizations is the singular definite neuter *het*

("the"). This means that in the presence of a determiner or external argument, adjectives take the -e form. This in contrast to the examples lacking a determiner or external argument in (48), in which the nominal has a generic reading. As INF CENs cannot be plural, and they only take the neuter determiner, such nominals are singular indefinite neuter: the environment in which adjectives take the bare form, making them indistinguishable from adverbs.

Modification between the internal argument and the nominal is impossible when the ACC-INF nominal has projected an external argument (50). This is expected if the external argument is only possible if the internal argument has been incorporated into the nominal, as proposed above. Both with and without a determiner, only the bare adjective/adverb form is allowed between the internal argument and the nominal. With a determiner, the adjective would take the -e form, so in that case, the modification is adverbial. Without a determiner, the type of modification is indeterminate.

Modification preceding the internal argument is adjectival with an external argument (50), can be both adjectival and adverbial with a determiner (49), and is indeterminate without these (48).

With OF-INF nominals, in contrast to ACC-INF nominals, the internal argument is preceded by the nominal. Therefore, only a single possible position for modification is available. With a determiner or external argument, OF-INF nominals are capable of both adverbial and adjectival modification, as illustrated in (51).

- (51) a. het/zijn geduldig /geduldig-e overwinn-en van de kampioen-en
 the/he.GEN patient.ADV/patient-ADJ defeat-INF of the champion-PL
 'the/his patient defeat of the champions'
- b. het/haar snel /snell-e behandel-en van de patiënt
 the/her.GEN quick.ADV/quick-ADJ treat-INF of the patient
 'the/her quick treatment of the patient'
- c. het/hun constant /constant-e bewak-en van het huis
 the/they.GEN constant.ADV/constant-ADJ guard-INF of the house
 'the/their constant guarding of the house'

As is the case with ACC-INF nominals without a determiner, the type of modification of OF-INF nominals without a determiner is indeterminate due to adverbs and adjectives being indistinguishable in that context, as illustrated in (52).

- (52) a. geduldig /*geduldig-e overwinnen van de kampioen-en
 patient.??*/ patient-ADJ defeat-INF of the champion-PL
 'patient defeating of the champions'
- b. snel /*snell-e behandel-en van de patiënt
 quick.??*/*quick-ADJ treat-INF of the patient
 'quick treating of the patient'
- c. constant /*constant-e bewak-en van het huis
 constant.??*/*constant-ADJ guard-INF of the house
 'constant guarding of the house'

Both CEN and non-CEN -ing nominals only take adjectives, as shown in (53-54).

- (53) a. Henk-s *snel /snell-e belon-ing van zijn werknemer-s
 Henk-GEN quick.ADV/quick-ADJ reward-NMLZ of his employee-PL
 'Henk's quickly rewarding his employees'
- b. Esther-s *professioneel /professional-e behandel-ing van de patiënt
 Esther-GEN professional.ADV/professional-ADJ treat-NMLZ of the patient
 'Esther's professional treatment of the patient'
- c. Henk-s *langdurig /langdurig-e observ-atie van zijn werknemer-s
 Henk-GEN long-lasting.ADV/long-lasting-ADJ observe-NMLZ of his employee-PL
 'Henk's long-lasting observation of his employees'
- d. Esther-s *snel /snell-e arrest-atie van de dief
 Esther-GEN *quick.ADV/quick-ADJ arrest-NMLZ of the thief
 'Esther quickly arresting the thief'
- (54) a. Henk-s *snel /snell-e belon-ing-en
 Henk-GEN quick.ADV/quick-ADJ reward-NMLZ-PL
 'Henk's quick rewards'
- b. Esther-s *professioneel /professional-e behandel-ing-en
 Esther-GEN professional.ADV/professional-ADJ treat-NMLZ-PL
 'Esther's professional treatments'
- c. Henk-s *langdurig /langdurig-e observ-atie-s
 Henk-GEN long-lasting.ADV/long-lasting-ADJ observe-NMLZ-PL
 'Henk's long-lasting observations'
- d. Esther-s *snel /snell-e arrestaties
 Esther-GEN quick.ADV/quick-ADJ arrest-NMLZ-PL
 'Esther's quick arrests'

2.4.4 Agentive by-phrases

In the verbal domain, a suppressed agentive external argument can be reintroduced via an agentive by-phrase. In Dutch, these are usually expressed using the preposition *door* (“by”)

(55).⁸

- (55) a. De kampioen werd gevloer-d door Henk.
 the champion be.PASS.PST floor-PST.PRF by Henk
 ‘The champion was floored by Henk.’
- b. De patiënt werd behandel-d door Esther.
 the patient be.PASS.PST treat-PST.PRF by Esther
 ‘The patient was treated by Esther.’
- c. Het huis werd bewaak-t door de honden.
 the house be.PASS.PST guard-PST.PRF by the dogs
 ‘The house is guarded by the dogs.’

Simple nouns, lacking argument structure, do not allow by-phrases:

- (56) a. *de handschoen door Margriet
 the glove by Margriet
 Intended: ‘the medicine made by Margriet’
- b. *de medicijn-en door Esther
 the medicine-PL by Esther
 Intended: ‘the medicine made by Esther’
- c. *het huis door de hond-en
 the house by the dog-PL
 Intended: ‘the house made by the dogs’

⁸ As Broekhuis and Keizer (2012) note, in certain cases the preposition *van* (“of”) can also be interpreted agentively. This only applies to nominals, however: verbs can only take *door*.

Both types of INF nominal with a determiner pattern with verbs in allowing agentive by-phrases:

- (57) a. het overwinn-en van de kampioen door Henk
 the defeat-INF of the champion by Henk
 'the defeating of the champion by Henk'
- b. het behandel-en van patiënt-en door Esther
 the treat-INF of patient-PL by Esther
 'the treating of patients by Esther'
- c. het bewak-en van de huiz-en door de hond-en
 the guard-INF of the house-PL by the dog-PL
 'the guarding of the houses by the dogs'
- (58) a. ?het kampioen-en overwinn-en door Henk
 ?the champion-PL defeat-INF by Henk
 'Henk defeating the champion'
- b. ?het patiënt-en behandel-en door Esther
 ?the patient-PL treat-INF by Esther
 'Esther treating patients'
- c. ?het huiz-en bewak-en door de hond-en
 ?the house-PL guard-INF by the dog-PL
 'the dogs guarding houses'

This results in somewhat marked sentences for the ACC-INF type (58). Recall that ACC-INF nominals with an external argument are also marked, possibly because of incorporation of the internal argument and the nominal. Since the *door*-phrase expresses a suppressed external argument, it is plausible that these constructions are marked for the same reason.

This is, however, not supported by examples such as (59), showing the lexicalised *autorijden* (“car-driving”) is fine with an external argument but severely marked with a *door*-phrase.

This issue is left for further research.

- (59) a. Jan-s autorijden
 Jan-GEN car.driving
 ‘Jan’s driving (cars)’
- b. ??het autorijden door Jan
 the car.driving by Jan
 Intended: ‘Jan’s driving (cars)’

INF nominals with a *by*-phrase but without a determiner are infelicitous. (60) shows this for OF-INF nominals, and (61) for ACC-INF nominals.

- (60) a. *overwinn-en van de kampioen-en door Henk
 defeat-INF of the champion-PL by Henk
 Intended: ‘Henk’s defeating of the champions’
- b. *behandel-en van patiënt-en door Esther
 treat-INF of patient-PL by Esther
 Intended: ‘Esther’s treating of patients’
- c. *bewak-en van de huiz-en door de honden
 guard-INF of the house-PL by the dogs
 Intended: ‘the dogs’ guarding of the houses’
- (61) a. *kampioen-en overwinn-en door Henk
 champion-PL defeat-INF by Henk
 Intended: ‘Henk defeating champions’
- b. *patiënt-en behandel-en door Esther
 patient-PL treat-INF by Esther
 Intended: ‘Esther treating patients’
- c. *huiz-en bewak-en door de hond-en
 hous-PL guard-INF by the dog-PL
 Intended: ‘the dogs guarding houses’

CEN -ing nominals are capable of taking an agentive by-phrase (62), while non-CEN -ing nominals are not (63).

- (62) a. frequent-e belon-ing van de werknemer door zijn baas
 frequent-ADJ reward.NMLZ of the employee by he.GEN boss
 'frequent rewarding of the employee by his boss'
- b. frequent-e behandel-ing van de ziekte door de dokter
 frequent-ADJ treat.NMLZ of the disease by the doctor
 'frequent treatment of the disease by the doctor'
- c. frequent-e observ-atie van de werknemer-s door Henk
 frequent-ADJ observe-NMLZ of the employee-PL by Henk
 'frequent observation of the employees by Henk'
- d. frequent-e arrest-atie van de dief door Esther
 frequent-ADJ arrest-NMLZ of the thief by Esther
 'frequent arresting of the thief by Esther'
- (63) a. *belon-ing-en door de baas
 reward-NMLZ-PL by the boss
 Intended: 'the boss'_{AG} rewards'
- b. *behandel-ing-en door de dokter
 treat-NMLZ-PL by the doctor
 Intended: 'the doctor'_{SAG} treatments'
- c. *observ-atie-s door Henk
 observe-NMLZ-PL by Henk
 Intended: 'Henks'_{AG} observations'
- d. *arrest-atie-s door Esther
 arrest-NMLZ-PL by Esther
 Intended: 'Esther'_{SAG} arrests'

2.4.5 Exceptional case marking

Exceptional case marking (ECM) refers to the possibility for certain verbs to assign case to the subject of an embedded clause. In Dutch, as in English, this is accusative case.

Some examples of Dutch ECM constructions are shown in (59).

- (64) a. Het publiek zag [hem de kampioen overwinn-en].
 the audience see.PST [he.ACC the champion defeat-INF]
 'The audience saw him defeat the champion.'
- b. De inspecteur hoor-de [hem de patiënt behandel-en].
 the inspector hear-PST [he.ACC the patient treat-INF]
 'The inspector heard him treat the patient.'
- c. De baas liet [hen het huis bewak-en].
 the boss let.PST [they.ACC the house guard-INF]
 'The boss let them guard the house.'

Simple nouns are unable to assign case. It follows they are unable to function as the matrix predicate of an ECM construction. In fact, from the nominals under discussion, only ACC-INF nominals assign case. Therefore, we would expect only these to be able to engage in ECM.

This is correct:

- (65) a. **(het) zien van hem de kampioen overwinn-en*
 the see.NMLZ of he.ACC the champion defeat-INF
 Intended: 'seeing him defeat the champion'
- b. **(het) hoor-en van hem de patiënt-en behandel-en*
 the hear-INF of he.ACC the patient-PL treat-INF
 Intended: 'hearing her treat the patients'
- c. **(het) liet-en van hen het huis bewak-en.*
 the let-INF of they.ACC the house guard-INF
 Intended: 'letting them guard the house'

(65) shows OF-INF nominals, with and without determiner, cannot take an embedded predicate with an external argument as a complement.

(66) a. *zien-ing
see-NMLZ

b. *hor-ing
hear-NMLZ

c. *lat-ing
let-NMLZ

(66) shows ECM verbs are unable to nominalize using the -ing morpheme.

(67) a. (het) hem de kampioen zien overwinn-en
the he.ACC the champion see-INF defeat-INF
'seeing him defeat the champion'

b. (het) hem de patiënt-en hor-en behandel-en
the he.ACC the patient-PL hear-INF treat-INF
'hearing him treat the patients'

c. (het) hen het huis lat-en bewak-en
the they.ACC the house let-INF guard-INF
'letting them guard the house'

(67) shows that ACC-INF nominals, regardless of the presence of a determiner, are capable of assigning accusative case to the subject of the embedded predicate.

(68) shows only the subjects of embedded ACC-INF nominals (68a) can be exceptionally case marked by an ECM verb in the matrix clause:

- (68) a. De inspecteur zag [hem de patiënt-en behandel-en].
 the inspector see.PST [he.ACC the patient-PL treat-INF]
 'The inspector saw him treating the patients.'
- b. *De inspecteur zag [hem behandel-en van de patiënt-en].
 the inspector see.PST [he.ACC treat-INF of the patient-PL]
 'The inspector saw him treating the patients.'
- c. *De inspecteur zag [hem behandel-ing van de patiënt-en].
 the inspector see.PST [he.ACC treat-NMLZ of the patient-PL]
 'The inspector saw him treating the patients.'
- d. *Het publiek zag [hem observ-atie van zijn werknemer-s].
 the public see.PST [him.ACC observe-NMLZ of his employee-PL]
 Intended: 'The public saw his observation of his employees.'

However, these are not actually ACC-INF nominals, but gerunds. Gerunds are homophonous with ACC-INF nominals, but their subjects are accusative. This is shown in the English example in (69): (69a) is an ACC-INF nominal, with a genitive subject, and (69b) is a gerund, with an accusative subject.

- (69) a. his treating patients
 b. him treating patients

In Dutch, however, gerunds with a subject are usually only licensed as the subordinate predicate in ECM constructions:

- (70) a. *hem patiënt-en behandel-en
 he.ACC patient-PL treat-INF
 Intended: 'him treating patients'
- b. Ze zag hem patiënt-en behandel-en.
 she.NOM see.PST he.ACC patient-PL treat-INF
 'She saw him treat patients.'

Siegel (1997) argued gerunds are not nominal but fully verbal. Firstly, their subjects are accusative, not genitive. Secondly, they are unable to take adjectives but do take adverbs, in contrast to normal ACC-ING nominals with an external argument (71).

- (71) a. Zijn *snel/ snell-e patiënt-en behandel-en
 he.GEN quick/quick-ADJ patient-PL treat-INF
 'Him quickly treating patients'
- b. Marie zag hem snel/*snell-e patiënt-en behandel-en
 Marie see.PST he.ACC quick/quick-ADJ patient-PL treat-INF
 'Marie saw him quickly treating patients'

2.4.6 Manner phrases

Manner phrases specify the manner in which the event they modify unfolds. Manner phrases can modify verbs (72) but not simple nouns (73).

- (72) a. Henk overwon de kampioen met een bekend-e techniek.
 Henk defeat.PST the champion with a known-ADJ technique
 'Henk defeated the champion with a known technique.'
- b. Esther behandel-de de patiënt door hem te intuber-en.
 Esther treat.PST the patient by he.ACC to intubate.INF
 'Esther treated the patient by intubating him.'
- c. De hond-en bewak-en het huis met hun leven.
 the dog-PL guard-PL the house with they.GEN life
 'The dogs guard the house with their lives.'
- (73) a. *Henk-s handschoen met een bekend-e techniek
 *Henk-GEN glove with a known-ADJ technique
- b. *Esther-s medicijn-en door nieuw onderzoek
 *Esther-GEN medicine-PL by new research
- c. *het huis door middel van de voorhamer
 *the house by mean of a sledgehammer

As it turns out, all CENs under investigation pattern with verbs in allowing such phrases:

- (74) a. (Het) kampioen-en overwinn-en met een bekend-e techniek
 the champion-PL defeat-INF with a known-ADJ technique
 'Defeating champions with a known technique'
- b. (Het) patiënt-en behandel-en door ze te intuber-en
 the patient-PL treat-INF by they.acc to intubate-INF
 'Treating patients by intubating them'
- c. (Het) huiz-en bewak-en met hond-en
 the house-PL guard-INF with dog-PL
 'Guarding houses with dogs'
- (75) a. (Het) overwinn-en van kampioen-en met een bekende techniek
 the defeat-INF of champion-PL with a known technique
 'Defeating champions with a known technique'
- b. (Het) behandel-en van patiënt-en door ze to intuber-en
 the treat-INF of patient-PL by they.ACC to intubate-INF
 'Treating patients by intubating them'
- c. (Het) bewak-en van huiz-en met hond-en
 the guard-INF of house-PL with dog-PL
 'Guarding houses with dogs'
- (76) a. Henk-s frequent-e belon-ing van de werknemer met een bonus
 Henk-GEN frequent-ADJ reward-NMLZ-PL of the employee with a bonus
 'Henk's frequent reward of the employee with a bonus'
- b. Esther-s frequent-e behandel-ing van ziekte-s door middel van intub-atie
 Esther-GEN frequent-ADJ treat-NMLZ-PL of disease.PL by mean of intubate.NMLZ
 'Esther's frequent treatment of diseases by means of intubation'
- c. Henk-s frequent-e observ-atie van de werknemer met een verrekijker
 Henk-GEN frequent-ADJ observe-NMLZ-PL of the employee with a binocular
 'Henk's frequent observation of the employee with binoculars'
- d. Esther-s frequent-e arrest-atie van de dief door middel van haar
 Esther-GEN frequent-ADJ arrest-NMLZ-PL of the thief by mean of she.GEN
 sluwheid
 cunning
 'Esther's frequent arrest of the thief by means of her cunning'

Non-CEN -ing nominals are incapable of having a manner phrase:

- (77) a. ??Henk-s belon-ing-en met bonuss-en
 Henk-GEN reward-NMLZ-PL with bonus-PL
 Intended: 'Henk's rewards, consisting of bonuses'
- b. ??Esther-s behandel-ing-en door middel van intub-atie
 Esther-GEN treat-NMLZ-PL by mean of intubate.NMLZ
 Intended: 'Esther's treatments, which use intubation'
- c. ??Henk-s observ-atie-s met een verrekijker
 Henk-GEN observe-NMLZ-PL with a binoculars
 Intended: 'Henk's observations, made using binoculars'
- d. ??Esther-s arrest-atie-s door middel van haar sluwheid
 Esther-GEN arrest-NMLZ-PL by mean of her cunning
 Intended: 'Esther's arrests, made by means of her cunning'

2.4.7 Definiteness

Simple nouns can be definite or indefinite. Verbs, however, do not have this property. As discussed in 2.4.3, INF nominals only take the singular definite neuter determiner *het* ("the"). CEN -ing nominals take only the gendered definite determiner *de* ("the"). Lacking a determiner, both these types of nominals have a generic interpretation. Non-CEN -ing nominals pattern with simple nouns in allowing both definite and indefinite determiners:⁹

- (78) De /een belon-ing is altijd welkom.
 the/a reward-NMLZ is always welcome
 'The/a reward is always welcome.'

CEN -ing nominals pattern with INF nominals in allowing only definite determiners.

⁹ Note that the nominal in (78) is not plural to ensure it is a non-CEN, as plural nominals do not allow the indefinite determiner. However, the lack of arguments will be taken as sufficient evidence of non-CEN status here.

2.4.8 Pluralization

In 2.3.2 above it was shown that only the non-CENs and some -ing CENs are capable of pluralization in Dutch.

2.4.9 Lack of internal argument

Reuland (2011) notes the possibility for CENs to lack an explicit internal argument if an implicit internal argument can be inferred from the discourse.

- (79) a. De kampioen-en zijn arrogant. (Het) overwinn-en zal daar een eind aan mak-en.
 the champion-PL is.PL arrogant. the defeat-INF will DEM an end on make-INF
 'The champions are arrogant. Defeating (them) will put an end to that.'
- b. De patiënt was ernstig ziek. (Het) behandel-en was van belang.
 the patient is.PST severely sick. the treat-INF is.PST of importance
 'The patient was severely ill. Treating (him) was important.'
- c. De huiz-en zijn gevuld met dur-e spull-en. (Het) constant bewak-en
 the hous-PL is.PL fill.PRF with expensive-ADJ thing-PL. the constant guard-INF
 verklein-t de kans of diefstal.
 diminish.PRF the chance of theft
 'The houses are filled with expensive stuff. Constantly guarding (them) makes theft less likely.'

(79) shows this is possible with INF nominals, with and without a determiner. Note, however, that, in the case of an INF nominal without an explicit internal argument, it is *prima facie* indeterminate whether the INF nominal is of the ACC-INF or OF-INF type. However, the *Inverse Case Filter* ensures these must be OF-INF nominals.

The *Case Filter* is the requirement for a nominal to receive case, first proposed by Vergnaud (1977). Conversely, the *Inverse Case Filter*, put forth by Fukui and Speas (1986), is the requirement for a case-assigner to assign its case. Violating these filters, by having a nominal without case or a case-assigner that does not assign its case, results in an infelicitous sentence. The *Inverse Case Filter* can be used to account for the fact that verbs do not allow

implicit internal arguments, as shown in (80): they must have a complement to assign their case to.¹⁰

- (80) a. De kampioen was neerslachtig. *Henk overwon.
 the champion is.PST dejected. Henk defeat.PST
 Intended: 'The champion was dejected. Henk defeated (him).'
- b. De patiënt werd goed verzorg-d. *Esther behandel-de.
 the patient is.PST well cared.PST.PRF. Esther treat.PST
 Intended: 'The patient was cared for well. Esther treated (him).'
- c. Het huis is veilig. *De hond bewaak-t.
 the house is safe. the dog guard.3SG
 Intended: 'The house is safe. The dog guards (it).'

The nominals in (79), then, cannot be of the ACC-INF type, as this would mean its accusative case, normally assigned to its complement, would remain unassigned, violating the Inverse Case Filter. Thus, they must be of the OF-INF type.

CEN -ing nominals do not assign case and, consequently, cannot violate the Inverse Case Filter. Therefore, we would expect these to be fine with an implicit internal argument. This is borne out:

- (81) a. Henk was blij. De frequent-e belon-ing gaf hem zekerheid.
 Henk is.PST happy. the frequent-ADJ reward-NMLZ give.PST he.ACC security
 'Henk was happy. (His) frequent reward gave him security.'
- b. Esther was hoopvol. De frequent-e behandel-ing hielp.
 Esther is.PST hopeful. the frequent-ADJ treat.NMLZ help.PST
 'Esther was hopeful. (Her) frequent treatment helped.'
- c. De werknemer-s zijn te vertrouw-en. Frequent-e observ-atie verzeker-t dit.
 the employee-PL is.PL to trust-INF. frequent-ADJ observe-NMLZ ensure.3SG DET
 'The employees are trustworthy. Constant observation (of them) ensures this.'
- d. Ze stopte met stel-en. Frequent-e arrest-atie werkte.
 she stop.PST with steal-INF. frequent-ADJ arrest-NMLZ work.PST
 'She stopped stealing. (Her) frequent arrests worked.'

¹⁰ The necessity for an Inverse Case Filter is disputed. See, for example, Lasnik (2008) and references therein.

Non-CEN -ing nominals do not take any arguments, explicit or implicit.

2.4.10 Summary of results

The results of the examination above are summarized in the tables in (82-83).

(82)

Type	Verbal properties						Nominal properties				
	ACC	AG ext. arg.	By	ECM mat.	ECM sub.	Manner	GEN	Def	Indef	PI	Implicit int. arg.
<i>Verb</i>	✓	✓	✓	✓	✓	✓					
<i>ACC-INF -D</i>	✓	✓		✓	¹	✓	✓				
<i>ACC-INF +D</i>	✓		✓	✓		✓		✓			
<i>OF-INF -D</i>		✓				✓	✓				✓
<i>OF-INF +D</i>			✓			✓		✓			✓
<i>-ing +CEN</i>		✓	✓			✓	✓	✓	✓	²	✓
<i>-ing -CEN</i>							✓	✓	✓	✓	
<i>Simple noun</i>							✓	✓	✓	✓	

¹Only gerunds

²A subset of -ing CENs can pluralize

(83)

Type		Adverb	Adjective
<i>Verb</i>		x	
<i>ACC-INF</i>	<i>-D, -ext. arg.</i>	<i>indet.</i>	<i>indet.</i>
	<i>+ext. arg.</i>		x
	<i>+D</i>	x	x
<i>OF-INF</i>	<i>-D, -ext. arg.</i>	<i>indet.</i>	<i>indet.</i>
	<i>+ext. arg.</i>	x	x
	<i>+D</i>	x	x
<i>-ing</i>			x
<i>Simple noun</i>			x

2.5 Conclusion

Making use of Grimshaw (1990)'s classification of nominals into CEN and non-CENs, a selected subset of Dutch nominalizations has been tested on various relevant properties, forming a dataset against which accounts of nominalization can be evaluated and, by extension, the architecture of grammar these accounts presume.

Chapter 3 gives an overview of three accounts of nominalization rooted in different types of architecture of grammar.

3. Single versus Multiple Generative Engine Accounts of Nominalization

A single engine framework relies entirely on syntax for composition, categorization, and manipulation, with the lexicon stripped of everything but sound-meaning pairings. Multiple engine frameworks, in contrast, make use of a pre-syntactic cycle, whether this is named an active lexicon or a Root cycle, which has transformative capabilities but operates non-compositionally and under different rules than syntax.

This chapter presents an overview of different accounts of nominalization. Rooted in different types of framework, they interact differently with the architecture of grammar. Harley (2008) uses only syntax to account for nominalization. Reuland (2011) assumes an active lexicon. Alexiadou and Grimshaw (2008) present an account which assumes multiple generative cycles. Before giving an overview of these account, however, it is useful to present the single engine framework known as Distributed Morphology.

3.1 Distributed Morphology

Distributed Morphology (DM) is the most widely used and most developed single engine framework, first put forth by Halle and Marantz (1993, 1994), and further developed by, among others, Bonet (1995), Marantz (1997, 2000), Harley and Noyer (1998), Alexiadou (2001), Bobaljik (2012), and Moskal (2015a,b). The central point of DM is the lack of pre-syntactic operations, making syntax the only module that generates structure. This means that not only the composition of phrases and sentences, but also composition below word-level must happen in syntax. This has the effect that, as Harley (2008) puts it, “wherever you see a morpheme, there must be a corresponding terminal node in the structural analysis of

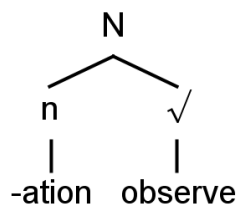
the sentence” (Harley 2008: p. 322). All non-phonological modification and transformation, including nominalization, must therefore occur in syntax.

Instead of a lexicon, DM posits separate lists for syntactic atoms, their mappings to sound, and their composite meaning, which provide input in different stages of a derivation.

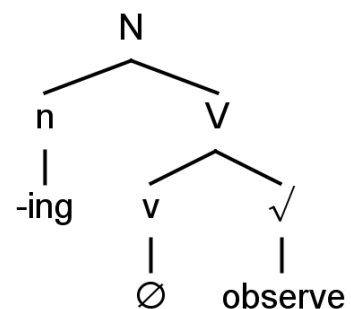
Furthermore, DM posits that syntactic atoms are acategorial, and only derive their categories by being merged with functional morphemes in syntax.¹¹

As a categorizing phenomenon, under DM, the simplest way to analyze nominalization is simply the merging of a root (1) or larger piece of structure (2) with a nominalizing morpheme.

(1)



(2)



This thesis uses DM to test the Dutch data, as it is the most consequential single generative engine system. It does not allow any pre-syntactic manipulation, and it does not allow the storage of any structural information in the lexicon, including categorial and argument

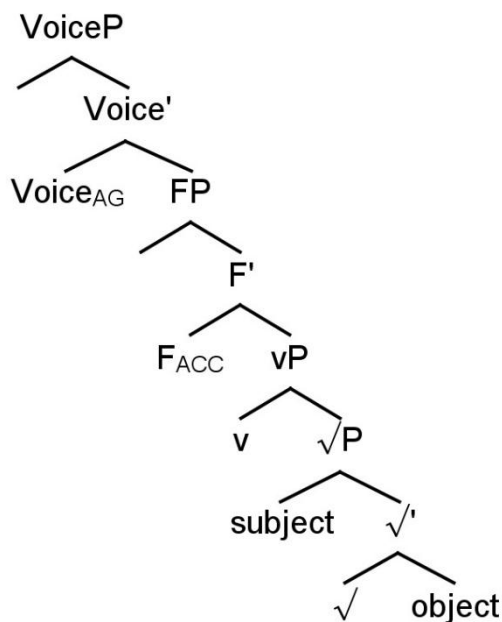
¹¹ These functional morphemes are represented by the lowercase abbreviation of the corresponding category (e.g. n is a functional morpheme that categorizes it's complement as a noun).

structure information. Frameworks such as Alexiadou and Grimshaw (2008) or Borer (2013), though having a much-reduced role for the lexicon, still require multiple generative engines.

3.2 Single Engine Account

Working within the framework of DM, Harley (2008) offers a structural account of nominalization, building on an earlier account in Marantz (1997). She proposes to expand the structure underneath the nominalizing element in (1) and (2) in order to accommodate the empirical data. Harley's proposed structure is shown in (3):

(3)



(Based on Harley 2008)

In this structure, \sqrt stands for the root element, *observe* in (1-2). v is responsible for the eventive interpretation of the root. FP stands for Functional Phrase, and contains a functional item which licenses accusative case for the object of v , which moves to the specifier of FP. Finally, VoiceP assigns an agentive theta role to the subject of v , which moves to the specifier of VoiceP.

Importantly, Harley posits that the proposed structure is the maximum possible structure underneath a nominalizing item, and that different types of nominalization correspond to different points in the structure where the nominalizer is merged.

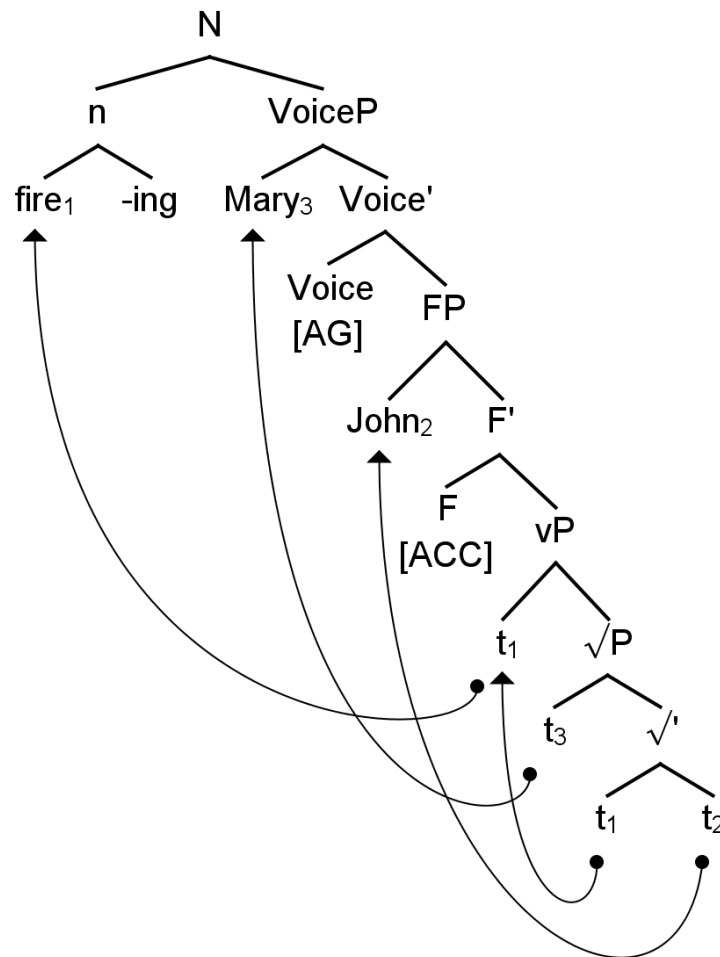
To illustrate this, Harley uses English -ing nominals. These are challenging for DM-based accounts because, as in Dutch, they come in two distinct types that are morphologically identical: ACC-ing nominals (4a), and OF-ing nominals (4b).

- (4) a. Mary firing John
b. Mary's firing of John

The premise of DM is that structure determines properties, as there is no pre-syntactic cycle that might cause different features to be attached to the same syntactic atoms. The two types of nominalizations in (4), however, differ in their syntactic properties while sharing a seemingly identical suffix and, therefore, structure.

Harley's structure accounts for this in the following manner:

(5)

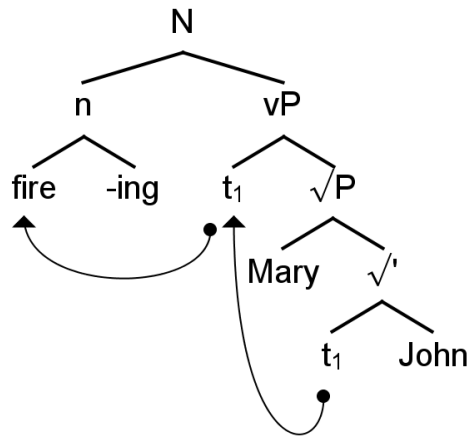


(Based on Harley 2008)

(5) shows the derivation of the ACC-ing nominalization *Mary firing John*. This phrase has both an agentive subject, *Mary*, and an accusative complement *John*, requiring VoiceP and FP, respectively. Therefore, the whole structure must be instantiated, as VoiceP and FP are the uppermost nodes. The *V fire* is moved to vP to get an eventive interpretation and, if applicable, verbal morphology. It is then moved further up to be categorized as a nominal and receive its nominal morphology. The complement *John* is moved to the specifier of FP to receive accusative case, while the subject *Mary* is moved to the specifier of VoiceP to get an

agentive theta role. ACC-ing nominalizations, then, result from the nominalizer merging with VoiceP.

(6)



(Based on Harley 2008)

(6) shows the derivation of an OF-ing nominalization: *Mary's firing of John*. This phrase has a complement without accusative case, so it cannot contain FP or any higher projection. However, it is still interpreted eventively, so it must contain vP. The only node which complies with these requirements is vP. Therefore, the nominalizing node merges with vP in OF-ing nominalizations. The *v fire* behaves the same as in the ACC-ing case. The complement and subject, however, stay in their base positions. The lack of accusative case of the complement *John* requires it to be contained within a PP headed by *of*.

Note that this means that the external argument of OF-ing nominals is not an agent in Harley's account, as it never gets an agent theta role. Harley argues that only the external argument of ACC-ing nominals is an actual agent, while that of OF-ing nominals has an underspecified possessor relation to the nominal which can, but need not, be interpreted agentively. This is an important feature of Harley's account and is tested in the next chapter.

Harley argues that the features of the verbalizer determine the extent of the structure and determine which type of nominalizing morphology is possible. These features are [dynamic], [change of state], and [cause].

Different types of *v*, for example, *-ify*, *-ing*, *-ize*, or *-ate*, have different features, and, therefore, instantiate different structures. To account for the fact that some morphology, such as *-ing* is capable of instantiating different structures, Harley uses the possibility in DM for features to be underspecified, and therefore capable of being interpreted as either [+] or [-], resulting in multiple possible structures. For example, *-ing*, would be [+dynamic], [+change of state], with an underspecified [cause]. This allows the VoiceP to be either instantiated, in the [+cause] interpretation, or to not be instantiated, in the [-cause] interpretation.

3.3 Multiple Engine Account

Focusing on Dutch nominalization, Reuland (2011) assumes the inclusion of category labels in the lexicon, following Vinokurova (2005)'s argument that verbs and nouns are already distinct types of entities in the lexicon. Consequently, there is a distinct direction of the derivation for nominalizations: from verb to nominal, and actual transformation of one category to another. Substantiating this idea, Vinokurova argues for a fundamental distinction: "verbs are relational, nouns are not relational, and adjectives are properties" (Reuland 2011, p. 1287). To maintain this, however, an active lexicon is required to modify these base features of concepts, as not all verbs surface as relational concepts, and, crucially for our purposes, some nominalized verbs, such as *destruction* in *the barbarians' destruction of Rome* are in fact relational nouns. Thus, this account is rooted in a multiple generative engine architecture of grammar: both syntax and the lexicon are capable of generation.

Vinokurova defines *being relational* as bearing intrinsic causal content. For example, a concept such as *hit* requires there to be something that performs it, and something upon which it is performed. A noun such as *mother* has a relational meaning conceptually, but it does not have the type of causal relation where a performer and a performee are required to be able to interpret it and is, therefore, not relational in the computational, syntactic, sense. For this reason, nouns do not have a theta grid, and, consequently, cannot be operated on by the lexicon. Furthermore, the lack of theta grid also results, under the Theta System (Reinhart 2000/2016), which Reuland's account makes use of, in a lack of instructions to tell it where to merge their arguments. This lack of merging instructions, Reuland argues, deviating from Vinokurova, is the central difference between verbs and nouns, and results in a lack of obligatorily syntactically realized arguments, leading him to posit the modification of Vinokurova's thesis in (7).

(7) Vinokurova's thesis modified:

- a. Verbs represent relational concepts for which merging instructions are defined
- b. Nouns represent concepts for which merging instructions are not defined
(ex. 35, Reuland 2011)

This modification avoids the problem that deverbal nouns do in fact constrain their arguments according to their relational thematic content, as shown in the Dutch examples in (8).

- (8) a. Jan-_{STH} vernietig-ing
 Jan-_{GEN} destroy-NMLZ
 'Jan's destruction'
- b. Jan-_{SAG} vernietig-ing van de stad_{TH}
 Jans-_{GEN} destroy-NMLZ of the city
 'Jan's destruction of the city'
- c. Jan-_{STH} vernietig-ing door Gerard_{AG}
 Jans-_{GEN} destroy-NMLZ by Gerard
 'Jan's destruction by Gerard'
- d. *Jan-_{SAG/TH} vernietig-ing van de stad_{TH} door Gerard_{AG}
 *Jans-_{GEN} destroy-NMLZ of the city by Gerard
- e. *Jan_{i,SAG} vernietig-ing van de stad_{TH} door Jan_{i,AG}/hem-self_{i,AG}
 *Jan-_{GEN} destroy-NMLZ of the city by Jan_i/ him.ACC-REFL

In none of these sentences can *Jans* be a goal or experiencer, for example, nor can any role be duplicated in the predicate. Furthermore, the lack of merging instructions may explain why the theme role in (8) is capable of surfacing in either the subject or the object position.

This is not possible for the verbal correlate *vernietigen*, as shown in the Dutch examples in (9):

- (9) a. Jan_{AG} vernietig-de de stad_{TH}
 Jan destroy-PST the city
 'Jan destroyed the city'
- b. *Jan_{TH} vernietig-de
 *Jan destroy-PST

Neither can a goal or topic or some such role be added to the predicate if it is not specified in its conceptual structure, as the Dutch examples in (10) show.

- (10) a. Gerard-_{SAG} rit naar het park_{GOAL}
 Gerard-_{GEN} drive.NMLZ to the park
 'Gerard's drive to the park'
- b. Tom-_{SAG} ge-zeur over het geld_{TOP}
 Tom.GEN NMLZ-whine about the money
 'Tom's whining about the money'
- c. De moord op Gerard_{TH} door Tom_{AG} (*over het geld_{TOP}) (*naar het
 The murder.NMLZ of Gerard by Tom about the money to the
 park_{GOAL})
 park
 'The murder of Gerard by Tom (about the money) (to the park)'

Using the notions of relationality and theta-structure, Reuland argues for five different types of nominals:

- (11) 1. Basic nouns
- No internal relational structure --> no merging instructions --> nominal
2. Simple event nominals
- An affix selects a relational concept without articulated theta-structure --> no merging instructions --> nominal
3. Complex event nominals
- An affix selects a relational concept with articulated theta-structure --> blocks assignment of merging instructions --> nominal
4. Nominal infinitives
- An affix selects a relational concept with articulated theta-structure and (thematic) ACC case, and blocks assignment of merging instructions --> nominal
5. Gerunds
- A "nominalizing affix" that applies in the syntax leaving a full verb with merging instructions in its domain --> it is inflectional rather than derivational (gerundival -ing, etc.) --> not nominal
 - Instantiates a class of elements licensing verbal projections to appear as arguments, functionally similar to complementizers.

(p. 1295, Reuland (2011))

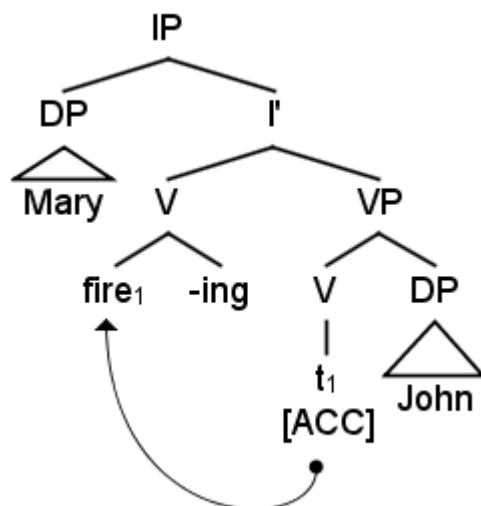
Note that the fifth category in (11), gerunds, is constructed in syntax, while the other nominals are generated in the lexicon, making this a weakly lexicalist account.

Though Reuland does not go into the technical details of deriving the different types of nominals, let us see how this account may be able to derive the nominals in (4), repeated in (12).

- (12) a. Mary firing John
 b. Mary's firing of John

It is infelicitous to replace *Mary* in (12a) with a determiner, while replacing *Mary's* in (12b) with a determiner is perfectly fine. (12a), then, does not seem nominal in this sense and can be analyzed as the fifth type in Reuland's classification: a gerund. This would also account for the accusative case on *Mary* in (12a), rather than the genitive case, associated with nominals, in (12b). This means that *fire* in (12a) is simply projected as a verb and at some point in its derivation is inflected with *-ing*. A possible derivation is shown in (13).

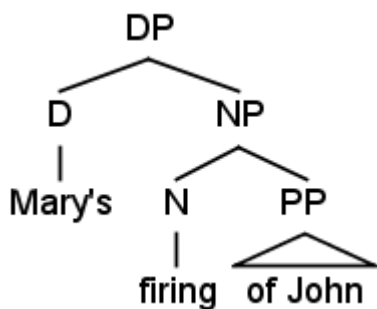
(13)



(12b) has arguments, meaning it must have an articulated theta-structure. However, it does not assign accusative case. Consequently, it must be an example of the third type in Reuland's classification: a CEN. This means *-ing* is applied to *fire* in the lexicon, resulting in an

inability to assign merging instructions to the predicate, and blocking its ability to assign case. Thus, *firing* is delivered to the syntax without case properties or merging instructions, but with an articulated theta-structure. Importantly, the lack of merging instructions means that the arguments required to satisfy the theta-structure can be left implicit, and, if the theme argument is explicit, it can be projected as either an internal or external argument: *the firing of John* or *John's firing*. A possible derivation is shown in (14).

(14)



- (15) a. The frequent observation *(of the stars)
 b. The observation (*of the stars) is one of a kind

The CEN in (15a) is derived identically to (12b), except using the affix *-ation*. The non-CEN in (15b) must fall under the second type in Reuland's classification: a simple event nominal. It cannot be a basic noun, as it has a relational meaning: something is observed, and something observes. It cannot be a CEN, as it does not allow an explicit argument. However, this means that the root *observe* in (15b) has no articulated theta structure, per Reuland's definition of a simple event nominal in (11), while the same root in (15a) does.

Reuland does not discuss this, but this can be resolved by positing that the theta-structure of a relational concept is constructed by a lexical operation rather than stored as a property of the root. We can then define the affix *-ation* as able to apply either before or after this operation. If before, the construction of the theta-structure is blocked, resulting in a simple

event nominal. If the affix is applied after the theta-structure is constructed it results in a CEN. In either case, the syntax is equivalent to that in (14).

Note that the presence of category labels and generative operations in the lexicon means Reuland's account is incompatible with DM, which assumes an inactive lexicon containing only sound-meaning pairings. Furthermore, because generation of structure occurs in both syntax and the lexicon, it is incompatible with the single engine architecture in general.

3.4 Multiple-cycle Account

Reuland (2011)'s multiple engine account makes use of an active lexicon and is, therefore, a lexicalist account. Harley (2008)'s single engine account only makes use of syntax to build meaning and is, therefore, a structuralist account. However, lexicalist and structuralist accounts do not necessarily line up with a multiple and single generative engine framework, respectively. A good example of this is the account presented in Alexiadou and Grimshaw (2008), which is syntactocentric, but requires multiple generative cycles.

The main observations Alexiadou and Grimshaw (2008) attempt to account for are that “[o]nly nouns which are related to corresponding verbs have argument structure,” null affixes, yielding nominals that are phonologically equivalent to the related verb, never result in argument structure, and some affixes can result in both CENs and non-CENs (Alexiadou and Grimshaw 2008: p. 4).

They resolve the first point by positing that argument structure only occurs as an inherent property of some roots. In other words, Alexiadou and Grimshaw assume some roots are inherently verbal, or, in other words, the lexicon contains verbs. Thus, they assume the existence of categories and argument structure in the lexicon, contra DM. Argument

structure, then, is a property of the root that is either preserved or deleted at some point, rather than added structurally as in DM-based accounts. Note that the operation deleting argument structure must occur pre-syntactically, which would also be impossible in DM. The presence of argument structure on the root requires it to be projected in the syntax, and, much as in Harley (2008), different types of nominalizations are the result of differing height of affixation of the nominalizing element. The difference is, however, that properties of the root determine the projection of argument structure, unlike in DM-based accounts, in which roots are incapable of bearing structural information.

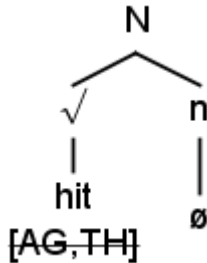
To account for the fact that null affixes never result in a nominalization with argument structure, Alexiadou and Grimshaw posit two different cycles of vocabulary insertion: a Root and an Outer cycle. Affixation in the Outer cycle preserves argument structure, while affixation in the Root cycle does not. They argue that null affixes are only capable of being inserted in the Root cycle. Consequently, they will always do away with the argument structure of the root. Alexiadou and Grimshaw note, however, they are unable to explain why null affixes should only be capable of insertion in the Root cycle. This is more of a complication than it might *prima facie* seem, as it means syntax is somehow affected by the phonological content of morphemes.

The same affixes being able to result in both CENs and non-CENs is accounted for by positing that those affixes are capable of being inserted in both cycles. If they are inserted in the Root cycle, they result in a non-CEN, while if they are inserted in the argument structure-preserving Outer cycle they result in a CEN.

This process is illustrated in the following examples:

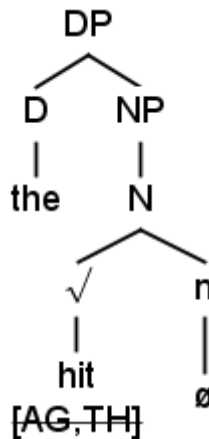
- (16) a. He hit the ball.
b. The hit (*of the ball)

- (17) a. LEXICON: hit [AG,TH]
b. ROOT CYCLE:



(based on Alexiadou and Grimshaw (2008))

- c. OUTER CYCLE:



(based on Alexiadou and Grimshaw (2008))

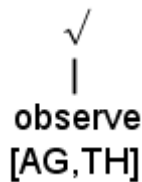
(16) shows that combining *hit* with a null nominalizer results in a non-CEN. (17) shows how this is derived under this account: the lexical entry for *hit* specifies its argument structure, requiring an agent and a theme. In the Root cycle the null nominalizer is merged with the root. As this happens in the Root cycle, this operation does not preserve the argument structure of the root. In the outer cycle, the lack of argument structure results in a non-CEN construction.¹²

¹² The question might be raised how this works with experiencer verbs such as “love.” The answer seems to be that this account works identically: with the exception of idiomatic expressions, such as *love of the game*, I have not found any of these verbs to take arguments after undergoing conversion. Some examples are given below.

- (18) a. The scientists observe the stars.
- b. The frequent observation *(of the stars)
- c. The observation *(of the stars) is one of a kind

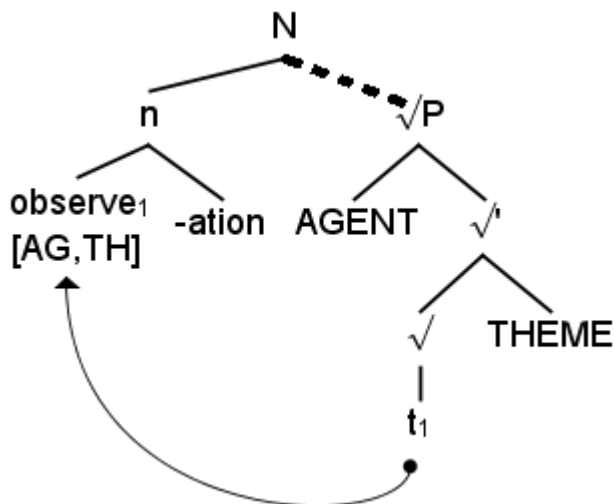
(19) and (20) shows how the same root *observe* can result in both a CEN (18b), and a non-CEN (18c) respectively.

- (19) a. LEXICON: observe [AG,TH]
- b. ROOT CYCLE:



(based on Alexiadou and Grimshaw (2008))

- c. OUTER CYCLE:



(based on Alexiadou and Grimshaw (2008))

-
- (i) a. I love the girl.
 - b. The love *(of the girl_{TH})

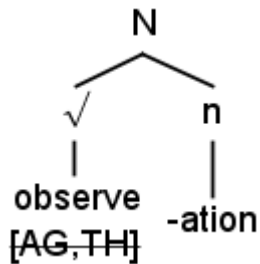
 - (ii) a. I taste the apple.
 - b. The taste *(of the apple_{TH})

Note that the (b) examples are fine if they are interpreted as possessive phrases rather than arguments. This does not seem to be the case for agent/theme verbs that have undergone conversion. This is plausibly related to the different derivation often posited for experiencer verb constructions, first put forth by Belletti and Rizzi (1988). However, further investigation falls outside the scope of this thesis and is left for further research.

The lexical entry for *observe* specifies its argument structure, requiring an agent and a theme. Nothing occurs in the Root cycle, leaving the argument structure intact. In the outer cycle, this argument structure is projected, creating a CEN.

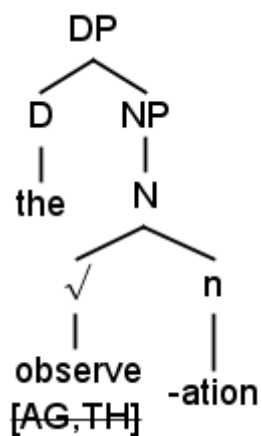
(20) a. LEXICON: *observe* [AG,TH]

b. ROOT CYCLE:



(based on Alexiadou and Grimshaw (2008))

c. OUTER CYCLE:



(based on Alexiadou and Grimshaw (2008))

Using the same lexical entry, but affixing the nominalizing *-ation* in the Root cycle, the argument structure is deleted. The lack of argument structure on the root means no arguments are projected in the outer cycle, resulting in a non-CEN.

The ambiguity between OF-ing and ACC-ing nominals is resolved just as in Harley (2008): as both types project arguments, no recourse to an argument structure deleting Root cycle is required and the type of CEN is determined by the height of affixation of the nominalizing element *-ing*.

Though approaching the issue from a structuralist angle, the recourse of this account to multiple, distinct, cycles of structure-generation with different rules, one retaining argument structure while the other does not, makes it incompatible with a single generative engine conception of the architecture of grammar. Furthermore, as the lexicon is the only pre-syntactic module where the Root cycle might take place, this account could justifiably be classified as lexicalist.

3.5 Conclusion

This chapter has presented some accounts of nominalization rooted in different types of grammatical architecture. Chapter 4 discusses if the single generative engine account of Harley (2008) and, by extension, the single generative engine architecture of grammar, can account for the empirical domain of Dutch nominalization.

4. Analysis of the Dutch Data

This chapter examines the plausibility of a single generative engine architecture of grammar in light of the Dutch nominalization data. First, Harley (2008), rooted in the DM single generative engine framework, is used to attempt to account for the Dutch data.

Subsequently, the issues encountered in doing so are explored and expanded to a critique of the single generative engine framework itself and the assumptions underlying it. Finally, conclusions are drawn as to the plausibility of a single generative engine architecture of grammar.

The Dutch data is repeated in (1-2).

(1)

Type	Verbal properties						Nominal properties				
	ACC	AG ext. arg.	By	ECM mat.	ECM sub.	Manner	GEN	Def	Indef	PI	Implicit int. arg.
<i>Verb</i>	✓	✓	✓	✓	✓	✓					
<i>ACC-INF -D</i>	✓	✓		✓	¹	✓	✓				
<i>ACC-INF +D</i>	✓		✓	✓		✓		✓			
<i>OF-INF -D</i>		✓				✓	✓				✓
<i>OF-INF +D</i>			✓			✓		✓			✓
<i>-ing +CEN</i>		✓	✓			✓	✓	✓	✓	²	✓
<i>-ing -CEN</i>							✓	✓	✓	✓	
<i>Simple noun</i>							✓	✓	✓	✓	

¹Only gerunds

²A subset of -ing CENs can pluralize

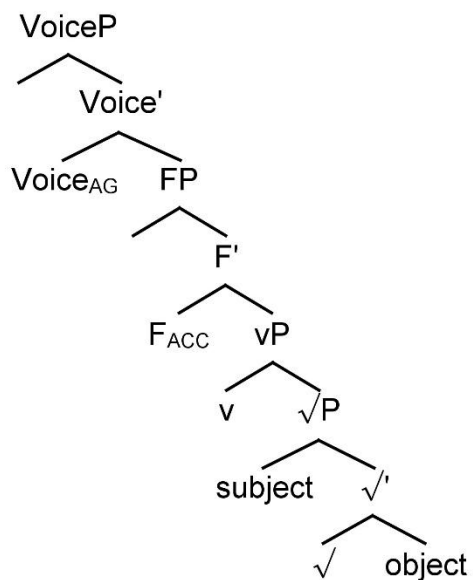
(2)

Type		Adverb	Adjective
<i>Verb</i>		x	
<i>ACC-INF</i>	<i>-D, -ext.arg.</i>	<i>indet.</i>	<i>indet.</i>
	<i>+ext. arg.</i>		x
	<i>+D</i>	x	x
<i>OF-INF</i>	<i>-D, -ext.arg.</i>	<i>indet.</i>	<i>indet.</i>
	<i>+ext. arg.</i>	x	x
	<i>+D</i>	x	x
<i>-ing</i>			x
<i>Simple noun</i>			x

4.1 Accounting for the Dutch data with Harley (2008)

The account of nominalization in Harley (2008) is rooted in the Distributed Morphology framework. That means nominalizations are not stored, nor created in the lexicon by transformation, but are created in syntax from category-neutral roots. Capturing both the verbal and nominal characteristics of nominalizations, Harley argues roots are first verbalized and subsequently nominalized, with the amount of verbal structure present before the merging of the nominalizer determining the type of nominalization and its properties and behaviour. Harley's representation of verbal structure is repeated in (3).

(3)



(Based on Harley 2008)

Harley tests her theory on English. Its validity is tested on Dutch below.

4.1.1 Case and external arguments

Only the ACC-INF nominals assign accusative case to their internal arguments. In Harley's proposed structure, FP is the node introducing accusative case. This would mean that OF-INF and -ing nominals only have structure at most up to vP. Thus, they should lack the agentive

node VoiceP. This is not consistent with the Dutch data, as both these types of nominal have agentive external arguments.

The same question arises in English, and Harley solves it by positing that these types of nominals do not take actual agentive external arguments, but rather possessives which may be interpreted as agents. If this is correct, they should be capable of different interpretations as well. This is not supported by the Dutch data: the external argument of all investigated CEN nominals can only be an agent. This is shown in the following Dutch examples: the external arguments of OF-INF nominals (4a-b) and -ing CENs (4c,d) can always be expressed in an agentive by-phrase.

- (4) a. Jan-s vernietig-ing van de stad
 Jan-GEN destroy-NMLZ of the city
 'Jan's destruction of the city'
- b. de vernietig-ing van de stad door Jan
 the destroy-NMLZ of the city by Jan
 'the destruction of the city by Jan'
- c. Jan-s frequent-e belon-ing van de werknemer-s
 jan-GEN frequent-ADJ reward-NMLZ of the employee-PL
 'Jan's frequent rewarding of the employees'
- d. de frequent-e belon-ing van de werknemer-s door Jan
 the frequent-ADJ reward-NMLZ of the employee-PL by Jan
 'the frequent rewarding of the employees by Jan'

This is not possible for the possessives of simple nouns (5a,b) or -ing non-CENs (5c,d), even though they may be interpreted agentively.

- (5) a. Jan-s tafel
 Jan-GEN table
 'Jan's table'
- b. *de tafel door Jan
 the table by Jan
 Intended: 'the table made by Jan'
- c. Jan-s belon-ing-en
 jan-GEN reward-NMLZ-PL
 'Jan's rewards'
- d. *de belon-ing-en door Jan
 the reward-NMLZ-PL by Jan'
 Intended: 'the rewards given by Jan'

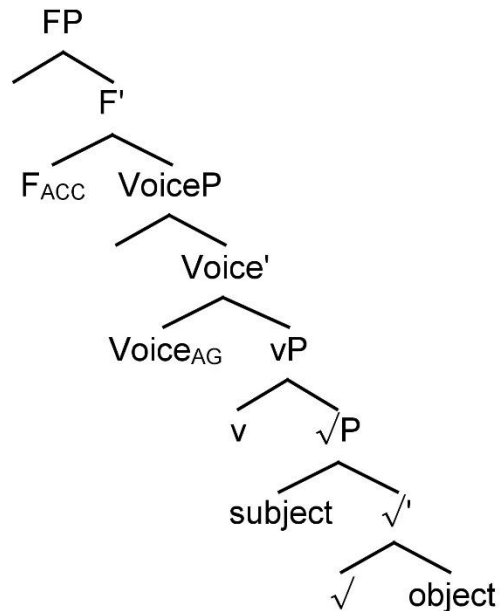
Harley acknowledges the possibly problematic nature of the assumption that agentive external arguments of non-ACC-INF nominals are possessors, and suggests, instead, that FP might dominate VoiceP (Harley 2008: fn. 16). This can account for the Dutch data in the following way: the OF-INF and CEN-ing nominalizers can merge with VoiceP, giving rise to an agent but no accusative case, while the ACC-INF nominalizer can merge with FP, giving rise to both. Harley notes this solution poses an ordering problem in the absence of nominalization, however, as the internal argument would then precede the verb, necessitating subsequent movement to obtain SVO ordering.¹³ Movement of the verb to IP for inflection solves this for finite constructions, but it is unclear how English non-finite constructions, which lack movement of the verb to IP but still have VO ordering, might be accounted for. This poses a fundamental problem for Harley's account. However, this is only true for English, as the word order in Dutch non-finite constructions is in fact the predicted

¹³ The external argument is already assumed to move to Spec,IP for verbs or Spec,DP for nominals.

SOV, as discussed in Chapter 2. As the empirical domain of this thesis is Dutch and not English, I leave this for further research.

The revised structure is shown in (6).

(6)



(Based on Harley 2008)

The objection might be raised that ACC-INF nominals can go without an external argument while still assigning accusative case to the internal argument. This should not be possible if FP dominates VoiceP. This can be solved by assuming that in the absence of an overt external argument PRO is used in VoiceP. This variant of Harley's theory adequately accounts for the distribution of accusative case in the examined Dutch nominals.

As shown in 2.4.1, all investigated Dutch nominals have genitive case on their external argument, if they can have one, as expected for nominals.

Non-CENs, by definition, do not have arguments, and all CENs without a determiner can have an external argument. The latter is accounted for by the general impossibility for determiners and external arguments to co-occur, as shown in the following English example:¹⁴

(7) *The Mary('s) firing/table

4.1.2 Agentive by-phrases

Only INF nominals with a determiner and -ing CENs can have agentive by-phrases. An agentive by-phrase requires an agentive theta role. Only CENs assign theta roles, so it is expected that non-CENs cannot have an agentive by-phrase.¹⁵ INF nominals without a determiner cannot have one, however, despite being CENs.

This can be accounted for in the following manner: in the absence of DP, the infinitival morpheme INF creates a non-finite environment, which takes PRO as the external argument.

As PRO, being covert, cannot receive case, it cannot be expressed in a by-phrase: the accusative case of the preposition *by* would remain unassigned, violating the Inverse Case Filter, as discussed in 2.4.9. In the presence of DP, an overt external argument is possible, receiving genitive case. Being overt, this external argument can be expressed in a by-phrase.

This account is supported by the fact that -ing CENs with or without a determiner do allow by-phrases: as they do not create a non-finite environment, there is no PRO and nothing prevents the external argument from being expressed in a by-phrase, whether a determiner is present or not.

¹⁴ -ing nominals with a determiner also cannot have an external argument and, consequently, genitive case. Due to how the types of nominal are categorized, however, this is not shown in Table (1).

¹⁵ See fn.2 for a discussion of the apparent counterexample “the book by Chomsky.”

4.1.3 Implicit arguments

To have an argument, the nominal must be a CEN. To be able to not express the argument overtly, it needs to lack accusative case. Otherwise, the case cannot be discharged, and the Inverse Case Filter will be violated, as discussed in 2.4.9. This is exactly what we find: only OF-ING and -ing CENs are capable of implicit internal arguments.

4.1.4 Modification

Manner phrases are possible with all CENs under investigation, and not with non-CENs.

Assuming manner phrases modify events and are, therefore, licensed by the eventive node vP, this is expected: all CENs contain vP.

The distribution of adjectival and adverbial modification is less easily accounted for, however. The table in (8) repeats the relevant data.¹⁶

(8)

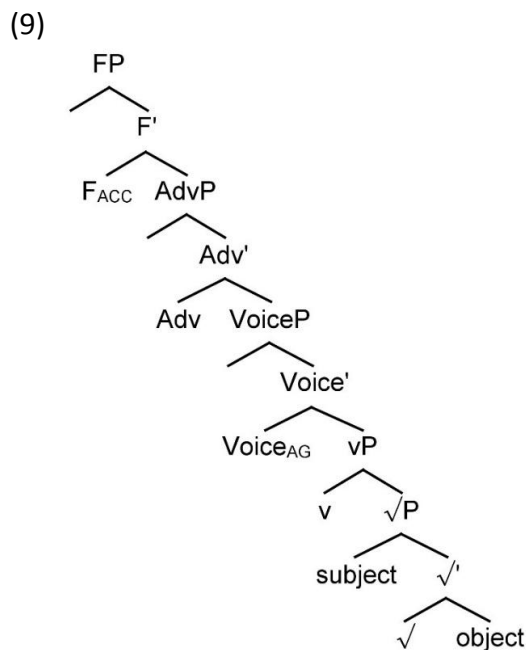
Type		Adverb	Adjective
<i>Verb</i>		x	
ACC-INF	+ext. arg.		x
	+D	x	x
OF-INF	+ext. arg.	x	x
	+D	x	x
<i>-ing</i>			x
<i>Simple noun</i>			x

As nominalizations consist of a mix of verbal and nominal structure, the a priori assumption is that all nominalizations should allow adverbial modification in the verbal structure before the merging of the nominalizer, and adjectival modification in the nominal structure after the merging of the nominalizer. This is borne out only for OF-INF nominals, however: -ing

¹⁶As shown in 2.4.3, -INF nominals without determiner or external argument are singular indefinite neuter nominals and adjectival modification of such nominals is indistinguishable from adverbial modification. These cases are left out of consideration.

nominals only take adjectives and ACC-INF nominals with an external argument only take adjectives.¹⁷

That -ing nominals cannot take adverbs can be accounted for, while leaving the core of Harley's account intact, by positing an additional node licensing them.¹⁸ As -ing nominals can have agents but not accusative case, this node, AdvP for convenience, must be positioned between FP and VoiceP, as in (9).¹⁹ The CEN-ing nominalizer merges with VoiceP, while the OF-ing nominalizer, admitting adverbial modification, merges with AdvP.



(Based on Harley 2008)

That only leaves the question why the presence of an external argument should block the adverb in ACC-INF constructions. This is not the case in either OF-INF nominals, which should

¹⁷ Omitted here is that modification between the internal argument and the nominal, only available with ACC-INF nominals, must be adverbial. This is expected, however, as this position is only available before the merging of the nominalizer. Furthermore, ACC-INF nominals with an external argument do not allow modification in this position at all, likely due to incorporation of the internal argument into the nominal, as discussed in 2.4.3.

¹⁸ Harley takes VoiceP to be the node licensing adverbial modification. However, as discussed in 4.1.1, -ing nominals, which do not take adverbs, also require VoiceP, making this supposition untenable.

¹⁹ Note that this structure poses an ordering problem: the root gets raised to the nominalizer, and should therefore precede the adverb. In practice, however, the adverb always precedes the nominalizer. However, as illustrated by the object preceding the nominal in ACC-INF constructions, as well as by its V2 properties, word order in Dutch phrases is a complicated subject in and of itself. For now, I assume this poses no fundamental problem and leave a thorough investigation to further research.

have the same structure except for FP, or verbs, which should have the exact same structure up to the point of nominalization. Possibly the incorporation of the internal argument into the nominal in the presence of an external argument, as argued in Chapter 2, is responsible for this behaviour. How or why this should block adverbs is not apparent, however.²⁰

4.1.5 Exceptional case marking

In ECM constructions the subject of a subordinate clause is assigned accusative case by the predicate of the matrix clause. Therefore, this predicate must be capable of assigning accusative case. This is reflected in the data: only the accusative case assigning ACC-INF nominals are capable of serving as the predicate of the matrix clause in ECM constructions.

None of the nominalizations can function as the subordinate predicate of an ECM construction. Gerunds, however, can. This is expected, as ECM requires a subordinate clause rather than a nominal.

4.1.6 Gerunds

As gerunds assign accusative case to their complements, they must have verbal structure up to at least FP before being merged with the gerundive INF morpheme. However, as gerunds are not nominal, as argued in 2.4.5, this means that the same morph encodes for different categories: one nominal, the other verbal. The infinitive morph must, then, have multiple different lexical entries. This is not necessarily a problem, but it raises the question why these different morphs happen to be homophonous, all the more as the same is true in

²⁰ Why this incorporation should be necessary in ACC-INF nominals with an external argument but not with verbs is a puzzle in itself if the underlying structure is identical. I leave this for further research.

English and many other languages, and gerunds and INF nominals intuitively feel very similar. Harley acknowledges the undesirability of this solution (Harley 2008: fn. 4, fn. 6).

Another question is how English gerunds in non-ECM constructions check the accusative case on their subjects. Harley posits a type of gerundive head for this (Harley 2008: p. 324).

As Dutch does not allow non-ECM gerunds, this gerundive accusative assigning head is absent in Dutch. This explains why these constructions are possible only in an environment where the accusative case is assigned by a different predicate.

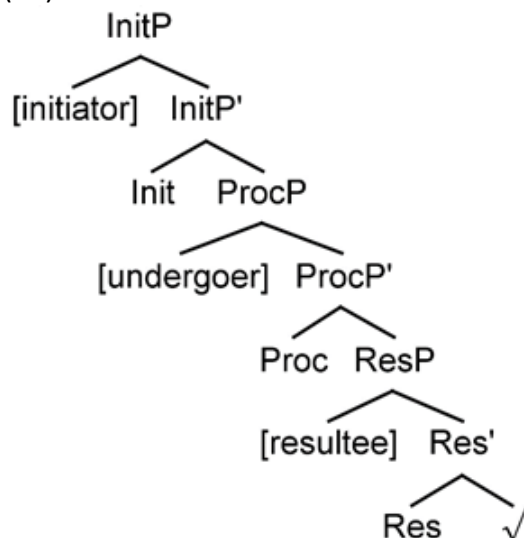
4.1.7 Mass versus count nominal

As discussed in 2.1.2, Grimshaw (1990) argues CENs behave as mass nouns, and non-CENs as count nouns. Consequently, only non-CENs can pluralize or take indefinite determiners. This is not an outcome predicted by Harley's structure: nothing prevents a CEN with a realized argument structure in the verbal domain from being, for example, pluralized in the nominal domain. Harley offers a semantic solution for this problem. She suggests coercion from a mass nominal interpretation to a count nominal interpretation is accomplished by the merger of a null head in the nominal domain encoding for count noun status. She argues that this head and the presence of a syntactic object both impose a boundary on the interpretation of the nominal, and the conflict between these two different boundaries results in infelicity. Thus, CENs will always be mass nouns. This approach runs into some difficulties however.

Harley does not discuss why some types of nominal, INF nominals in Dutch, cannot be coerced into a count noun interpretation. In other words: why are there no non-CEN INF nominals, like there are non-CEN -ing nominals?

This can be accounted for by using a slightly different structure, following the proposal of Alexiadou (2008) for a separate functional projection for introducing internal arguments, which Harley mentions but does not adopt. This is the approach used in Bašić (2009)'s account of nominalization: she splits out vP into different nodes, with one node dedicated to the internal argument. She bases this on Ramchand (2008)'s division of the verbal domain into three core projections: *Init(iation)P*, *Proc(ess)P*, and *Res(ult)P*, with the specifier position of each of these projections used to "host the thematic participant in the particular subevent" that it signifies (Bašić 2009: p. 54). This structure is shown in (10).

(10)



(Based on Bašić 2009)

Merging the acategorial *V* with *Res(ult)* categorizes the *V* as a predicate. The *Resultee* is the entity resulting from this predicate. The *Undergoer* is the object of the predicate, and the *Initiator* is the cause or agent of the predicate. Therefore, any predicate with at least ProcP, and, therefore, an object, has argument structure. If the INF morpheme is incapable of attaching to a node lower than ProcP, it follows that INF nominals cannot be coerced into a count noun interpretation, as this would mean attaching to ResP, the only node resulting in a lack of argument structure.

A more significant issue for Harley's account is San Martin (2009)'s observation that Dutch and many other languages, as noted in 2.3.2, do in fact allow some CENs to pluralize. This means Harley's solution cannot be correct: a syntactic object and a head encoding count noun status are apparently not semantically incompatible.

San Martin uses Kamiya (2001)'s idea that some CENs have the property of *individuation of event*, which causes the nominals to contain a Classifier Phrase with a [+count] feature.

However, this requires that the roots of those CENs already carry this individuation of event feature, which means these roots are already verbal in the lexicon, an impossibility under DM.

The question also arises why some languages, such as English, do not allow any CENs to pluralize. Adopting Borer (2003) or Alexiadou and Grimshaw (2008)'s account would solve this: allowing both syntactic and pre-syntactic word formation, with the former resulting in internal syntactic structure and a mass noun interpretation, and the latter resulting in a syntactically simplex noun, with a count noun interpretation. Languages could then differ in which morpheme is capable of being used in which type of word formation. However, as this requires pre-syntactic manipulation, this is incompatible with the single generative engine architecture.

Furthermore, this would not explain why the nominalization types that allow pluralization allow it for only a subset of roots: in Dutch, only some -ing CENs allow pluralization. This must, then, be related to a feature on the root, such as Kamiya's individuation of event. As noted, this is impossible under DM.

4.1.8 Conclusion

Though much of the Dutch nominalization data can be accounted for under a slightly modified version of Harley's theory that leaves the core of her account intact, swapping FP and VoiceP, positing an AdvP in between these, and splitting up vP into multiple nodes, three issues remain unresolved:

- the presence of an external argument blocks adverbial modification in ACC-INF;
- the same INF morph can result in both verbal gerunds and CENs;
- some CENs can pluralize.

4.2 The Single Generative Engine Architecture and the Dutch Data

The key feature of a single generative engine framework is the lack of an active lexicon. This has far-reaching consequences: syntax is handed only roots by the lexicon, and all further information must be encoded structurally. As shown above, some behaviour of Dutch nominalizations cannot be accounted for under the DM-based account of Harley (2008). However, that does not necessarily mean it cannot be accounted for under any theory rooted in a single generative engine framework. Therefore, these issues, as well as some more general points, are discussed with respect to properties of the architecture itself, rather than a specific theory.

4.2.1 External arguments and adverbs

The presence of an external argument blocks adverbial modification of ACC-INF nominals, but not of OF-INF nominals.

The only difference between ACC and OF-INF nominals seems to be the presence of an accusative-assigning node for the ACC-INF nominals. As OF-INF nominals are capable of

adverbial modification, the node licensing this must be merged before the accusative-assigning node. Therefore, at the point of merger of the node licensing adverbial modification there is no difference between an ACC and OF-INF nominal, and adverbial modification should be possible at this point, regardless of what is subsequently merged. This is not what is found.

The difference between ACC-INF nominals with and without an external argument should also not result in the former being unable to take adverbs. We must assume the lack of an external argument means the agentive node contains a PRO: if we assumed the lack of an external argument means the agentive node is missing completely, the accusative node, which necessarily dominates the agentive node, should not be able to be merged, and the complement could not be accusative. This is not what we find. Furthermore, it cannot be the case that the overt or covert nature of the contents of the agentive node affect the adverbial node: OF-INF nominals show that both with and without an overt external argument, the adverbial node can be merged.

The posited incorporation of the internal argument into the nominal may interact with this behaviour. Even if that is the case, however, it is unclear why the presence of an overt versus a covert external argument should influence this.

4.2.2 Mass and count

As argued in 4.1.7, Harley's semantic approach to the impossibility of CENs to pluralize in English becomes untenable when trying to account for the fact that some languages allow some CENs to pluralize. Accounting for this in some other way requires solving two problems: why are only some CENs in these languages allowed to pluralize, a subset of -ing CENs in Dutch, and why do some languages not allow this at all?

The morphology of -ing CENs that can and -ing CENs that cannot be pluralized is identical.

This means their structure should be identical as well. If the structure is identical, there is no syntactic reason why one should be able to be pluralized and the other not. The difference must then be that the root carries this information. However, that would mean the lexicon contains information that is structurally relevant. This is impossible in DM, but not necessarily impossible in a single generative engine architecture: if we assume this information is only stored in the lexicon and not manipulated, there is still only one generative engine.

To account for the fact that some languages do not allow any CENs to nominalize, it could simply be posited that no roots happen to carry the relevant feature in these languages. That offers no insight, however. As morphology is the locus of difference between languages, we would rather posit that the nominalizing morphology somehow makes this impossible in these languages. As argued in 4.1.7, adopting Borer (2003) or Alexiadou and Grimshaw (2008)'s account would solve this: English, for example, could allow nominalization only in syntax, always resulting in mass nouns, while other languages can allow some types of nominalization to be done pre-syntactically, resulting in count nouns. Furthermore, we could posit that Dutch INF nominalization must be done syntactically, while -ing nominalizations can be done both syntactically and pre-syntactically, with a feature on the root deciding which is chosen. In both cases, however, this requires pre-syntactic manipulation and, consequently, multiple generative engines. It is not clear how this can be accounted for in a single generative engine architecture.

4.2.3 Same morpheme, different category

The same INF morpheme can result in three different constructions: OF-INF CENs, ACC-INF CENs, and verbal gerunds. The differences between OF and ACC-INF CENs can be attributed to a different height of merger of the same morpheme. However, how can this morpheme that acts as a nominalizer in one case not have this effect in the case of gerunds? This would require two different entries, one that results in a nominalization, and one that does not. This is not impossible, but it fails to capture the intuitive understanding that these constructions are strongly related, and fails to provide a reason for the cross-linguistic pattern that these different morphemes encode for homophonous morphs.

4.2.4 Selective morphology

A fundamental challenge for the single generative engine architecture is that not all roots go with all morphemes. Therefore, the information of which roots or types of roots go with which morphemes or types of morpheme must be stored somewhere. If, as DM, supposes, the only information stored in the lexicon are sound/meaning pairings, how does the syntax know which morpheme can combine with what material? In the present investigation, this comes down to: which roots are compatible with which nominalizer?

Broekhuis and Keizer (2012) point out that the INF nominalizer is nearly fully productive, while the -ing nominalizer is far more restricted in application. Specifically, they argue that object-experiencer verbs never nominalize, and that -ing is incompatible with intransitive verbs, stative verbs, and verbs of sensory perception, thinking, or saying.²¹

²¹ Broekhuis and Keizer (2012) also argue raising verbs can never be nominalized. Presumably, the different syntax of raising verbs accounts for this. I leave this for further research.

I disagree with them that object-experiencer verbs cannot be nominalized with INF:

- (11) a. Het lukk-en van het plan
 the succeed-INF of the plan
 “the plan succeeding”
- b. Het opvall-en van de jas
 the stand.out-INF of the coat
 “the coat standing out”
- c. Het vrez-en van god-en
 the fear-INF of god-PL
 “fearing gods”

They cannot become ACC-INF nominals, however, as shown in (12). Presumably, this is due to the lack of an agentive theta role: in Harley’s structure the lack of the agentive node means the accusative node cannot be merged.

- (12) a. *Het plan lukk-en
 the plan succeed-INF plan
 Intended: “the plan succeeding”
- b. *Het jas opvall-en
 the coat stand.out-INF
 Intended: “the coat standing out”
- c. ??Het god-en vrez-en
 the god-PL fear-INF
 Intended: “fearing God”

It seems that the difference in possibilities for -ing nominals and INF nominals is that the former require a theme argument: intransitive verbs (13a-b), object-experiencer verbs (13c-d), stative verbs (13e-f), and verbs of sensory perception, thinking, or saying (13g-h), all lack themes, most taking a subject matter role instead.

- (13) a. *lop-ing
walk-NMLZ
b. *niez-ing
sneeze-NMLZ
c. *lukk-ing
succeed-NMLZ
d. *voel-ing
feel-NMLZ
e. *slap-ing
sleep-NMLZ
f. *haat-ing
hate-NMLZ
g. *hor-ing
hear-NMLZ
h. *wet-ing
know-NMLZ

This could be resolved in a multiple generative engine framework by positing that, for example, INF nominalization is a syntactic process, not affected by the thematic role of the interior argument, while -ing nominalization occurs pre-syntactically, and is sensitive to this.

Within a single generative engine framework, it would be necessary for the -ing morpheme to be sensitive to the thematic role of the complement of the root. It is not clear how this might be accomplished.

A different issue is that the -ing nominalizer must combine with verbal roots.²² If roots do not bear categorial information, how does the syntax know what roots are verbal and

²² The INF morpheme seems to be more broadly applicable.

compatible with -ing? This seems to require category labels in the lexicon, not possible under DM, but not necessarily impossible in a single generative engine architecture.

4.2.5 Inheritance

A significant problem for single generative engine frameworks, as noted by, among others, Ackema and Neeleman (2007) and Harley (2015), is the fact that nominals containing verbal morphology do not always behave verbally. This is known as the problem of inheritance. For example, the word *nominalization* contains the verbal morphology *-iz*:

[[[[[nomin]_v-al]_a-iz]_v-ation]_n. The same holds for the Dutch *nominalizatie* (“nominalization”):

[[[[[nomin]_v-al]_a-iz]_v-atie]_n. Nonetheless, these words can behave as result nominals:

(14) That nomin-al-iz-ation contains verbal morphology.

(15) Die nomin-al-iz-atie bevat verbale morfologie.
that nomin-ADJ-V-NMLZ contain verbal-ADJ morphology
“That nominalization contains verbal morphology.”

Under a single generative engine architecture, verbal morphology requires verbal syntactic structure. Why then do the nominals in (14-15) not behave verbally? How have the verbal properties been deactivated? Hybrid frameworks like Borer (2003) or Alexiadou and Grimshaw (2008) account for this by having two types of structure building: syntactic and pre-syntactic. Syntactic generation results in a complex structure containing verbal morphology and, consequently, verbal behaviour. Pre-syntactic generation results in a nominal root without syntactic structure which, consequently, behaves as a noun. This is not possible without assuming multiple generative engines, however, and it is not clear how it would be possible using only syntax.

4.2.6 Baseless functional categories and movements

As Ackema and Neeleman (2007) point out, “the price paid for a more transparent mapping to semantics and for the abolition of nonsyntactic word formation is a complication of the syntactic structures that must be assumed” (Ackema and Neeleman 2007: p. 5). This also means the number of necessary movements is increased. This is illustrated by Harley (2008)’s proposed structure. However, the addition of more functional categories and movements must be corroborated with independent evidence. The case for a new functional category is more convincing if it can be shown that in some languages this category is visibly expressed. Similarly, each proposed movement should be motivated and be the result of the application of independently verified mechanisms of movement. Harley does not attempt to do either. However, it falls outside the scope of this thesis to ascertain whether this might be possible, so it is not a decisive argument against either her theory or the single generative engine framework. Nevertheless, it should be kept in mind that it is undesirable to posit functional categories and movements that are only necessary for theory-internal reasons.

4.3 Conclusion

The Dutch data poses fundamental challenges for the assumptions underlying the single generative engine architecture. No satisfactory account presents itself for the fact that the same INF morpheme should be capable of producing both nominal and verbal constructions. No answer is available to explain why in some languages CENs cannot pluralize, and in other languages some CENs can pluralize. Moreover, it is not clear how the syntax determines which -ing nominals can and which cannot pluralize, or which nominalizer can go with which root.

These issues might be resolved by allowing more information to reside in the lexicon, without attributing generative powers to it. This is not possible in DM, which allows only sound/meaning pairs in the lexicon, providing a strong empirical argument against that particular framework. However, it is not, in principle, impossible in the single generative engine architecture. However, as shown above, simply listing possibilities and resolving ambiguity by positing multiple different but coincidentally homophonous morphemes loses a number of generalizations that a multiple generative engine architecture can make. Furthermore, it is not clear how this extensive amount of root information is processed by the syntax in order to yield the required structures.

Even if these objections are set aside, two issues remain that pose a fundamental problem for the argument that the phenomenon of nominalization can be accounted for purely syntactically. Firstly, the presence of external arguments blocks the possibility for adverbial modification in ACC-INF nominals but not OF-INF nominals. This seems unresolvable when both types of CEN have to share almost exactly the same structure. Secondly, no satisfactory answer is given why the presence of overt verbal morphology does not necessarily lead to verbal behaviour. With standard assumptions about syntax, this does not seem possible. Even if a more detailed and extensive syntactic analysis could be found to account for this behaviour, the additional functional categories and movements required for such an analysis would need to be independently verified. There should be languages that spell out these categories overtly, and the movements must be motivated by general principles of syntax. This seems unlikely to be successful, as the principles of movement are fairly well understood at this point, and it does not seem there are many undiscovered functional categories left.

Due to these fundamental difficulties in accounting for the Dutch nominalization data, the single generative engine architecture does not seem to be a plausible representation of natural language.

5. Conclusion

The single generative engine framework dispenses with the concept of an active lexicon, capable of applying rules and transformations to stored roots before handing them over to syntax. Instead, it posits that all generation, manipulation, and transformation, of words as well as phrases, occurs in syntax, according to the rules of syntax. This has the benefit of elegance: it requires only one set of rules, that of syntax, instead of separate sets of rules for syntax and the lexicon. However, such a system is plausible only in so far as it does not decrease empirical coverage as compared to a framework utilizing an active lexicon. This thesis uses the phenomenon of nominalization and the empirical domain of Dutch to evaluate this system. I conclude that the Dutch data poses significant challenges for the single generative engine conception of the architecture of grammar, making it empirically implausible.

In particular, the necessity for the verbal structure of verbs and different types of nominalization to be identical makes it very difficult if not impossible to account for the different behaviour of various types of nominals. Another problem is that the same morpheme instantiates different syntactic categories. It is also unclear how such a framework can ensure that only the observed root+morpheme combinations are constructed. Lastly, the problem of inheritance remains unresolved: the presence of overt verbal morphology does not necessarily lead to verbal behaviour.

Some areas of further research into this topic present themselves. Of course, the same investigation might be performed with data drawn from other languages. However, the utility of Dutch data has not yet been exhausted. For one, not all Dutch speakers are in

agreement on all of the presented data.²³ Experimental research into the perceived felicity of the various investigated constructions should be able to shed further light on this. Furthermore, this thesis only looks at a subset of the different types of nominalization, and a subset of their properties. Extending the empirical domain in both these dimensions may provide more useful data. An experimental investigation into the relative degrees of acceptability of different types of nominalizations in different contexts, and attempts to account for this in a single generative engine framework will also be useful in the debate regarding the architecture of grammar. Lastly, a similar investigation can be performed using other categorizing phenomena, such as adjectivization and verbalization.

²³ See, for example, Reuland (2011), for some slightly different judgements of the possibilities for external arguments with Dutch -en nominals.

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