Verbal and adjectival participles: position and internal structure

Sleeman, P.

Verbal and adjectival participles: position and internal structure

abstract
In this paper an analysis is presented of prenominal and postnominal passive participles in English and Dutch. Besides the three types of participles commonly distinguished in the literature (statives, resultatives, and postnominal eventive participles), a fourth type is distinguished: prenominal eventive participles. It is claimed that the four types of participles have a different interpretation, which is related to a different internal syntactic structure. The analysis of passive participles is also extended to other types of deverbal modifiers. It is argued that the internal syntactic structure of the four types of participles forces their merging to the left or the right of the noun.

Key words: participle, modifier, DP, postnominal position, prenominal position, reduced relative clause

1.   Introduction

Traditionally, passive participles are divided into two types: verbal passives and adjectival passives (see, e.g., Wasow, 1977; Levin and Rappaport, 1992). Following Kratzer (1994), Embick (2004) distinguishes three types of passive participles in English: eventives, resultatives, and statives. Embick argues that eventives are verbal passives, whereas resultatives and statives are adjectival passives. According to Embick (2004:fn. 1), eventive participles cannot occur in prenominal position, which is reserved for adjectival passives, i.e. for resultatives and statives:

(1)   the door opened by John   (eventive)
(2)   a well-written book   (resultative)
(3)   a learnèd scholar   (stative)

On the basis of data from Dutch and English, I claim in this paper, contra Embick, that prenominal participles can have an event reading and can thus be verbal participles. I argue that the meaning of (4) is not resultative, but eventive: 'restaurants that have recently been opened'. The adverb 'recently' locates the opening event in time:

(4)   recently opened restaurants   (eventive)

In Embick's analysis within the framework of Distributed Morphology, the two types of adjectival participles differ in their internal syntactic structure. I argue that the internal syntactic structure of both types of verbal participles, the prenominal and postnominal eventives, is also different. In the analysis that is proposed in this paper, the postnominal eventive participle is dominated by CP, to the specifier of which one of its arguments moves, whereas the prenominal one has a more restricted

structure. In my view, the four types of participles range from a fully eventive type to a purely stative type, with two intermediate types, expressed by different syntactic structures.

The analysis is extended to three other types of deverbal modifiers of the noun: present participles, deverbal modifiers ending in the suffix –*ble*, and *to*-infinitives. It is argued that, just like passive participles, these deverbal modifiers present several readings, located on a spectrum of readings ranging from fully eventive to purely stative, expressed by different syntactic structures. The analysis of deverbal modifiers of the noun, including passive participles, contributes in this way to the ongoing unraveling of the 'mixed' syntactic and semantic properties of deverbal categories such as participles (Alexiadou and Anagnastopoulou, 2007), nominalizations (Sleeman and Brito, 2010), and nominalized infinitives (Iordăchioaia and Soare, 2009).

On the basis of the distinction of two different types of eventive deverbal modifiers of the noun, differing in their internal syntactic structure, I argue, in this paper, against unitary analyses of prenominal and postnominal deverbal modifiers of the noun, such as proposed in Kayne (1994) or Cinque (2010). In these analyses it is claimed that prenominal and postnominal deverbal modifiers as in (1) and (4), analyzed as reduced relative clauses, are merged in the same position. Kayne (1994) claims that both types of reduced relative clauses are the complement of the determiner. Cinque (2010) claims that both types are merged in the functional projections of the noun. In this paper, I argue instead that the different internal syntactic structure of both types of participial modifiers forces their merging either in prenominal or in postnominal position.

The paper is organized as follows. In section 2, Embick's (2004) motivation for a distinction of three types of passive participles is presented and it is claimed that a fourth type of participle, an eventive prenominal one, needs to be distinguished. In section 3, the four types of participles are distinguished on the basis of their internal syntactic structure. In section 4, it is argued that not only passive participles but also other types of deverbal modifiers of the noun present various readings ranging from fully eventive to purely stative, which is reflected in their different internal syntactic analysis. In section 5, on the basis of the distinction between two types of eventive deverbal modifiers proposed in this paper, a non-unitary analysis of participial modifiers is defended, as opposed to Kayne's (1994) and Cinque's (2010) unitary analyses of prenominal and postnominal reduced relatives. The paper ends, in section 6, with a summary of the results and some concluding remarks.

2.   Types of passive participles

Traditionally, passive participles are divided into two types: verbal passives, as in (5), and adjectival passives, as in (6) (Wasow 1977):

(5)   Three poems were written by me.
(6)   Three poems in this book are well written.

In accordance with Chomsky's (1970) proposal for nominalizations, Wasow (1977) claims that adjectival passives are formed in the lexicon, whereas verbal passives are formed in the syntactic component. Wasow adduces several arguments in support of his claim. First, adjectival passives can have an idiosyncratic form and meaning (*He is well shaven* versus *He has been shaved*). Second, adjectival passives cannot interact

with syntactic rules: whereas the subject of the verbal passive can be the result of raising to object followed by passivization (*John was believed to be sick*), the adjectival passive that is used in combination with the verb 'remain' cannot interact with such syntactic rules (**John remained believed to be sick*). Third, being adjectives, adjectival passives can combine with adverbs that typically modify adjectives (**He has been very excited by the news* versus *He is very excited*).[1]

Passive participles can also be used as modifiers of the noun. There has been an extensive discussion in the literature on the categorial status of passive participles as modifiers of the noun: have they become adjectives or are they still verbs (see, e.g., Levin and Rappaport, 1992; Borer, 1990)? In English, participles can appear to the left or to the right of the noun, see, e.g., *the stolen jewels* and *the jewels stolen*. The postnominal position is obligatory when the participle is followed by a complement or modified by an adverb such as *yesterday*, as the contrast between **the stolen yesterday jewels* and *the jewels stolen yesterday* shows, in which case it is generally assumed that the participle is verbal (see, e.g., Bolinger, 1967; Fabb, 1984). Past participles that can be preceded by *very*, as modifiers of the noun, are generally assumed to be adjectival (*a very pleased person*), see, e.g., Siegel (1973) and Williams (1981).

In more recent literature, it has been argued that, besides the verbal and adjectival participles, a third type of participle can be distinguished. I present the arguments for the distinction between the three types in section 2.1. Subsequently, in section 2.2, I distinguish a fourth type of participle.

2.1   Three types of participles

Embick (2004), building on Kratzer (1994), distinguishes three sorts of passives: besides verbal passives (*the door has been <u>opened</u> by John; the door <u>opened</u> by John*) he distinguishes two sorts of adjectival passives: resultatives, which denote the result of an event (*the door remained <u>opened</u>* (after having been opened by someone)) and statives, which do not express a result (*the door is <u>closed</u>*, cf. *the door is <u>open</u>* or *the door is <u>black</u>*).

Embick uses several syntactic diagnostics to differentiate statives from resultatives in English. First, unlike pure statives, resultatives allow modification by manner (and other) adverbials (see also Kratzer 1994):[2]

(7)   a.   The package remained carefully opened.
       b.   *The package remained carefully open.

---

[1] One of the reviewers wonders if Wasow's division between adjectival and verbal passives is really so rigid. An example like *He has been very put-off by the war* suggests that the combination of a verbal participle with the adverb 'very' is possible. The goal of this paper is to show that Wasow's division is too strict, and that there is a gradual change from "verbal" passives into "adjectival" passives.

[2] Embick (2004:fn. 1) notes that in the predicative use in (7a), with the copular verb *remain*, the participle is not an eventive passive. This is supported by the ungrammaticality of the combination with a *by*-phrase:
(i)   *The door remained opened by John.
Embick adds that this diagnostic cannot be used in the attributive case, i.e. in (8a), because in English modifiers with post-head material cannot be used prenominally. He states that it is standardly assumed in the literature that only "adjectives" are used prenominally and that eventive passive participles are therefore not possible in attributive position. The participle in (8a) is therefore, in Embick's view, a resultative and not an eventive participle. Similarly, in (ii), the participle is not an eventive participle, but denotes a result in Embick's view: the door is in the opened state, the opening having taken place recently:
(ii)   the recently opened door

(8) a. the carefully opened package
     b. *the carefully open package

Second, statives can occur after verbs of creation, such as *build*, *create*, *make*, whereas the use of a resultative participle after a verb of creation leads to a contradiction:

(9) a. This new ruler was built long.
     b. *This new ruler was built lengthened.

Third, statives can serve as resultative secondary predicates, whereas resultative participles cannot:

(10) John kicked the door open/*opened.

Fourth, *un*-prefixation is fully productive with resultatives, but not with statives (although there are some exceptions such as *unshaven* or *unhappy*):

(11) a. unopened, unshrunk
      b. *unopen, *unshrunken

Fifth, whereas resultatives always have the same form as eventive passive participles, stative participles can, but need not, have another form:

(12) a. blessed, rotted, sunk, shaved, opened (eventive and resultative)
      b. blessèd, rotten, sunken, shaven, open (stative)
      c. closed (eventive, resultative and stative)

     Embick uses several criteria to differentiate resultatives and eventive passives. First, eventive passives can combine with a *by*-phrase, whereas resultatives cannot (*The door was opened by John* vs. **The door remained opened by John*, cf. fn. 2). Second, in Embick's view, resultatives, but not eventive passives, can be used in prenominal position. Embick assumes that prenominal passives are always adjectival, i.e. stative or resultative. The meaning of *the recently opened door* is that the door is in an opened state, the opening having taken place recently, cf. fn. 2.[3] Third, resultatives can be used as a predicate with the copular verb *remain*, whereas the use of eventives with *remain* is not possible. In (7), *carefully opened* can only have a result reading and not an event reading. To these three criteria another criterion can be added. Embick shows that *un*-prefixation is fully productive with resultatives, but not with statives, cf. (11). With eventive passives *un*-prefixation is not productive either:[4,5]

---

[3] Embick notes that besides this reading, *the recently opened door* can have another reading. It can have the same reading as *the recently open door*: the door was in an opened state recently, but probably is no longer.
[4] If *un*-prefixation to the verb is possible, such as in the examples *to unlock*, *to unburden*, *to unbound*, *to unbelt*, an *un*-prefixed eventive passive is also possible:
(i) The door has been unlocked by the housekeeper.
[5] One of the reviewers observes that Embick's criteria also predict that the combination of the copular verb *remain* and a participle prefixed by *un*- is grammatical. This prediction is borne out:
(i) The door remained unopened.

4

(13)   *The door has been unopened (by the children).

In the next subsections, I will show that there are problems with Embick's assumption that prenominal participles are always adjectival. I will argue that, inside the category of eventive participles distinguished by Kratzer and Embick, two types of eventive participle should be distinguished: a fully eventive, postnominal participle, and a less eventive, prenominal participle.

2.2   A fourth type of participle
In the previous subsection, we saw that, in Embick's analysis, postnominal participles are always eventive, whereas prenominal participles are always adjectival. In this subsection and in the next one, I argue that prenominal participles can also be eventive. In this subsection, the argumentation is based on English data. In the next subsection, I present arguments based on Dutch.
I assume, just like Embick, that postnominal participles in English, as in (14-15), are fully eventive (see also Bolinger, 1967; Fabb, 1984; Sadler and Arnold, 1994; Sleeman and Verheugd, 1998). As (16) shows, the resultative participle, prefixed by *un-*, cannot figure in postnominal position:

(14)   the jewels stolen
(15)   They were only charged for the bottles opened.   (eventive)
(16)   *They were not charged for the bottles unopened.   (resultative)

For prenominal participles, Embick assumes that they are either resultative or stative. For *the recently opened door* Embick claims that it expresses the result of an event that took place recently. I claim, however, that the participle modified by *recently* simply expresses an event that took place recently and not the result of an event. This is supported by the fact that a participle modified by *recently* cannot function as a predicate (with a copular verb) and cannot be prefixed by *un-*, which means that it is not resultative:

(17)   the recently opened door   (eventive, ≠ resultative)
(18)   a.   *The door remained recently opened.   (resultative)
        b.   *This document is recently copied.   (resultative)
        c.   *The door was recently unopened.   (resultative)

According to Embick, resultatives allow modification by manner (and other) adverbs, unlike statives (see also Kratzer, 1994). This was shown in (7), repeated here as (19-20) for convenience:

(19)   The package remained carefully opened.   (resultative)
(20)   *The package remained carefully open.   (stative)

Since Embick assumes that eventive passive participles are not possible in attributive position, the attributive participle in (8a), repeated here as (21), is also a resultative participle in Embick's analysis. In my view, however, the preferred reading of the participle in (21) is eventive ('the package that was carefully opened'), just as in (22), rather than resultative:

(21)   the carefully opened package   (eventive or resultative)

(22)   The package was carefully opened by John.   (eventive)

For bare participles, I also claim that besides a stative or resultative interpretation, they can have an event interpretation. Although there is no adverb that indicates the moment at which or the manner in which the event took place, the participle can still denote an event. In my view, the participle in (23a) is therefore ambiguous between an event, a result or a state, cf. (23b-d).

(23)   a.   the closed door   (resultative, stative, or eventive)
         b.   The door remained carefully closed.   (resultative)
         c.   The front patio of the house was built closed.   (stative)
         d.   The door was closed by John.   (eventive)

In the next section, I present some additional arguments from Dutch.

2.3   Arguments from Dutch
        One of the arguments advanced in the previous subsection in favor of an eventive analysis of *the recently opened door* in English was that a participle modified by *recently* cannot function as a predicate (with a copular verb), cf. (18a-b). This also holds for Dutch. In Dutch, the verb 'to be' is in the normal case ambiguous between a copular verb and the auxiliary (without the past participle 'been') of the passive perfect tense, as in (24). When the participle is preceded by *onlangs* or *zojuist* 'recently', the verb 'to be' can only be the auxiliary of the passive perfect tense, as in (25):

(24)   De deur is geopend.
         the door is opened
         'The door is open.' or 'The door has been opened.'
(25)   De deur is onlangs/zojuist geopend.
         the door is recently   opened
         'The door has been recently opened.'

This means that, in my analysis, the participle in (26a) has an event interpretation, just as in (26b), where the verb 'to be' is an auxiliary. Interestingly, with the adverb *pas* 'recently', the participle in Dutch does not always have the event reading. If *pas* functions as an adverb (26a-b), just like *onlangs* and *zojuist* in (25), the participle has an event reading. However, if *pas* is a morpheme attached to the participle, as in (26c-d), the participle has a result reading.[6] In (26b), the verb 'to be' is a copula. The English glosses show that the same holds for English:

(26)   a.   het pas   getrouwde paar   (eventive)
                the recently married   couple
                'the recently married couple'
         b.   Het paar is pas getrouwd.   (eventive)
                the couple is recently married
                'The couple recently got married.'

---

[6] This morphological difference is accompanied by a prosodic phonological difference. *Pas* in (26a-b) can be stressed in a way in which *pas* in (26c-d) cannot: an acoustic analysis I carried out with several native speakers of Dutch showed that *pas* in (26a-b) can be lengthened much more than *pas* in (26c-d). This shows that *pas* in (26a-b) must be a separate phonological word (Nespor and Vogel, 1986).

c. het pasgetrouwde paar   (resultative)
    'the newlywed couple'
d. Het paar is pasgetrouwd.   (resultative)
    'The couple is newlywed.'

For *the carefully opened package* in English I claimed that the participle modified by the manner adverb can have an event interpretation, as in 'the package that was carefully opened', in which the verb 'to be' is an auxiliary. In Dutch, the verb 'to be' in (27) can also be interpreted as an auxiliary – the auxiliary (without the past participle 'been') of the passive perfect tense – which means that we are dealing with an event (in fact this reading is preferred to the result reading):

(27) Het pakje   is voorzichtig geopend.   (resultative or eventive)
      the package is carefully   opened
      'The package has been carefully opened.'

This means that, in my view, the participle in (28-29) can have an event interpretation, just as in (27). Just like the adverb *pas* 'recently', some Dutch manner adverbs with the meaning of 'good' or 'bad' can form one word with the participle. Just like *pas*, they can be an adverb, in which case the participle can have an event reading, as in (28-29), or they can be a morpheme attached to the participle, in which case the participle has a result reading (30-31). In this case as well, the distinction can be phonologically expressed (cf. fn. 6). Notice that the glosses show that the same holds for English:

(28) de goed verzorgde tuin   (resultative or eventive)
      'the well maintained garden'
(29) het slecht gekamde haar   (resultative or eventive)
      'the badly combed hair'
(30) de goedverzorgde tuin   (resultative)
      'the well-cared-for garden'
(31) het slechtgekamde haar   (resultative)
      'the ill-combed hair'

An additional argument in favor of an event interpretation of prenominal participles comes from their combination with arguments. One of the diagnostics that Embick uses to determine whether a participle is eventive, is the combination with a *by*-phrase. Although in English a *by*-phrase cannot be used as a diagnostic to establish whether we are dealing with an eventive participle if the passive participle is in prenominal attributive position, as noticed by Embick (cf. fn. 2), in Germanic languages with an SOV word order it can be used. In a language like Dutch, a prenominal passive can be preceded by a *by*-phrase:

(32) de door Jan   geopende brief
      the by   John opened   letter
      'the letter opened by John'

This suggests that in (32) the prenominal passive participle denotes an event, contrary to what is assumed by Embick (for Japanese prenominal passives Ogihara 2004 also argues that they can be eventive). This is supported by the fact that a *by*-phrase cannot

be combined with a passive participle prefixed by *un-*, a prefix which, not only in English (cf. 11 and 13), but also in Dutch, is productive with resultatives but not with statives or eventives:

(33)   de (*door Jan) ongeopende brief
          the by John unopened   letter

   In an SOV-language like Dutch, prenominal passives cannot only be combined with agents, but also with PP complements expressing other thematic roles:

(34)   de aan hen   verkochte producten
         the to them sold   products
         'the products sold to them'

(35)   de uit   een bevrucht eitje ontwikkelde embryo
         the from a   fertilized egg   developed   embryo
         'the embryo developed from a fertilized egg'

(36)   de met een sleutel geopende deur
         the with a   key   opened   door
         'the door opened with a key'

Again, the PP cannot be combined with a participle prefixed by *un-*, which suggests that in (34-36) it is combined with an eventive passive and not with a resultative passive in prenominal position:

(37)   de (*aan hen) onverkochte producten
          the to them unsold   products
(38)   de (*uit   een bevrucht   eitje) onontwikkelde embryo
          the from a   fertilized egg   undeveloped   embryo
(39)   de (*met een sleutel) ongeopende deur
          the with a   key   unopened   door

   The upshot of this discussion is that, besides stative and resultative passive participles, two kinds of eventive passive participles can be distinguished: prenominal and postnominal eventive passive participles. In this paper, I claim that prenominal participles have a more reduced internal structure than postnominal participles. This is supported by the fact that only postnominal participial reduced clauses can be replaced by full clauses:

(40)   a.   a book recently published
         b.   a book that has recently been published
(41)   a.   a recently published book
         b.   *a that has recently been published book

   Whereas in English the postnominal position is the canonical position for participles that are combined with a complement or a modifier such as *yesterday*, in Dutch participles are marginally acceptable in postnominal position. Interestingly, if they are used in postnominal position in Dutch, there is a morphological difference between participles used in postnominal and participles used in prenominal position.

Whereas prenominal participles can show adjectival agreement, postnominal participles do not:[7,8]

(42) a. de omzet   van bij amazon.com gekoch<u>te</u> boeken
          the turnover of at amazon.com bought   books
          'the turnover of books bought at amazon.com'
     b. de omzet   van boeken gekocht bij amazon.com
          the turnover of books   bought   at amazon.com

The reduced internal syntactic structure and (as a consequence, as I will argue in the next section) the prenominal position make the prenominal participle less fully eventive (in terms of argument participation in the event) than postnominal participles. In section 5.2, I relate the difference in agreement between (42a) and (42b) to a different structural relation of the participles with the noun, which I will argue to be the consequence of their different internal syntactic structure.

    The conclusion of this subsection and the preceding one is that four types of participles can be distinguished, which is schematized in table 1.

table 1: distinction between four types of participles

|	example	stative	resultative	eventive 1	event. 2
with verbs of creation	(9)	+	−	−	−
can be a resultative secondary predicate	(10)	+	−	−	−
productive *un*-prefixation	(11, 13)	−	+	−	−
composition with adverbs	(26c-d, 30-31)	−	+	−	−
with *remain*	(7a-b, 18a, 23b)	+	+	−	−
prenominal position	(14-16, 23a)	+	+	+	−
agreement (in Dutch)	(42)	+	+	+	−
always the form of eventive passive participle	(12)	−	+	+	+
modification by manner-adverbs	(7, 8, 19-22, 27-29)	−	+	+	+
modification by *recently*	(17-18, 25-26a-b)	−	−	+	+
internal arguments or *by*-phrase	(32-39)	−	−	+ (SOV)	+
replacement by full clause	(40-41)	−	−	−	+

    I claim that these four types can be represented on a scale going from fully eventive to purely stative. Statives are the endpoint of one side of the scale,

---

[7] Just like Dutch adjectives, prenominal participles do not carry adjectival agreement when they are used in an indefinite neuter singular noun phrase (i). Furthermore, participles ending in −*en* do not inflect (ii):
(i)   een onlangs gekocht boek
        'a recently bought book'
(ii)   de onlangs gesloten cafés
        'the recently closed bars'
[8] Traditionally, agreement with the noun is considered to be an adjectival property. Since I claim in this paper that even eventive prenominal categories can agree with the noun, agreement seems to be an attributive property rather than a purely adjectival property.

postnominal (eventive) participles are the endpoint of the other side. Resultatives and prenominal eventive participles are situated in between: resultatives on the stative side and prenominal eventive participles on the eventive side. This means that there is a semantic difference between prenominal and postnominal eventive participles: prenominal participles are less fully eventive, i.e. less fully propositional, than postnominal participles, which I will relate, in the next section, to a difference in their internal syntactic structure. In the literature (e.g. Embick, 2004), it has often been assumed that prenominal participles are always adjectival, i.e. stative or resultative, see fn. 2. In this section, I have argued, however, that prenominal participles can also be eventive. The position of prenominal eventive participles between resultatives and postnominal eventives on the scale represented in (43) reconciles both views:

(43)   stative ⬅==➡ eventive
                stative   resultative   prenominal eventive   postnominal eventive
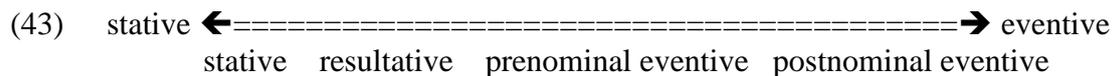
In the next section, I discuss how the distinction between the four types of past participles can formally be represented.

3.   **The syntactic representation of participles**
In this section, an account is proposed for the data within the framework of Distributed Morphology, which was first espoused in Halle and Marantz (1993) and was subsequently elaborated in work by Marantz and others (Halle and Marantz, 1994; Marantz, 1997, 2001; Harley and Noyer, 1999; Embick and Noyer, 2006). Since Distributed Morphology attributes a large role to the syntax in processes that are considered morphological in most other approaches, I argue that it is both conceptually and empirically more fruitful than a lexicalist approach for explicating the syntactic and semantic properties of prenominal eventive passives. This framework can more easily account for fine-grained differences in the argument- or modifier-taking properties of deverbal categories. In the spirit of Kratzer (1994), Alexiadou (2001), and Embick (2004), I assume that the syntactic and semantic distinction between the four types of passives is the result of a difference in their internal syntactic structure.

Although Distributed Morphology (henceforth DM) resembles the Minimalist model (Chomsky, 1995) in that Syntax feeds into a Phonological Form (PF) on the one hand and a Logical Form (LF) on the other, the main difference is that there is no Lexicon prior to Syntax in DM. Vocabulary Items are inserted into syntactic structures after syntactic operations have taken place. The syntactic structures just contain bundles of semantic and syntactic features, but no phonologically realized elements. Roots, i.e bundles of features, are underspecified for the syntactic structure in which they are used. They are therefore permitted in different kinds of syntactic environments. For example, the root *destruct*, which does not have a category, is permitted in a verbal and in a nominal environment. Its interpretation as a verb or a noun depends on its syntactic context, viz. the dominating functional categories. Functional categories are traditional functional categories like Aspect Phrase, Number Phrase and Determiner Phrase, but also vP, which can contain semantic primitives such as *become*, *cause* or *be*. In some versions of DM, all affixes, or rather features, are added at Morphological Structure, after Syntax and before phonological Spell-Out on the PF-branch (Harley and Noyer, 1999). In other versions (Embick, 1997; Embick and Noyer, 2006), all interpretable features (such as plural or derivational features)

are present in Syntax. Non-interpretable morphemes such as those expressing agreement on a modifier result from copying nominal features at PF.

In the previous section, four types of participles were distinguished: postnominal participles, which are fully eventive, prenominal eventive participles, resultatives, and statives. In this section, I claim that the difference between postnominal passive participles and prenominal eventive participles results from the fact that postnominal passive participles have a direct internal argument that is "externalized": it moves to the specifier position of a functional projection within the left periphery of a clausal projection, in a raising analysis such as Kayne's (1994). In this position it serves as an "antecedent" for the relative clause. Prenominal passive participles have a more reduced clausal structure: "externalization" of an internal argument does not take place. I propose that both postnominal and prenominal eventive participles and resultatives are dominated by vP and AspP, but that resultatives differ from eventives in having a v dominating the semantic primitive 'become' and an AspP expressing a state. I also propose that stative participles are not dominated by vP, but are only dominated by AspP, expressing a state. A more detailed analysis of postnominal participles, prenominal eventive participles, resultatives and statives is presented in the remainder of this section.

First, as for the difference between the post-nominal, purely eventive, participles, and the three types of prenominal participles, I claim that the difference in position is due to the projection of a CP in the case of postnominal participles in English and the non-projection of a clausal structure in the case of prenominal participles. Since the participial root is category-less in DM, the interpretation of the participle within the clausal structure has to be derived from the nature of dominating functional categories. For postnominal participles in English, I assume that the category-less lexical root is dominated at least by vP, AspP and CP. The vP projection dominates little v containing an event feature and can also contain manner adverbs. AspP, which expresses aspect, is the locus of participial morphology (Embick, 2004) and can also contain aspectual adverbs. CP – or one of the functional projections in the CP-domain, ForceP or FinP (Rizzi, 1997) – is the projection to the specifier of which the "antecedent" noun can move, in a raising analysis such as Kayne's (1994). Passive participles are unaccusatives that do not assign an external theta-role and do not check accusative Case (Burzio's generalization). These features are thus absent on little v. But although v does not introduce an external argument, it is the locus of agentivity, i.e. implies the presence of an agent (Kratzer, 1994; Chomsky, 1995; Harley, 1995; Collins 1997; Alexiadou, 2001). The syntactic properties of postverbal participles are summarized in (i):[9]

(i)   Postnominal passive participles are clausal complements of D, with the noun raising to their specifier position (Kayne, 1994):

- projection of a clausal structure including vP, AspP (perfectivity) (Alexiadou, 2001) and CP
- "antecedent" noun (= direct internal argument) raises to Spec,CP
- v contains an event feature

---

[9] In this paper, I do not distinguish between vP and VoiceP, following Alexiadou (2001). However, it could also be possible to distinguish vP from VoiceP, the latter licensing e.g. agent-PPs (Alexiadou and Anagnostopoulou, 2007) and the former expressing eventivity. Furthermore, it is possible to spread the various functions of v (licensing of agent, theme and goal or other theta-roles) over several distinct functional projections (Ramchand, 2008).

- *v* does not assign accusative Case
- *v* does not introduce an external argument
- *v* is the locus of agentivity
- *v* licenses an indirect argument

(44)   [$_{DP}$ the [$_{CP}$ [book]$_i$ [$_{AspP}$ [$_{vP}$ [sent [t$_i$ to John by Mary]]]]]]]
(45)   [$_{DP}$ the [$_{CP}$ [jewels]$_i$ [$_{AspP}$ [$_{vP}$ [stolen [t$_i$ (yesterday)]]]]]]]

In these examples, the direct internal argument is moved to Spec,CP, arguably for reasons of Case: Kayne (1994:98) assumes that the raised noun "receives Case through a(n incorporation) relation with the determiner". An indirect internal argument or a *by*-phrase is also licensed by (*v* of) the (eventive 2 type) participle.[10]

Second, since prenominal eventive participles also have an event interpretation, I propose that these as well are dominated by a light verb not assigning an external theta-role and not checking accusative Case. They differ from postnominal participles, because these ones project a direct argument, which moves to Spec,CP in (44-45).[11] If the four types of participles differ in (at least) the presence or absence of certain types of functional projections, the prenominal position of participles could be related to the absence of CP, as suggested to me by one of the reviewers: if there is no CP to which an object can move for Case reasons, the object cannot be licensed and the reduced relative can only be merged in the functional projections of NP. Another reviewer suggests to relate movement to CP to the absence of verb raising. If the verb does not raise, it cannot enter the appropriate configuration to exhibit agreement and to license the complement, hence the complement has to raise to Spec,CP for licensing (probably Case). This would explain why in English, a language in which the verb does not raise, the participle predominantly occurs in postnominal position. In Dutch the verb raises, so that the complement can be licensed by agreement. This would account for the fact that in Dutch, but not in English, the use of prenominal

---

[10] Alexiadou (2001) takes the following properties to be associated with *v*:
(i)   *v* is the locus of agentivity.
(ii)   *v* contains features related to eventivity.
(iii)   *v* bears Case features for the object.
(iv)   *v* introduces an external argument.
Properties (iii) and (iv) distinguish between active verbs (Case and external argument) on the one hand, and passive verbs and nominalizations (no Case and no external argument) on the other. I propose that *v*, or one of the functional projections into which *v* is split up (see fn. 9), can differ not only in introducing an external argument (property iv) or bearing Case features for the object, but also in licensing a non-direct internal argument (v), cf. (Marantz, 1993; Pylkkänen, 2002; Ramchand, 2008):
(v)   *v* introduces indirect internal argument(s)
In each of the properties (i)-(v) *v* can be deficient. With unaccusative verbs *v* lacks properties (iii) and (iv). In this paper I claim that with deverbal modifiers *v* can also be deficient with respect to properties (i), (ii), (v).
[11] Alexiadou (2001) claims, contra Grimshaw (1990) and following Picallo (1991), that result nouns can take internal arguments, just like process nouns, i.e. complex event nominals. I also assume that in the case of the deverbal modifiers discussed in this paper the valency of the lexical root itself does not change. For Alexiadou (2001:66-67), who discusses the distinction between the obligatory presence of complements with process nouns and the optional presence of complements with result nouns, the distinction is related to the presence vs. absence of *v*P and AspP. In both cases the complement is licensed by the root, but only in the first case is the complement required by Event Structure. The absence of Event Structure makes the presence of complements optional in the second case. Since I have argued that prenominal participles can be eventive, I assume that *v*P is still present.

participles is fully productive.[12] In both approaches, prenominal participles are structurally deficient: they are not dominated by CP. Although there is no CP, (at least) AspP and vP are arguably present. The syntactic properties of prenominal eventive participles are represented in (ii):

(ii)   Prenominal eventive passive participles are merged in the specifier of a functional projection dominated by DP:

- no CP: only vP and AspP (perfectivity)
- the participle does not project a direct internal argument
- v contains an event feature
- v does not introduce an external argument
- v is the locus of agentivity (the agent can be expressed in a *by*-phrase in SOV languages)
- v licenses an indirect argument

(46)   [$_{DP}$ the [$_{FP}$ [$_{AspP}$ recently [$_{vP}$ [sent]]] [$_{F'}$[book]]]]

This analysis also applies to other eventive 1 type prenominal modifiers of the noun discussed in the previous section, some of which can also have a result reading or even a stative reading (47-51). In (46) and (47-51), there is no direct internal argument moving to Spec,CP: the modifier is merged within the functional projections of the noun, as in Cinque's (1994) analysis of simple adjectives.

(47)   het pas   getrouwde paar
        'the recently married couple'
(48)   de door Jan geopende brief
        the by John opened   letter
        'the letter opened by John'
(49)   de aan hen   verkochte producten
        the to them sold   products
        'the products sold to them'
(50)   de goed verzorgde tuin
        'the well maintained garden'
(51)   the closed door   (eventive)

In (46-51), the adverb, *by*-phrase and indirect internal argument necessarily precede the prenominal participle. I propose that this is due to a concord requirement. Prenominal participles always agree, visibly, i.e. phonologically expressed, or not, with the noun they modify.[13] I assume that DP-internal concord involves linear adjacency in order to account for the necessity for arguments and modifiers of prenominal eventive passives to appear on their left-hand side (Head-Final Constraint). As we have seen, in a language like Dutch, postnominal eventive

---

[12] Although this is an interesting approach, it should also have to account for the fact that, in English, prenominal participles are not excluded. Later in this section, I will, however, relate the Dutch-English contrast to the SOV-SVO word orders, a relation which, as observed by the same reviewer, is tightly connected to agreement (as a formal relationship between two categories) and perhaps even verb raising.

[13] Sauerland (1996) formulates the contexts in which an overt suffix (-*e* in Dutch) is inserted as an elsewhere condition (see also Schoorlemmer, 2009).

participles rarely occur. I propose that since a prenominal passive is a more economical option, requiring less structure, it is the preferred option, possible with an OV word order as in Dutch.[14,15]

Third, the difference between prenominal eventive participles and resultatives has to be accounted for. I follow Embick (2004) in assuming that in the case of resultatives the lexical root is dominated by AspP expressing a state. In both cases, the lexical root is dominated by vP, but whereas in the case of eventive participles v expresses an event and is agentive, in the case of resultative participles v is not agentive and dominates the semantic primitive 'become', which Embick calls 'Fient' (for 'fientive') and which is a feature denoting a transition event that moves towards a state. Furthermore, v does not license an indirect internal argument:[16]

(iii)   resultative (prenominal) participles

- no CP: only vP (dominating the feature 'become') and AspP (state)
- the participle does not project a direct internal argument
- v contains an event feature
- v is not agentive
- v dominates the semantic primitive 'become'
- v does not license an indirect internal argument

(52)   [$_{DP}$ the [$_{FP}$ [$_{AspP}$ [$_{vP}$ (carefully) [$_v$ 'become' [closed]]]] [$_{F'}$[door]]]]

In (iii) the participle has a result reading, expressing the result of an event. There is no direct internal argument moving to Spec,CP, so that the reduced structure can only merge in prenominal position. As opposed to the participle in (ii), *by*-phrases and indirect internal complements are not licensed in this reading.

Fourth, in the case of stative participles, neither an event nor the result of an event is expressed, which suggests that there is no vP at all. I assume that the lexical root is dominated by Asp, which expresses a state:

(iv)   stative (prenominal) participles

- no vP, but only AspP (state)

---

[14] I assume that complements are merged to the right of their head in Dutch, in accordance with Kayne's Antisymmetry theory (see also Zwart, 1997), and raise to a position to the left of the head.
[15] Although concord is not visible in English, it might be assumed that it is also operative in English and requires adjacency, i.e. the Head Final Constraint, excluding complements or adverbs intervening between the prenominal modifier and the noun (but see Cabredo Hofherr 2010, where this constraint is critically discussed). Since English is not an OV language, complements, a *by*-phrase or adverbs such as *yesterday* to the left of the modifier are also excluded:
(i)   *the by John stolen jewels
(ii)   *the yesterday stolen jewels
In English, the prenominal position seems also to be the preferred option, just as in Dutch, if the participle and the noun can be adjacent, e.g. *a recently recorded version*. I found almost no examples on Google of postnominal variants (*a version recorded recently* or *a version recently recorded*). In English, the less economical postnominal option can, however, be used if the speaker wants to stress the event interpretation and wants to avoid ambiguity: *the jewels stolen* vs. *the stolen jewels*.
[16] In the previous section, it was shown that resultative participles can function as a predicate with a copular verb, which might suggest that the participle projects an argument in this case. I propose that the argument is licensed by the copula as part of a small clause, with resultatives and also with statives (see also Sleeman and Verheugd, 1998).

(53)   [DP the [FP [AspP [astonished]] [F'[man]]]]

In this section, I have presented a detailed internal syntactic analysis of the four types of participles that have been distinguished in this paper, which I have related to a difference in interpretation. In the next section, I extend my analysis to other verb-based prenominal and postnominal modifiers.

4.   Other verb-based modifiers

Sadler and Arnold (1994) observe that not only passive participles, but also present participles, adjectives ending in the suffix –*ble*, and attributively used infinitives, which are all also constructions based on a verb, can or must occur postnominally in English:[17]

(54)   the man sitting on the sidelines
(55)   the rivers navigable
(56)   things to do in Amsterdam

They can also follow *the one(s)* or the demonstrative pronoun *those*:

(57)   the one sitting on the sidelines
(58)   those navigable
(59)   those to remember in our thoughts

Sleeman and Verheugd (1998) analyze these verb-based postnominal modifiers in English, just like the postnominal passive participles discussed in the previous section, as being fully eventive. They are reduced relatives, consisting of a predicate and an argument (which may be an empty noun) that moves to Spec,CP, in a raising analysis of relative clauses (Kayne, 1994).

In Dutch, these modifiers generally occur prenominally, as shown by Sleeman and Verheugd (2000):

(60)   de vandaag draaiende films
        the today   playing   movies
        'the movies playing today'
(61)   het liedjes zingende meisje
        the songs singing   girl
        'the girl singing songs'
(62)   een door muggen   overdraagbare ziekte
        a   by mosquitos transmittable disease
        'a disease transmittable by mosquitos'
(63)   het door de auteur   te herziene artikel
        the by   the author to revise   paper
        'the paper to be revised by the author'

---

[17] This depends, among other things, on the presence of post-head material: in (54) and (56) the modifier must occur in postnominal position, in order not to violate the Head-Final Constraint. In (55), the modifier can also occur in prenominal position.

15

Sleeman and Verheugd (2000) show that German has the same verb-based prenominal modifiers as Dutch, apart from the *to* + infinitive construction, which in German is a *zu* + present participle construction (Toman, 1986):

(64)   die von einem Arzt   zu untersuchende Frau
       the by a   doctor to examining   woman
       'the woman to be examined by a doctor'

The examples (60-63) show that, just like prenominal passive participles in Dutch, these verb-based prenominal modifiers can be accompanied by one or more complements or by verb-modifying adverbs such as 'today'. They can also take an inflected form (ending in an inflectional suffix, schwa), in order to express concord with the noun they modify.[18]

In the previous section, I claimed that prenominal passive participles differ from postnominal ones in not projecting an internal argument raising to Spec,CP. I distinguished three types of prenominal verb-based modifiers: prenominal eventive modifiers, which in my analysis are dominated by *v*P and AspP expressing perfectivity; resultative modifiers, which have a *v* dominating the semantic primitive 'become' and which are dominated by AspP expressing a state; and stative modifiers, which are not dominated by *v*P, but only by AspP expressing a state. In what follows I argue that the three types of deverbal modifiers discussed in this section can be analyzed in a similar way.

4.1   Present participles
In section 2.3, it was observed that whereas in English the postnominal position is the canonical position for passive participles that are combined with a complement or an adverb such as *yesterday*, in Dutch passive participles are marginally acceptable in postnominal position. The same holds for present participles in Dutch:

(65)   De mensen zittend op de grond eten rijst.
       the people   sitting on the ground eat   rice
       'The people sitting on the ground are eating rice'

Just like passive participles, present participles in Dutch do not agree in postnominal position, whereas they do in prenominal position:

(66)   De op de grond   zittende mensen eten rijst.
       the on the ground sitting   people eat   rice
       'The people sitting on the ground are eating rice'

I analyze postnominal present participles, just like the postnominal passive participles discussed in the previous section and the other verb-based modifiers in postnominal

---

[18] In Dutch, only infinitives ending in –*ien*, -*aan* or –*oen* can inflect in their attributive use, contrary to infinitives ending in –*en*, which is the most productive class. These do not inflect when they are used attributively:
(i)   de te begane weg
       the to follow way
       'the way to follow'
(ii)   de thuis   te lezen boeken
       the at-home to read   books
       'the books to read at home'

position that are discussed in this section, as eventive modifiers, which means that the lexical root is dominated by *v*P and AspP. However, in the case of present participles, *v* can introduce an external argument, which moves to Spec,CP in a raising analysis of relative clauses, and *v* can bear the Case feature for the object.[19] Another difference is that, with present participles, Asp expresses imperfectivity (a progressive event), and not perfectivity, as with passive participles.

I analyze prenominal present participles accompanied by complements (in Dutch) or by verb-modifying adverbs (in Dutch and in English) as eventive modifiers, which means that the lexical root is dominated by *v*P and AspP:

(67)   een Franse liedjes zingende zanger
        a   French songs   singing   singer
        'a singer singing French songs'
(68)   the softly singing girl

In the case of prenominal present participles, the external argument or (with unaccusative verbs such as *arrive*: the internal argument) is not projected in the reduced structure. However, *v* can assign Case to a direct argument.[20] I claim that prenominal present participles that are not accompanied by adverbs or complements can also have an event interpretation:

(69)   het zingende meisje
        'the singing girl'
(70)   de arriverende trein
        'the arriving train'

For passive participles, Embick (2004) claims that they can have a result reading, a state which is the result of an event. I contend that, at least in Dutch, present participles can also have a meaning which is situated between an eventive and a stative reading. This is the case for certain present participles when they are used predicatively. In that case they express a progressing situation instead of a progressing event. The present participle (which normally ends in *–end*) can also end in *–ende*, and marks the progressive interpretation. The copular verb provides the stative part of the interpretation:

(71)   Hij lijkt   zoekend(e)   naar bevestiging.
        he seems searching-(e) for   conformation
        'He seems to be searching for confirmation.'
(72)   Deze discussie is al   lang gaand(e).
        this discussion is already long going
        'This discussion is going on since a long time already.'

---

[19] Present participles can also be unergatives (in which case there is no object), or unaccusatives (in which case *v* does not introduce an external argument and does not bear the Case feature for the object):
(i)   een trein rijdend van A naar B
        'a train riding from A to B'
(ii)   passagiers arriverend in Rome
        'passengers arriving in Rome'
[20] In Thurén's (2006) analysis of the internal syntax of present participles, prenominal eventive participles only contain AspP, but no *v*P. Since prenominal eventive participles are eventive, I assume that *v*P is present.

(73)   Het aantal   blijft   groeiend(e).
       The number remains growing
       'The number is still growing.'

Besides prenominal eventive and resultative modifiers, I distinguished, in the preceding sections, stative passives. Present participles can also have a stative interpretation (Fabb, 1984; Hoekstra, 1984; Toman, 1986; Brekke, 1988; Bennis and Wehrmann, 1990; Haspelmath, 1996; Van der Putten, 1997, Meltzer-Asscher, 2010). This happens in the case of the present participial form of psych verbs such as 'astonishing', 'disappointing' or 'boring'. Since these forms can be modified by the adverb 'very', they must be stative. There is no vP, and Asp is stative.

(74)   a very astonishing remark
(75)   this method is very disappointing
(76)   een heel vervelend boek
       a   very boring   book
       'a very boring book'

In the next section, I discuss forms ending in the suffix '-ble'.

4.2   Forms ending in the suffix '-ble'
Just like passive and present participles, verb-based modifiers ending in the suffix *-ble* (in Dutch *–baar*) are only marginally acceptable in postnominal position in Dutch, whereas in English this is their canonical position when they are accompanied by verb-modifying adverbs or complements:

(77)   een ziekte   overdraagbaar door uitwerpselen van katten
       a   disease transmittable by   feces   of cats
       'a disease transmittable by feces of cats'

Postnominal verb-based modifiers ending in '-ble' have a passive reading. Therefore, I analyze them as involving a v that does not assign an external theta-role and does not check accusative Case, but which is the locus of agentivity (see also e.g. Williams, 1981; Roeper and Van Hout, 1999). They project (at least) a direct internal argument, which moves to Spec,CP. They are also dominated by AspP, although they differ from passive participles in not expressing perfectivity. The '-ble' modifier has the modal interpretation 'that can be X-ed'. This suggests that v is dominated by a $\text{Mood}_{\text{possibility}}$P (Cinque, 1999) in this case.

Prenominal verb-based modifiers ending in '-ble' can also have an event interpretation, even if they are not accompanied by adverbs or complements. They can also occur prenominally in English. I assume that in this case the lexical root is also dominated by vP, AspP and $\text{Mood}_{\text{possibility}}$P, but that there is no direct internal argument that moves to Spec,CP:

(78)   een (gemakkelijk) overdraagbare ziekte
       'a (easily) transmittable disease'
(79)   een door muggen   overdraagbare ziekte
       a   by   mosquitos transmittable disease
       'a disease transmittable by mosquitos'

In Dutch, prenominal forms ending in '-ble' can be combined with a complement introduced by *for* instead of *by*. I take this to mean that *v* does not contain the feature 'agentive', just as in the case of resultative passive participles:[21]

(80)　een voor iedereen (gemakkelijk) bereikbaar doel
　　　 a　for　everyone　(easily)　　　 reachable　goal
　　　 'a goal (easily) reachable for everyone'

Finally, just like present participles, verb-based modifiers ending in –*ble* can also have a stative reading, which means, in my analysis, that they are not dominated by *v* and $Mood_{possibility}P$, but only by AspP expressing stativity:

(81)　a very considerable amount
(82)　a very adorable puppy

In the next section, I discuss the attributive *to* + infinitive construction.

4.3　To + infinitive

Just like passive participles and '-ble' forms, the attributive *to* + infinitive construction has a passive reading.[22] In English, the *to* + infinitive construction has the modal interpretations 'that has/have to be X-ed' or 'that can be X-ed'. In English it can only occur in postnominal position, whereas in Dutch the postnominal position is not acceptable:[23]

(83)　the books to read
(84)　During that period, the only thing to eat was McDonald's.
(85)　a.　　*de boeken te lezen
　　　　　　 the books　to read
　　　 b.　　de te lezen boeken

In postnominal position, the infinitive is dominated by an eventive and agentive *v*, by AspP, and by a $Mood_{necessity}P$ or $Mood_{possibility}P$. The direct internal argument moves to Spec,CP.

In Dutch, the *to* + infinitive construction can only occur in prenominal position. In the most eventive reading, *v* is eventive and agentive, and is dominated by AspP. It can have the modal interpretations 'that has/have to be X-ed' or 'that can be X-ed'. Therefore I analyze the infinitive as being dominated by $Mood_{necessity}P$ or by $Mood_{possibility}P$. In prenominal position, there is no direct internal argument that moves to Spec,CP:

---

[21] Leeman (1992) also shows that some (French) '-ble' forms are not combined with an agent introduced by *by*, which is a verbal property according to Leeman, but with a complement introduced by *for*.

[22] In English, but not in Dutch, attributively used *to* + infinitive can furthermore have an active interpretation, with the "antecedent" noun originating as the complement of the infinitive, as in (i), or as the subject of the infinitive, as in (ii):
(i)　　the years to come
(ii)　　the man to fix the sink

[23] In English only infinitival modifiers that resemble compounds such as *a soon-to-be-published report* are allowed in prenominal position (Laflaquiere, 2010).

(86)   een opnieuw te nemen besluit
        an again   to make decision
        'a decision to make again'
(87)   een door niemand te raden password
        a   by   no one   to guess password
        'a password that cannot be guessed by anyone'

Just like '-ble' forms, *to* + infinitive can be combined in Dutch with a *for*-phrase instead of a *by*-phrase, but only in the possibility reading. This combination suggests that *v* is not agentive in this case:

(88)   een voor iedereen goed te begrijpen   tekst
        a   for everyone good to understand text
        'a text that everyone can easily understand'

        Finally, the fourth interpretation distinguished for the other deverbal modifiers is missing: *to* + infinitive does not have a stative reading.
        In this section and the preceding one, I have claimed that postnominal and prenominal eventive participles differ in their internal syntactic analysis and in their being more or less fully eventive. In the next section, I will adduce this as an argument against unitary analyses of postnominal and prenominal reduced relatives such as Kayne's (1994) or Cinque's (2010) analyses. I will furthermore show that the analysis of the positions of modifiers of the noun proposed in this paper is, instead, a mix of their analyses.

5.   Against unitary analyses of participles
In the literature, two different unitary analyses of prenominal and postnominal (eventive) participles have been proposed. In this section, I reject these analyses and propose an alternative in line with the analysis of participles in the preceding sections.

5.1   Two unitary analyses of reduced relatives
        In Kayne (1994), prenominal modifiers such as prenominal participles and postnominal participial modifiers are both analyzed as reduced relative clauses that are the complement of the determiner, with the "antecedent" noun raising from within the relative clause.[24] Kayne claims that the position of postnominal participles results from the fact that the noun is moved to Spec,CP. The position of prenominal participles results from the movement of the (adverb +) participle to Spec,CP:[25,26]

(89) $[_{DP}$ the $[_{CP}$ book$_i$ $[t_i$ sent t_i to John]]
(90) $[_{DP}$ the $[_{CP}$ recently sent$_i$ [book t_i]]

---

[24] Larson and Marušič (2004) also argue that the postnominal position of participles and adjectives found with indefinite pronouns (*everything stolen*) is the basic order and that the prenominal position (*every stolen thing*) is derived, the modifier being raised (for reasons of Case-checking requirements on the modifier).
[25] For N-final relative clauses in languages other than English, such as Japanese, Kayne proposes that IP moves out of CP to Spec,DP:
(i) $[_{DP}$ IP$_i$ $[_{CP}$ D° [$[_{NP}$ picture] [C° $[t]_i$]]]]
[26] If NP does not move to Spec,CP, Kayne (1994:98) assumes that "abstract incorporation of NP to the determiner is possible via C°, so that the NP poses no Case problem".

Kayne states that Spec,CP has to be filled and that this is the reason for the movement of the (adverb +) participle in (91) to Spec,CP, resulting in its prenominal position. According to Kayne, movement of a participle followed by a complement or modifier is excluded by a head-final constraint such as Emonds' (1976) Surface Recursion Restriction, excluding prenominal modifiers that do not end in the head of the phrase. If the participle is followed by a complement or an adverb, it is the NP that moves to Spec,CP, resulting in the postnominal position of the participle, as shown in (92). A problem with this analysis, however, is that movement of the participle to Spec,CP is not always forced. Instead of the participle, the noun can move to Spec,CP even if movement of the participle would not violate a head-final constraint. Bolinger (1967) shows that simple participles can occur both in prenominal and postnominal position. This also holds for participles preceded by an adverb. In (93a-b) it is the participle that has moved to Spec,CP and in (94a-b) it is the noun:

(91) $[_{DP}$ the $[_{CP}$ recently sent$_i$ [book t_i]]]
(92) $[_{DP}$ the $[_{CP}$ book$_i$ [t_i sent t_i to John]]]
(93)   a. $[_{DP}$ the $[_{CP}$ stolen$_i$ [jewels t_i]]]
        b. $[_{DP}$ the $[_{CP}$ $[_{IP}$ recently received]$_i$ [books t_i]]]
(94)   a. $[_{DP}$ the $[_{CP}$ jewels$_i$ [t_i stolen]]]
        b. $[_{DP}$ the $[_{CP}$ books$_i$ [t_i recently received]]]

Just like Kayne, Cinque (2010) claims that prenominal and postnominal (reduced) relatives originate in the same position. But whereas in Kayne's analysis both types are relative clauses which are the complement of a determiner, with the noun originating in the relative clause, in Cinque's analysis both types are merged in the functional projections of the noun (Cinque 2010:ch. 3):

(95)
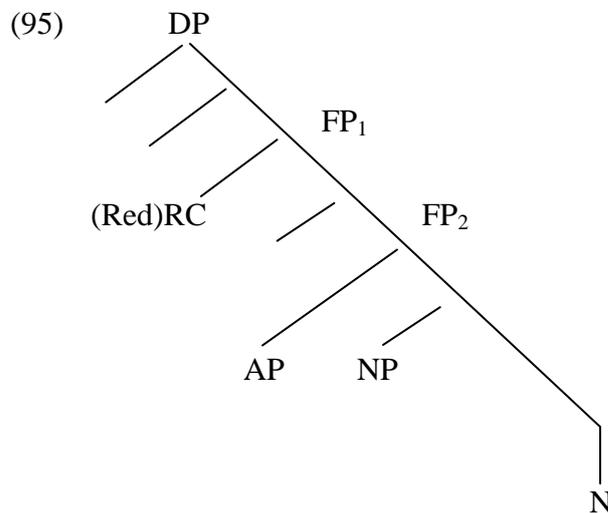
In Cinque's analysis of the postnominal position of (reduced) relative clauses, first the reduced or full relative clause is attracted to a higher position.[27] Subsequently, the remnant NP is attracted to an even higher position:[28]

---

[27] Cinque calls this "extraposition", but it is movement to the left (followed by remnant movement), instead of rightward movement as in the case of the traditional type of extraposition.

[28] In both cases, movement takes place to the specifier of a merged (possibly covert) complementizer, as in Kayne (1999, 2000, 2005). For the sake of simplicity, I only indicate the movement operations and not the merge operations.

(96) a.   [the [[recently arrived] nice Greek vases]]
     b.   [the [[recently arrived]$_i$ [t$_i$ nice Greek vases]]]
     c.   [the [[t$_i$ nice Greek vases]$_j$ [[recently arrived]$_i$ t$_j$]]]

In this analysis, the (remnant) movement of the NP to a position dominating the relative clause depends on the prior movement of the relative clause itself. The relative clause only becomes postnominal (after remnant NP movement) if it is moved to a higher position. If it is not moved to a higher position, there is no (remnant) NP movement either, and the relative clause ends up in a prenominal position.

Since the final prenominal or postnominal position of the relative clause depends on its movement to a higher position, Cinque (2010:ch. 5) distinguishes prenominal and postnominal relative clauses on the basis of the force with which they are attracted to a higher position. More concretely, Cinque distinguishes three types of relative clauses, i.e. indirect modifiers (Sproat and Shih, 1988). For English, he makes a distinction between full relative clauses, participial reduced relatives (*the letters recently sent* or *the letters sent recently*) and bare AP reduced relatives, such as *-ble* adjectives or adjectives such as *present*. Full relative clauses are merged in a higher position than participial reduced relatives, which are merged in a higher position than bare AP reduced relatives (which are merged in a higher position than purely adjectival, i.e. direct, modifiers of the noun):

(97)
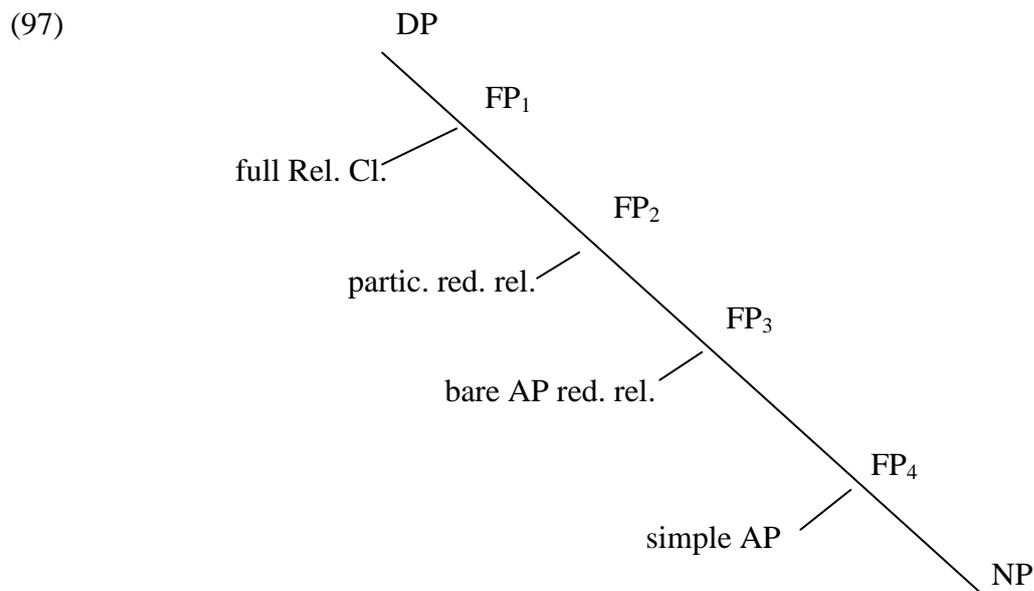
Full relative clauses in English obligatorily occur in postnominal position. This means that in this case the force of attraction is very high (98). Participial reduced relative clauses followed by a complement or adjunct also obligatorily occur in postnominal position, due to a ban on right recursion for phrases found on left branches (Emonds 1976). They are therefore also attracted with much force to a higher position (99). Participial reduced relatives not followed by a complement or adjunct optionally occur in postnominal position. This means that the force of attraction is variably high in this case (100-101). Only bare AP reduced relatives that arguably have an (invisible) right-branching structure, can occur in postnominal

position (102). Truly bare AP reduced relatives cannot occur in postnominal position (unless they are stressed), which means that the force of attraction is very low (103):[29]

(98)   the letters that I have sent to John
(99)   the letters sent to John
(100)   the recently sent letters
(101)   the letters recently sent
(102)   a star visible
(103)   *a colleague angry (just stepped in)

In English, there seems therefore to be a relation between the internal structure of the relative clause (full – reduced – bare), i.e. its syntactic complexity (presenting (invisible) right recursion or not), and its position with respect to the noun. In Cinque's analysis, these differences are related to the force with which (reduced) relatives are attracted to the specifier of a functional projection dominating them (followed by remnant movement).

Cinque's analysis raises the question as to why there should be an internally syntactic difference between reduced relatives in prenominal and postnominal position in English. Why should the postnominal reduced relatives in (104) be (invisibly) right-branching, but not the prenominal ones in (105)? There is no difference in interpretation that would justify this distinction:

(104)   a.   the jewels stolen
         b.   the letters recently sent
         c.   the stars visible

(105)   a.   the stolen jewels
         b.   the recently sent letters
         c.   the visible stars

Kayne's and Cinque's unitary analyses of prenominal and postnominal reduced relatives in English are based on the argument that there is no difference in interpretation between the two types of indirect modifiers. In both analyses, the difference in position is due to right-branching properties of the participle. In Kayne's analysis, the participle does not move to Spec,CP if it is right-branching. In Cinque's analysis, the different position is related to the force with which the reduced relative is attracted to a higher position (followed by remnant movement), which is also related to a right-branching structure. In section 2, I argued, however, that prenominal participles are less eventive than postnominal ones, based on an analysis of deverbal modifiers in English and Dutch. In section 3, I claimed that this difference in interpretation is reflected in a difference in internal syntactic structure. I proposed that postnominal eventive modifiers project a direct internal argument that moves to Spec,CP, which results in their postnominal position. I claimed that prenominal eventive modifiers have a less "rich" internal structure, and that for this reason they are merged in the functional projections of NP.

---

[29] For focalized constituents Cinque (2010:section 6.2) proposes that there is movement to Spec,FocusP, followed by remnant NP movement.

In this subsection, I have rejected Kayne's and Cinque's unitary analyses of prenominal and postnominal reduced relatives. In the next subsection, I show that the alternative analysis that I proposed in section 3 is a mix of their analyses.

5.2 *A mixed analysis*

In section 3, I proposed that postnominal deverbal modifiers are the complement of D with the noun moving to Spec,CP, as in Kayne's analysis of reduced relatives. I proposed furthermore that the prenominal deverbal modifiers are not dominated by a CP projection, but are merged within the functional projections dominated by DP, as in Cinque's (2010) analysis of reduced relatives. Cinque (1994) calls the first type predicates and the second type attributes.[30] The semantically richest prenominal modifier, i.e. the prenominal modifier with the richest internal syntactic structure – the eventive prenominal modifier – is merged at the left edge of the modifier system within the functional projections of the noun.[31]

(106)

     = attributes   CP=predicate (=eventive 2)
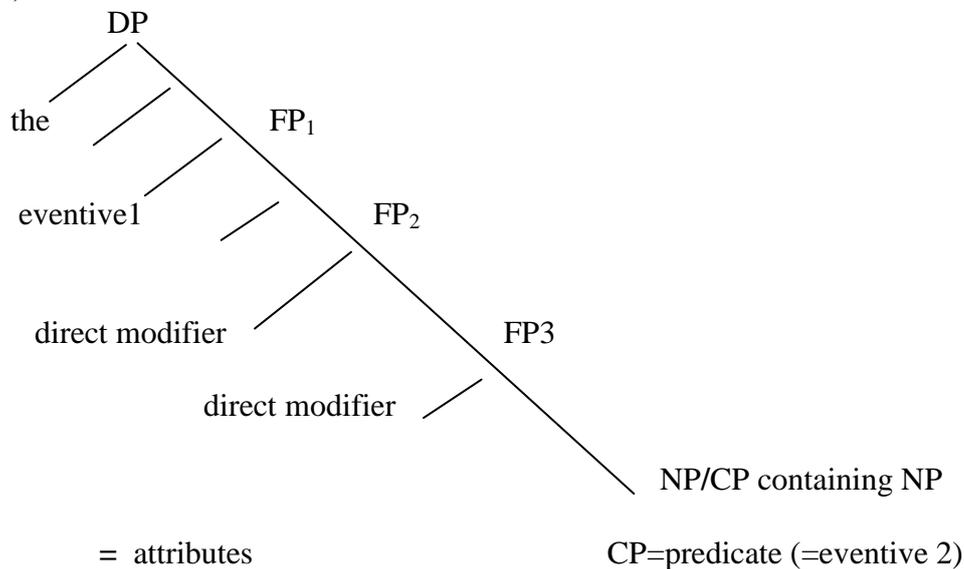
(107)   the recently damaged unopened / original package (eventive1 – direct modifier)

The different agreement patterns of prenominal and postnominal modifiers in Germanic languages such as Dutch, as in (42), can be attributed to this distinction between attributive and predicative modifiers of the noun. Sleeman (2002) claims that agreement between the attributive modifier and the noun in Dutch, generally expressed by an inflectional schwa on the modifier, is the result of concord between the determiner, the noun, and the attributive modifier(s) in the specifier position of the functional projections of the noun, based on Higginbotham's (1985) theta-binding and theta-identification relations. She argues that there is no overt agreement on postnominal modifiers, because this is a case of Spec-Head agreement between the

---

[30] For the distinction between DP-internal predicates and attributes see also Bouchard (1998).

[31] In N-initial languages such as the Romance languages, the postnominal position of the direct (resultative or stative) and eventive 1 modifiers results from NP-movement, as in Cinque's roll-up mechanism, cf. also Laenzlinger (2005). It might be assumed, as in Cinque (1994), that the reason for NP-movement to a higher functional projection in Romance is morphological in nature, e.g. attraction by a strong number feature.

predicate (the adjective or the participle) and its specifier (the noun in Spec,CP), based on Higginbotham's (1985) theta-marking relation. She argues against Kester (1996), who follows Chomsky (1995) in assuming that agreement expresses the checking of φ-features in a Spec-Head configuration. However, in Chomsky's (1995) analysis of (predicative) agreement the noun is the specifier and the (predicative) adjective is the head. In the case of attributive agreement, the reverse situation obtains: the noun is the head and the adjective is the specifier. This is why Sleeman (2002) claims that predicative and attributive adjectives differ in the expression of agreement/concord.[32] In a theory such as Distributed Morphology, the concord/agreement facts can be handled in a similar way. In DM, all affixes, or only features that are not relevant for semantic interpretation at LF, but which are only relevant for morphological well-formedness, are introduced after Syntax, at the PF branch. The distinction between concord and agreement could then be related to the presence or absence of a feature or to the spell-out of a feature, both depending on the context, such as an attributive or predicative position (Sauerland 1996).

6.   Conclusion

In this paper, it has been argued that deverbal modifiers of the noun are (at least virtually) polysemic, and can in principle have four readings, ranging from a fully eventive one to a purely stative one, with two intermediate readings. The polysemic character of deverbal modifiers, which become less and less eventive, motivates the syntactic distinction between prenominal and postnominal deverbal modifiers that I have made in this paper.

I have assumed that postnominal deverbal modifiers are the complement of the determiner, with the noun raising to Spec,CP. I have claimed that prenominal deverbal modifiers can be eventive, just like postnominal ones, but that there is no argument that raises to Spec,CP. I have suggested that because of their relatively rich internal syntactic structure, prenominal eventive deverbal modifiers are merged at the left edge of the functional projections dominating NP. In this way, I have argued against unitary analyses of prenominal and postnominal reduced relatives as either predicates or attributes, such as Kayne's (1994) or Cinque's (2010) analyses. Instead, I have analyzed the postnominal deverbal modifiers as predicates and the prenominal ones as attributes, defending Cinque's (1994) analysis.

---

[32] Schoorlemmer (2009) shows that Agree in terms of c-command (as in Chomsky, 2000, 2001) or in terms of dominance can account for attributive agreement and predicative agreement in copula constructions both in Germanic and in Romance languages. However, he leaves the analysis of the absence of agreement with predicative adjectives in Dutch (and German and Yiddish) for future research.

earlier version of this paper and Mike Olson for correcting my English. I am very grateful to the reviewers of this paper for their many valuable remarks and suggestions. All remaining errors are mine.

References

Alexiadou, A., 2001. Functional Structure in Nominals. Nominalization and Ergativity. John Benjamins, Amsterdam/Philadelphia.

Alexiadou, A., Anagnastopoulou, A., 2007. Structuring participles. Hand-out of a paper presented at WCCFL 26, University of California, Berkeley, 28 April 2007.

Bennis, H., Wehrmann, P., 1990. On the categorial status of present participles. In: Bok-Bennema, R., Coopmans, P. (Eds.), Linguistics in the Netherlands 1990. Foris, Dordrecht, pp. 1-11.

Bolinger, D., 1967. Adjectives in English: attribution and predication. Lingua 18, 1-34.

Borer, H., 1990. V + *ing*: It walks like an adjective, it talks like an adjective. Linguistic Inquiry 21, 95-103.

Bouchard, D., 1998. The distribution and interpretation of adjectives in French: a consequence of Bare Phrase Structure. Probus 10, 139–183.

Brekke, M., 1988. The experiencer constraint. Linguistic Inquiry 19, 169-180.

Cabredo Hofherr, P., 2010. Adjectives. An Introduction. In: Cabredo Hofherr, P., Matushansky, O. (Eds.), Adjectives. Formal Analyses in Syntax and Semantics. John Benjamins, Amsterdam/Philadelphia, pp. 1-26.

Chomsky, N., 1970. Remarks on nominalisation. In: Jacobs, R., Rosenbaum, P. (Eds.), Readings in English Transformational Grammar. Blaisdell, Waltham, MA, pp. 184-221.

Chomsky, N., 1995. The Minimalist Program. MIT Press, Cambridge, MA.

Chomsky, N., 2000. Minimalist Inquiries: The Framework. In: Martin, R., Michaels, D., Uriagereka, J. (Eds.), Step by Step: Essays in Minimalist Syntax in Honor of Howard Lasnik. MIT Press, Cambridge, MA, pp. 89-155.

Chomsky, N., 2001. Derivation by phase. In: Kenstowicz, M. (Ed.), Ken Hale: A Life in Language. MIT Press, Cambridge, MA, pp. 1-52.

Cinque, G., 1994. Evidence for partial N-movement in the Romance DP. In: Cinque, G., Koster, J., Pollock, J.-Y., Rizzi, L., Zanuttini, R. (Eds.), Paths Towards Universal Grammar : Studies in Honor of Richard S. Kayne. Georgetown University Press, Washington D.C., pp. 85-110.

Cinque, G., 1999. Adverbs and Functional Heads. A Cross-Linguistic Perspective. Oxford University Press, New Yord/Oxford.

Cinque, G., 2010. The Syntax of Adjectives. A Comparative Study. MIT Press, Cambridge, MA.

Collins, C., 1997. Local Economy. MIT Press, Cambridge, MA.

Embick, D., 1997. Voice morphology and its interfaces with Syntax. PhD dissertation, University of Pennsylvania.

Embick, D., 2004. On the structure of resultative participles in English. Linguistic Inquiry 35.3, 355-392.

Embick, D., Noyer, R., 2006. Distributed Morphology and the Syntax/Morphology interface. In: Ramchand, G., Reiss, C. (Eds.), Oxford Handbook of Linguistic Interfaces. Oxford, Oxford University Press, pp. 289-324.

Emonds, J., 1976. A Transformational Approach to English Syntax: Root, Structure-Preserving and Local Transformations. Academic Press, New York.

Fabb, N., 1984. Syntactic affixation. PhD dissertation, MIT.

Grimshaw, J., 1990. Argument Structure. MIT Press, Cambridge, MA.

Halle, M., Marantz, A., 1993. Distributed Morphology and the pieces of inflection. In: Hale, K., Keyser, S.J. (Eds.), The View from Building 20. MIT Press, Cambridge, MA, pp. 111-176.

Halle, M., Marantz, A., 1994. Some key features of Distributed Morphology. MIT Working Papers in Linguistics 21, 275-288.

Harley, H., 1995. Subjects, events and licensing. PhD dissertation, MIT.

Harley, H., Noyer, R., 1999. Distributed Morphology. Glot International 4.4, 3-9.

Haspelmath, M., 1996. Word class changing inflection and morphological theory. In: Booij, G., Marle, J. van (Eds.), Yearbook of Morphology 1995, Kluwer, Dordrecht, pp. 43-66.

Higginbotham, J., 1985. On Semantics. Linguistic Inquiry 16.4, 547-594.

Hoekstra, T., 1984. Transitivity. Grammatical Relations in GB-theory. Foris, Dordrecht.

Iordăchioaia, G., Soare, E., 2009. Structural patterns blocking plural in Romance nominalizations. In: Aboh, E., Linden, E. van der, Quer, J., Sleeman, P. (Eds.), Romance Languages and Linguistic Theory. Selected Papers from 'Going Romance' 2007. John Benjamins, Amsterdam/Philadelphia, pp. 145-160.

Kayne, R., 1994. The Antisymmetry of Syntax. MIT Press, Cambridge, MA.

Kayne, R., 2000. A note on prepositions, complementizers, and word order universals. In: Kayne, R.S. (Ed.), Parameters and Universals. Oxford University Press, New York, pp. 314-326.

Kayne R., 2005. Some notes on comparative syntax, with special reference to English and French. In: Cinque, G., Kayne, R.S. (Eds.), The Oxford Handbook of Comparative Syntax. Oxford University Press, New York, pp. 3-69.

Kester, E.-P., 1996. The nature of adjectival inflection. PhD dissertation, Utrecht University.

Kratzer, A., 1994. The event argument and the semantics of voice. ms. University of Massachusetts, Amherst.

Laenzlinger, C., 2005. French adjective ordering: perspectives on DP-internal movement types. Lingua 115.5, 645-689.

Laflaquiere, D. 2010. Remarks on the syntax of prenominal infinitival constructions in English. Hand-out of a paper presented at the annual meeting of the Linguistic Society of the Netherlands, Utrecht University, 6 February 2010.

Larson, R., Marušič, F., 2004. On indefinite pronoun structures with APs: reply to Kishimoto. Linguistic Inquiry 35.2, 268-287.

Leeman, D., 1992. Deux classes d'adjectifs en –ble. Langue Française 96, 45-63.

Levin, B., Rappaport, M., 1992. The Formation of adjectival passives. Linguistic Inquiry 17, 623-661.

Marantz, A., 1993. Implications of asymmetries in double object constructions. In: Mchombo, S.A. (Ed.), Theoretical aspects of Bantu Grammar, vol. 1. CSLI Publications, Stanford, pp. 113-150.

Marantz, A., 1997. No escape from Syntax: don't try morphological analysis in the privacy of your own lexicon. In: Dimitriadis, A., Siegel, L., Surek-Clark, C., Williams, A. (Eds.), University of Pennsylvania Working Papers in Linguistics, vol. 4.2. pp. 201-225.

Marantz, A., 2001. Words. Hand-out of a paper presented at West Coast Conference on Formal Linguistics, University of Southern California, 23-25 February 2001.

Meltzer-Asscher, A., 2010. Present participles: categorial classification and derivation. Lingua 120, 2211-2239.

Nespor, M., Vogel, I., 1986. Prosodic Phonology. Foris, Dordrecht.

Ogihara, T., 2004. Adjectival relatives. Linguistics and Philosophy 27.5, 557-608.

Picallo, C., 1991. Nominals and nominalizations in Catalan, Probus, 3, 279-316.

Putten, F. van der, 1997. Matter and Mind in Morphology. Syntactic and Lexical Deverbal Morphology in Dutch. Holland Academic Graphics, The Hague.

Pylkkännen, L., 2002. Introducing arguments, PhD dissertation, MIT.

Ramchand, G., 2008. Verb Meaning and the Lexicon. A First-Phase Syntax. Cambridge University Press, Cambridge.

Rizzi, L., 1997. The Fine Structure of the Left Periphery. In: Haegeman, L. (Ed.), Elements of Grammar: Handbook of Generative Grammar. Kluwer, Dordrecht, pp. 281-339.

Roeper, T., Hout, A. van, 1999. The impact of nominalization on passive, *-ble* and middle: Burzio's Generalization and feature movement in the lexicon. MIT Working Papers in Linguistics 35, 185-211.

Sadler, L., Arnold, D., 1994. Prenominal adjectives and the phrasal/lexical distinction. Linguistics 30, 187-226.

Sauerland, U., 1996. The late insertion of Germanic inflection. ms. MIT.

Schoorlemmer, E., 2009. Agreement, dominance, and doubling: the morphosyntax of DP. PhD dissertation, Leiden University.

Siegel, D., 1973, Nonsources of unpassives. In: Kimball, J. (Ed.), Syntax and Semantics, vol. 2 . Seminar Press, New York, pp. 301-317.

Sleeman, P., 2002. Adjectival agreement within DP without feature movement. In: Satterfield, T., Tortora, C., Cresti, D. (Eds.), Current Issues in Romance Languages. John Benjamins, Amsterdam/Philadelphia, pp. 301-317.

Sleeman, P., Brito, A. M., 2010. Aspect and argument structure of deverbal nominalizations: a split vP analysis. In: Alexiadou, A., Rathert, M. (Eds.), Nominalizations across Languages and Frameworks. Mouton de Gruyter, Berlin, pp. 199-218.

Sleeman, P., Verheugd, E., 1998. Licensing DP-internal predication. In: Schwegler, A., Tranel, B., Uribe-Extebarria, M. (Eds.), Romance Linguistics. Theoretical Perspectives. John Benjamins, Amsterdam/Philadelphia, pp. 271-282.

Sleeman, P., Verheugd, E., 2000. Deverbal adjectivalization as a gradual process. Acta Linguistica Hungarica 47.1-4, 315-333.

Sproat, R., Shih, C., 1988. Prenominal adjectival ordering in English and Mandarin. Proceedings of NELS 12, 465-489.

Thurén, C., 2006. The syntax of Swedish present participles. The lexical category problem. Working Papers in Scandinavian Syntax 77, 151-175.

Toman, J., 1986. A (word-) syntax for participles. Linguistische Berichte 105, 367-408.

Wasow, T., 1977. Transformations and the lexicon. In: Culicover, P., Wasow, T., Akmajian, A. (Eds.), Formal Syntax. Academic Press, New York, pp. 327-60.

Williams, E., 1981. Argument Structure and Morphology. The Linguistic Review 1, 81-114.

Zwart, J.-W., 1997. The Morphosyntax of Verb Moment: A Minimalist Approach to Dutch Syntax. Kluwer, Dordrecht.