The category of participles

1. Introduction

Wasow (1977) argued that some passive participles are derived in the lexicon while others are derived in the syntax. One of Wasow's main motivations for a syntax-lexicon split was that some participles behave like just adjectives, so called adjectival participles, while other have at least some verbal properties, so called verbal participles. Wasow assumed that category changes could only take place in the lexicon, and since participles are formed from verbs, adjectival participles must be derived in the lexicon, at least if we take them to literally be adjectives. Verbal participles on the other hand, were assumed to be true verbs. In non-lexicalist frameworks, like DM and Nanosyntax, several attempts have been made to give a syntactic account of both adjectival and verbal participles. In addition, a more fine-grained typology of participles has been argued for, see e.g. Kratzer (2000), Embick (2004), Taraldsen and Medova (2006), Lundquist (2008). All these accounts agree that adjectival and verbal participles differ in term of syntactic size of the constituent that the participial ending attaches to, in ways similar to Abney (1987). Further, in these accounts, the typical semantics of adjectival participles (e.g., stativity) is not provided by the participial morphology, but rather originates either within the (verbal) stem itself (e.g. a Davidsonian state-argument, Kratzer 2000, or a result/state projection inside a decomposed VP) or from some aspectual material, either attaching inside or outside the participial phrase. These accounts very neatly manage to capture the differences in the internal syntax of adjectival and verbal participle phrases, but they fail to account for the differences in (external) distribution between the different types of participle phrases. For example, Wasow's observation that only adjectival participles can appear in the complement of a raising verb like *seem*, in the complement of *remain* and as prenominal modifier, is hard to explain if we assume that different types of passive participles differ only in attachment site of the participial morpheme: both types of participles are after all headed by the same morpheme, and we expect that distribution should be determined by the category-assigning head, not the internal structure of the participle phrase.

In this article I will take this problem as a starting point and discuss the relation between lexical categories and "derived" categories, like participles and nominalizations. The central question is how the internal structure of a constituent affects its distribution. I will argue that all participles have the distribution of adjectives, though the presence of event-structure in some participles makes them illicit in certain typical adjectival contexts where either certain scalar properties or stativity is selected for. Most importantly, I will show that postulating a categorial split between adjectival participles and verbal participles is neither semantically, morphologically nor syntactically motivated. I will further argue that the theory of lexical categories of Baker (2003) provides a good tool for dealing with participles of different types. I will also claim that the distribution of event-structure nominalizations is restricted by sim-

ilar factors to those restricting event-structure participles.

2. Different takes on participles

Participles are traditionally defined as adjectives derived from verbs. The following definition is from Crystal (1991):

(1) Participle: 'a word derived from a verb and used as an adjective'

Participles can however differ in how much verbal structure they contain. For passive participles, a distinction has been made between verbal passives and adjectival passives. A verbal passive differs from an active verbal clause only in the syntactic realization of the arguments of the verb, and has the same event structure and argument structure as an active verb. Both the active (2-a) and the passive (2-b) could thus refer to the same event. They are in other words semantically equivalent.

(2) a. John broke the window yesterday.
b. The window was broken by John yesterday.

Both sentences above refer to a breaking-event taking place yesterday, of which John is the agent and the window is the theme. In an adjectival passive on the other hand, the argument structure and the event structure are somehow reduced, or possibly absent, as illustrated in (3):

(3) The window was still broken (*by John) yesterday.

The adverb *still* forces a stative reading of the participle, and the participle thus no longer can refer to a breaking event. Once the event-component of the predicate is removed, an agent adverbial can no longer be licensed. The verbal participle can be said to have a complex event structure, equal to that of the active verb, while the adjectival participle refers to a state or a property, just like an adjective.[1]

The question that this article centers around is whether the internal structure of the participle phrases has any relevance for the category issue. The definition of participle in (1) says basically that participles are adjectives, and I will claim that we have no reasons to question this definition. We know that participles, both verbal and adjectival, have the typical morpho-syntactic properties of adjectives. For example, participles inflect for number and gender (and possibly case) in languages where adjectives inflect for these categories, but not for person, unlike verbs, as illustrated in (4) (examples from Spanish):

(4) a. *El hombre es querid***o** *por sus padres/alt***o**
DEF man IS.3.SG loved.M.SING by his parents/tallM.SING
'He's loved by his parents/tall.'

[1]In Kratzer (2000) and Embick (2004) two types of "adjectival" participles are identified: target state/stative and resultant state/resultative participles. In this article I will not evaluate these claims, or even give exact structures for different types of adjectival participles. Both Kratzer (2000) and Embick (2004) show that adjectival passives can be phrasal in nature, which makes them difficult to deal with in a lexicalist framework. For the purpose of this article, it is irrelevant whether participles are formed in the lexicon or the syntax, though since that the arguments for lexically derived adjectival participles are rather weak, we can probably safely assume that even adjectival participles (at least the phrasal ones) are syntactically derived.

b. *Las chicas son querid***as** *por sus padres/alt***as**
DEF girls IS.3.SG loved.FEM.PLUR by their parents/tall.FEM.PLUR
'The girls are loved by their parents/tall.'

The examples above compare verbal participles to adjectives, but adjectival participles of course show the same type of inflection as other participles and adjectives. In other words, there is no correlation between the presence of event-structure and adjectival inflection.[2]

Further, participle phrases have the same core distribution as adjectival phrases: they can appear in the complement of a copula, and they can appear as adnominal modifiers (more on this in section 2.1). However, there are some substantial differences in distribution between verbal and adjectival participles: adjectival participles, can appear in the complement of the raising verb *seem*, just like adjectives but unlike verbal participles. As shown below, a participle in the complement of *seem* cannot license an agentive *by*-phrase:

(5) John seems happy.
(5) This window seems broken (*by John).
(5) This window seems to be broken by John.

If we take this to be a conclusive argument for treating adjectival participles as adjectives and verbal participles as verbs, we have to give up the definition in (1). I will however argue that passive participles always are (derived) adjectives. Following Matushansky (2002), I will argue that *seem* can only take gradable complements, and that event-structure participles crucially are not gradable. Wasow (1977) gives two more distributional differences between adjectival and verbal participles: adjectival participles can appear as prenominal modifiers, and they can appear in the complement of *remain*. Below I will look more closely at the differences in distribution between verbal and adjectival participles, and show that these differences tell us nothing about the category of participles. Rather, all participles are externally adjectives (just like all nominalizations externally are nouns).[3]

2.1. Wasow (1977) and the distribution of participles

According to Wasow, one of the main reasons to assume that adjectival participles are adjectives is that adjectival participles have the distribution of adjectives. Most notably, they can appear as ad-nominal modifiers, and they can appear in the complement of a number of raising verbs:

(6) a. the broken cup

[2]I only know of one language where verbal participles fail to show typical adjectival inflection in contexts where adjectives and adjectival participles do, and that is Danish, where predicative stative/adjectival participles optionally show number and gender agreement, just like regular adjectives, and eventive passive participles never show agreement (examples from Sten Vikner, p.c.)

(i) a. Døren/dørene blev lukk**et** i går av John
The door/doors was/were closed yesterday by John
b. Dørene er fortsat lukke**de**/lukket
The doors are still closed.

I nothing to say about this here.

[3]This point was made by Abney (1987) as well, for whom that participial ending always was of the category A.

b. The cup seems broken.

However, the restriction on attributive participles is much less strict than the distribution of participles following e.g. *seem*, as shown in (7):

(7) a. the recently made headway - all that headway was/??seems made in a day.
b. the most recently taken photos - these photos were/??seem taken recently.
c. the kicked out guests - they were/??seem/??seemed kicked out from the pub.

As shown in (7-a), even idiom chunks can appear in prenominal participle phrases, which we can take as evidence that the participle phrase has a phrasal source (see Kratzer 2000 for discussion). The question is whether so-called "verbal" participles are at all illicit as prenominal attributes. It is clear that participles with agentive *by*-phrases are illicit as prenominal attributes (8-a); but on the other hand, even regular adjectives with PP modifiers/arguments are illicit prenominally (8-b):

(8) a. the (*by John) broken window/the broken (*by John) window
b. the (*of John) jealous man/the jealous (*of John) man

Rather, adjectival and participial phrases with PP-modifiers/arguments need to surface post-nominally, as in (9):

(9) a. the window broken by John
b. the man jealous of John

The fact that participles with agentive *by*-phrases cannot surface pre-nominally does thus not tell us about the category of the participle phrase. It just tells us that pre-nominal attributes cannot take PP modifiers/arguments.[4] We also know that in languages where PP-modifiers of attributes are licit, agentive *by*-phrases are also licit in this context, as in the following example from Rapp (2000):

(10) *der vom Kellner eingeschenkte Wein.*
the by waiter served wine
'the wine served by the waiter'

There is in other words no reason to assume that only "adjectival" participles, i.e. participles that are event- or argument structurally reduced, can be used as pre-nominal attributes.[5]

The restriction on event-structure participles in the complement of *seem* cannot however be deduced from the shape of the participle phrase (i.e. from the presence of PP-

[4] In English this might follow from two independent restrictions: the ban on head-initial prenominal modifiers, and the ban on a PP preceding the head/phrase it modifies.

[5] Agent-oriented adverbs are licensed in pre-nominal participle phrases, as shown in (i):

(i) a. the intentionally poorly placed signs
b. the intentionally delayed payment

However, an adverb like *intentionally* does not require an agent present in the semantic/syntactic, as shown in (ii):

(ii) the intentionally bad joke

arguments/modifiers), since PP's are licit in the complement of adjectival complements of *seem*:

(11) a. He seems fond of the situation.
b. He seems very interested in this type of problems.

However, as argued by Matushansky (2002), *seem* select sfor gradable adjectives (or an IP/CP). As shown in (12), non-gradable adjectives are not licit in the complement of *seem*:

(12) a. This music seems nice/*choral. (from Matushansky (2002)
b. This problem seems insoluble/*mathematical. (from Matushansky (2002)

However, most non-gradable adjectives can undergo "scalarity coercion", and it is thus hard to find adjectives that are strictly ungrammatical under *seem*, as illustrated in (13) (from Matushansky (2002):

(13) a. This music seems almost choral.
b. This problem seems pretty much mathematical.

The same is true for participles too: it is possible for most participles to undergo scalarity coercion. However, when they do, they always lose their argument/event structure, as shown in (14-b), where the agent phrase no longer is available:

(14) a. That book was/*seems written by Hamsun.
b. This book seems very well-written (*by Hamsun).

The gradability sensitivity is also very clearly seen with present participles. Both gradable and non-gradable participles are licit in an prenominal position, and in the complement of *be*, while only gradable present participles are licit under *seem*:

(15) a. the (very) fascinating/moving/boring movie
b. the (*very) running, laughing, dancing man

(16) a. This movie seems (very) fascinating/moving/boring.
b. *John seems (very) running/laughing/dancing.

As will be returned to below, it is not obvious what it means for event structure participles, or even active verbs, not to be graded. In fact, they can, except that an adverb has to be added to give some kind of scale. Sometimes, an adverb like *much* is sufficient, but other times a more semantically rich adverb like e.g. *badly* or *poorly* is needed (see Kennedy and Levin 2002 for more discussion on this issue):

(17) a. They injured him so much/so badly that he could hardly walk.
b. He broke the the stereo set so badly/*so much that it could not be fixed again.

The adverb is still required in event-structure (ES) passives, but only optional in adjectival passives:

(18) a. He was injured so much/so badly by the gangsters that he could hardly walk afterwards. (ES passive)

b. He was so injured (*by the Gangsters) that he could hardly walk. (Stative passive)

(19) a. The stereo set was broken so badly/*so much by John that it could not be fixed again. (ES passive)
b. The stereo set was so broken (*by John) that it could not be fixed. (stative passive)

I will not here be able to answer exactly what the adverb provides: it could either be a new scale altogether, or just a specific value of a scale already present in the verb. Either way, degree modifiers like *so* and *very* cannot directly access a scale provided the an event-denoting head like v (see below on "v"). Whatever the reason is that makes *so* and *very* unable to access a scale provided by a verb, we can assume that *seem* is unable to access a scale given by v for the same reason.

Remain on the other hand seem to be able to take only stative complements, irrespective of the gradability of the complement. As shown in (20), the ambiguous participle *broken* can not take a *by*-phrase when appearing in the complement of *remain*, indicating that only a stative/adjectival participle is licensed under *remain*. However, as shown in (20), a participle formed from a stative verb, with maintained event structure, can surface under *remain*, though not *seem* (it is at least highly marked), indicating that stativity really is the crucial feature involved:

(20) The window remained broken (*by John) for many days.

(21) a. London Lite, like its free sister morning newspaper, Metro, remained owned by Associated Newspapers, the same media group that owns the Daily Mail.
b. ??London Lite and Metro seem owned by the same company.

It is possible that other adjectival positions are sensitive to the state–event distinction as well, for example secondary predicates (see Embick 2004 for discussion).

The arguments above show that a constituent containing complex event structure can have adjectival distribution, most notably it can appear adnominally.[6] Further, appearing in the complement of a copula, as both verbal and adjectival participles usually do, is of course something that adjectives do, but not usually verbs. Participles with event structure have a more restrictive distribution compared to participles without event structure, but still, event-structure participles can only appear in positions where adjectives can surface, i.e. there are no positions where a participle phrase containing event structure can surface and a regular

[6]One could object that adnominal eventive participle phrases are reduced relative clauses. However, this doesn't really affect the discussion about (lexical) category. It is clear that reduced relative clauses aren't just full clauses where the auxiliary (T) and the complementizer (C) has been elided post-syntactically, as many reduced relative clauses cannot surface as full relative clauses, at least not with the same meaning, as shown for present participial reduced relative clause in (i), and a passive/past participial relative clause in (ii):

(i) a. [The fence surrounding the house] was never torn down.
b. ??[The fence that is surrounding the house] was never torn down.

(ii) a. the recently arrived train
b. ??the train that is/was recently arrived

See discussion on this issue in Lundquist (2008), chapter 5 and 7.

adjectival phrase can't. I have suggested that event-structure participles are illicit in the complement of *seem* due to the fact that they lack the relevant scalar properties that *seem* selects for. However, scalar structure is not a definitional characteristic of adjectives, since there are non-gradable adjectives. Further, *remain* can only take a stative complement, which explains the ungrammaticality of event-structure participles formed form non-stative verbs in the complement of *remain*. However, being stative is not a sufficient criterion for being an adjective, since verbs (and nouns) can be stative as well. In general, there is no reason to assume that passive participles formed from stative verbs are more adjectival than passive participles formed from non-stative verbs, just as we can't assume that stative verbs are more adjectival than non-stative verbs. There is presumably no difference in the relation between the active and the passive members in (22-a) compared to (22-b): in both cases, a verb has been turned into a participle, but neither the event structure nor the argument structure has been changed:

(22) a. John broke the stick - the stick was broken by John.
b. John owned the company - the company was owned by John.

In short, both adjectival and event structure participles have the distribution of adjectives. They differ in their internal structure, but there is no reason to assume that e.g. adjectival participles have an additional "adjectival" projection that is absent in verbal participles.[7] Further, as shown above, event-structure participles have a typical adjectival inflection pattern, which is an additional argument for their adjectival status.

3. Adjectives as a default category

Classifying participles as adjectives is quite pointless unless we have a theory about (lexical) categories. Focusing on adjectives and verbs, we have seen above that adjectives can be accessed by certain degree modifiers, while verbs cannot. However, not all adjectives are gradable, which at least suggests that a word can be of the category adjective, without having a scale structure. That is, being gradable is not a necessary condition for being an adjective. Verbs tend to denote events, in contrast to adjectives, which tend to denote properties or states. However, not all verbs denote events, and the difference between a verbal predication (23-a) and an adjectival predication (23-b) can often not be stated in terms of eventivity (or stativity) (see Baker 2003 for discussion):

(23) a. The square root of four equals two.
b. The square root of four is even.

Baker (2003) argues that there is a structural, rather than semantic, difference between adjectives and verbs. He gives the following definitions of the three lexical categories:[8]

(24) a. Noun:"has a referential index"
b. Verb : "has a specifier"

[7] In Lieber (1980), it is proposed that adjectival participles contain a phonologically null adjective morpheme, attached outside the participle morphology. The adjectival layer is supposed to give adjectival participles their adjectival distribution.

[8] I will have little to say about the early Chomskian view of lexical categories, where the lexical categories where built up by the binary features V and N. See Baker (2003) for discussion and criticism of various theories of lexical categories.

c. Adjective: "has neither referential index, nor specifier"

I will return to nouns in the next section. Adjectives is for Baker just a default category. A verb always has a specifier, according to Baker, where a subject (or external argument) can be introduced. Adjectives (and nouns) require an additional functional projection to introduce a subject, which Baker labels Pred(ication), following Bowers (1993). For Baker, Pred and V are different in that V is a lexical category, while Pred is a functional category.[9] However, an adjective can head move to a Pred head, and thereby filling Pred with lexical material, which turns Pred into V. Baker suggests that the adjectival predicates in (25-a) and the verbal predicates in (25-b) have the same underlying structure, and differ only in the timing of the vocabulary insertion:

(25) a. Fred is hungry/ Fred is fond of spinach.
b. Fred hungers /Fred likes spinach.

In the adjectival cases, vocabulary insertion takes place before the merging of Pred:

(26) a. A
b. [$_{AP}$ A (PP)] **Merge**
c. [$_{AP}$ hungry/fond (NP)]**Vocabulary insertion**
d. [Pred [$_{AP}$ hungry/fond (NP)]] **Merge**
e. [$_{PredP}$ NP Pred [$_{AP}$ hungry/fond (NP)]]]**Merge**
f. [$_{PredP}$ NP $\emptyset$ [$_{AP}$ hungry/fond (NP)]]] **Vocab. Insert**
g. [NP$_i$ be$_j$ + Tense [$_{AuxP}$ t$_i$ t$_j$ [$_{PredP}$ t$_i$ $\emptyset$ [$_{AP}$ hungry/fond (NP)]]]]]

In the verbal cases, vocabulary insertion takes place after the merging of Pred. The adjectival stem moves to the Pred head, which turns Pred into a normal V:

(27) a. A
b. [$_{AP}$ A (NP)] **Merge**
c. Pred [$_{AP}$ A (NP)] **Merge**
d. A$_i$ + Pred [$_{AP}$ t$_i$ (NP)] **Move**
e. like/hunger [$_{AP}$ t$_i$ (NP)] **Vocab. insertion**
f. [$_{VP}$ NP like/hunger [$_{AP}$ t$_i$ (NP)]] **merge**
g. [NP$_j$ Tense [$_{VP}$ t$_j$ like/hunger [$_{AP}$ t$_i$ (NP)]]]

The difference between a participle and a full verb can presumably be described in the same way: a participle lexicalizes a verbal structure where no Pred is present yet. For adjectival participles, a derivation similar to that in (27) is presumably more or less straightforwardly applicable. There is however a big debate about whether eventive verbal participles contain an external argument or not, in form of a pro or PRO. Below I give three arguments against the presence of an external argument in verbal passives.

1. Anaphoric binding: In contrast to an overt subject (28-a) or a PRO subject (28-b), the implicit external argument of a passive participle cannot bind an anaphor (28-c). Ex-

[9] His arguments here are far from convincing. He claims he needs Pred to capture the fact that predicative nouns and predicative adjectives sometimes can be conjoined, while predicative nouns/adjectives and verbs cannot. Most of his examples are better explained by assuming that what makes it possible to conjoin predicative nouns and adjectives is a shared Scale/Grade P, which is absent in verbs, rather than a PredP.

amples below are from Swedish, since the contrast is most clearly seen with possessive anaphors (and English lacks a special set of possessive anaphors):

(28) a. *Han åt upp hela tårtan på sin födelsedag.*
he ate up whole cake on REFL.POSS birthday
'He ate the whole cake on his birthday.'
b. *Att äta tårta på sin födelsedag är högst normalt*
to eat cake on REFL.POSS birthday is high.SUP normal
'Eating a cake on one's (own) birthday is highly normal'
c. **Hela tårtan blev uppäten/åts upp på sin födelsedag.*
whole cake.DEF was up.eaten/ate.PASS up on REFL birthday
int. 'The whole cake was eaten up on his birthday.' (i.e., he ate the whole cake on his birthday)

2. Principle B/C violations: Certain types of referential expressions that occur in the complement of a passive participle can be interpreted as co-referent with the implicit external argument(29-a). This is impossible when the subject is overt in a finite clause (29-b) or when in PRO-infinitivals (29-c):

(29) a. Van Gogh$_i$ usually painted out in the fields, but this painting was painted in the artist's$_i$ own garden.
b. *Van Gogh usually painted out in the fields, but he$_i$ painted this painting in the artist's$_i$ own garden.
c. *To PRO$_i$ paint a painting in the artist's$_i$ own garden didn't seem like a good idea (to Van Gogh).

3. Control of adjectival agreement: The implicit external argument cannot control number and gender agreement on a depictive adjective, as shown in (30-a) (and we assume that depictive adjectives require agreement with some argument, and don't allow "default" agreement). However, a depictive predicate in the shape of a PP (which shows no agreement) is however licit. A PRO-subject easily can license agreement on depictive adjectives, making (30-c) grammatical:

(30) a. **Middagen åts alltid naken/naket/nakna under*
dinner.DEF ate.PASS always nude.CG/nude.N/nude.PL under
sommaren.
summer.DEF
'The dinner was always eaten nude during the summer'
b. ?*Middagen åts alltid utan kläder under sommaren.*
dinner.DEF ate.PASS always without clothes under summer.DEF
'The dinner was always eaten nude during the summer'
c. *Att äta middag naken sågs som helt normalt.*
to eat dinner nude.CG.SG see.PAST.PASS as completely normal.
'Eating dinner nude was regarded as completely normal.'

There is however no doubt that there is some event-denoting category contained in eventive passives, for example an INIT or PROC projection in the terms of Ramchand (2008), or a little v with of a certain flavor, as in various DM accounts (see e.g. Embick (2004) or Harley (2005)), as we can see in the fact that a depictive PP modifying the external argument *is* licit in eventive passives, and also in the well-known fact that purpose clauses sometimes are licit in eventive passives. What is important though, is that there are no signs of the presence of a true external argument, i.e. no Voice or Pred (or whatever you take to be the relevant projection that introduces the external argument). We can thus assume that an event-structure participle has the structure of (31):[10]

(31) *-ed* [v [Root]]

After v has been merged, there could in principle be at least three options for the next merge: either a VoiceP/PredP (or simply a specifier) is merged, and you get a verb, or a referential index is added to v, resulting in a event-structure nominalization, or participial morphology is added, resulting in a specifier-less structure, i.e. an adjective. The question is of course why you need to merge participial morphology, given that the specifier-less vP already is structurally an adjective. I will just assume, following Kratzer (2000), that participial morphology is needed to license the absence of verbal morphology (or alternatively to host gender/number inflection).

Note that I have used the label "v" in the structure in (31), which is of course contradictory if we believe that a projection only can carry the label v if it has a specifier. The label v should preferably be replaced by a more semantically transparent label, like "process", "event" or even "state". For the purpose of this article, I will simply assume that "v" (or whatever is its correct name) introduces an event variable, but not an external argument, which rather is provided by Voice (as in Kratzer 1996 or Pred. Once a lexical item spells out both "v" and Pred, it is presumably correct to label it v(erb).

4. Parallels to the nominal domain

The problem with the restrictive distribution of event-structure participles is parallel to that of the distribution of event-structure nominals (see Grimshaw 1990). Just as with participles, linguists have claimed that event-structure nominals and result (or simple event) nominals differ in attachment site of a nominalizing morpheme (see e.g. Abney 1987, Kratzer 1996, Alexiadou 2001 and Lundquist 2011). There are good reasons to assume that event structure nouns of the type exemplified in (32-a) lack a "specifier", or a subject (introduced by Voice or Pred).[11] I will simply assume that a nominalizer adds a referential index to some structure built in the syntax (or possibly a root). Baker (2003) suggests that whereas (32-a) is taken to contain some eventive category, let's call it v, (32-b) does not (examples from Grimshaw 1990).

[10] I will not have anything to say about the introduction of the internal argument. It is possible that the internal argument is introduced in a specifier position linked to either the root or a lower verbal projection. As discussed in Baker (2005), a noun (and presumably an adjective as well) can contain a projection with a specifier, as long as it is further embedded in other material without specifiers. Baker argues that this is the case for verbal gerunds, and it is presumably also the case for more structurally rich participial phrases, like active past participles, and some present participles, which will be returned to in the concluding section.

[11] Arguments for the lack of subjects in complex event nominals are given in Abney (1987) and Lundquist (2011)

(32) a. the frequent assignment of easy problems
b. [The assignment] lay on the table.

As noted by Grimshaw (1990), one of the characteristics of event structure nouns is that they cannot carry plural marking, or appear in the complement of an indefinite article (33), in contrast to result/simple event nouns (34):

(33) a. *The frequent examinations of the students
b. ??many killings of civilians by the military
c. ??a deliberate killing of a civilian by the military

(34) a. An assignment lay on the table.
b. Many/the assignments lay on the table.

Just like with participles, it thus seems like the internal structure of the nominal determines the external distribution. Event-structure nouns seem to have the distribution of mass nouns, while result/simple event nouns have the distribution of count nouns (see Harley 2009 for a description of the facts in this way). If we assume, following Borer (2005), that a number projection requires a classifier phrase (Cl) in its complement (which functions to individuate a mass noun), we have to conclude that event-structure nouns are incompatible with Cl, in contrast to result/simple event nouns:

(35) a. [Cl [-$ment_n$ [Root]]] (result/simple event noun)
b. *[Cl [-$ment_n$ [vP]]] (event structure noun)

A classifier projection is thus incompatible with a noun containing event structure just like a grade (or a scale) projection is incompatible with an adjective with event structure:

(36) a. Grade/Scale [-ed_a [Root]]] (stative participle)
b. *Grade/Scale [-ed_a [vP]]] (event-structure participle)

Just as an event-structure noun still is noun, an event structure participle is still an adjective. Being available for number modification is clearly not a defining characteristic of nouns, since there are mass nouns (like e.g. *furniture*), just as being available for grade modification is not a defining characteristic of adjectives, since there are non-gradable adjectives (like e.g. *chemical*).[12]

The big question that remains to be answered is *why* nouns and participles with event structure are incompatible with a classifier/scale projection. Verbs can clearly have some scalar structure, as discussed above (and see e.g. Hay et al. 1999), and events can presumably be individuated, for example with the help of an aspect node. One possibility is that verbs (with event structure) already have their own scale and individuation values set, and

[12]Harley (2009) argues that result nominals contain verbal structure as well, at least result nominals containing an overt verbalizer ('v'), like *-ate* or *-ize*. According to Harley, the relation between the event noun *assignment* and the result noun *assignment* is the same as the relation between the mass noun *coffee* and the count noun *(a) coffee*. The absence of e.g. event modifiers in result nouns simply arises as an effect of coercing a mass noun into a count interpretation. If this is the right analysis, the same analysis would work for adjectival participles as well. We have however strong evidence that count-coercion (in the nominal domain) and scalarity coercion (in the adjectival/participial) domain removes the event-entailments of participles and nominalizations, as seen in the absence of argument structure and event-modifiers in result nominals and adjectival participles, at least in English.

that these values are incompatible with the additional classifier and scale projections, and not directly accessible by a nominal number projection or certain grade modifiers (possibly due to the embedding under a n/a head). Cross-linguistically, event-structure nouns can sometimes carry number marking, and the availability of number marking is often correlated with certain type of aspect marking, see Alexiadou et al. for a cross-linguistic overview. It might turn out that some languages have event structure participles that are as gradable as regular adjectives, at least for certain aspectual values, i.e. we may find event-structure participles with the same distribution as regular gradable adjectives.

5. Concluding remarks and remaining issues

The restriction on e.g. plural marking on nominalizations has been used as a test for separating event structure nominalizations from result/simple event nominalizations, but little effort has been put into explaining the restrictions (but see e.g. Harley 2009 and Alexiadou et al. for exceptions). The restrictions on the distribution on event-structure (or verbal) participles have also been used as a diagnostics for separating event structure participles from stative/adjectival participles. For event-structure/verbal participles, the restrictions have just been assumed to follow from their category: verbal participles are simply verbs and are thus not expected to appear in typical adjectival positions, as e.g. the complement of *seem* and *remain*, and in attributive positions. I have argued above that even event-structure participles have an adjectival distribution; it is only that their internal structure makes them illicit in contexts where only either stative or gradable elements are licensed. In short, event-structure participles are adjectives to the same extent that event structure nominalizations are nouns. The important fact is that the presence of an event variable (provided by "v") inside a participle makes the participle unavailable for direct grade modification, just like the presence of an event variable inside a nominal makes the nominal incompatible with a classifier. We now thus have at least the beginning of an answer to the initial question: Why is it that the internal structure of a word, rather than the head of the word, determines its distribution? In the story given above, participle morphemes and nominalizing morphemes have very simple functions: a nominalizing suffix adds a referential index, and a participle ending cuts off a functional sequence before a specifier has been added. If they attach to something containing a v-node, the distribution of the derived adjective/nominal will be restricted, due to further limits of grade and number modification.

There are two at least two further relevant issues/problems that need to be mentioned in this paper. The first one is why there are no lexical event-structure adjectives, i.e., why are there no non-derived adjectives that, for example, take an agent and a patient argument, like an event-structure participle. Part of the answer presumably lies in the fact that every item with an event variable can be used as a verb. In that sense, every possible event-structure adjective would have a corresponding verb, i.e. there would be both a verbal item and an adjectival item connected to the same (complex) concept. In some sense, this is exactly what we see: structures containing event structure can be realized as verbs (e.g. as an infinitival) or as adjectives (i.e., as participles). It happens to be the case that most event-structure adjectives are formed with the same ending (*-ed*), but of course there are (semi-)irregular (or strong) or zero-derived participles as well (i.e. *written* or *hit*, and see also Embick (2004) for a list of participles that have special target state participle forms). The situation is similar for nominalizations, i.e. event-structure nominals are derived from verbs, most often with the fully productive affix *-ing*, but sometimes with a zero nominalizer or a less productive

morpheme.

The second remaining big issue is the distribution of participles and nominalizations with even more internal verbal structure, like active participles and POSS-*ing*, as exemplified below:

(37) a. John has given Mark a ball.
b. John's/*the giving Mark a ball

In these cases it is probably safe to conclude that the participial/nominalizing ending attaches in a higher functional domain (as proposed in Abney 1987 and Baker (2005) for gerunds), and that both the participle and the nominalization presumably contain a specifier, where an external argument is introduced. Let us for now assume that the nominalizer (i.e., a referential index) and the participial marker attach in a Tense-node, before a specifier has been merged, as in (38):

(38) *-s/have* [T *-ing/-ed* [$_{vP}$ [(Ext.Arg)] v [Root]]]

Let us assume that the specifier T is the position where a subject can be case licensed. What is interesting is the fact that an even smaller set of determiners/number markers is available in POSS-*ing* gerunds compared to the event structure nouns discussed above, and the active past participles don't really have an adjectival distribution at all. However, if (38) is the right structure for an active participle (and a POSS *-ing* gerund), the active participle is still an adjective, at least in Baker's term, i.e. it is word without a specifier and without a referential index. It is however a completely unique type of adjective, just as the POSS *-ing* gerund is a completely unique type of nominal, in that it contains an external argument. The only way to license these structures seems to be to merge an element that can case-license the external argument, either a possessive *-s* in the nominal domain, or a possessive verb in the clausal domain.[13] In other words, it seems to be possible to treat *-ed* in active participles and *-ing* in POSS *-ing* gerunds as regular adjectivalizers/nominalizers, with their distribution falling out from a more general condition on case-licensing of external arguments.

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[13] In the gerunds, it is also possible to let the subject come out as a PRO. Why this is not possible for active past participles is not clear. It should be mentioned that it is possible in present participial phrases, like *having bought the house, John decided to go home* and even verbal passive participles *Given the chance, I would leave this country*.

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