

The Category of Participles

Björn Lundquist, University of Tromsø, CASTL/NorDiaCorp

1. Introduction

In an influential paper, 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 just like adjectives, so called adjectival participles, while other had 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, and could thus be assumed to be formed in the syntax.

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 terms of syntactic size of the constituent that the participial ending attaches to (or spells out), in ways similar to Abney (1987). Furthermore, in these accounts, the typical semantics of adjectival participles (e.g., the stativity) is not provided by the participial morphology, but rather originates either within the (verbal) root itself (e.g. a Davidsonian state-argument, Kratzer 2000, or a result/state projection inside a decomposed VP) or some aspectual material, either attaching inside or outside the participial phrase. These accounts neatly 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 participles. 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 a prenominal modifier is hard to explain if we assume that different types of passive participle only differ in the attachment site of the participial morpheme: both types of participle are after all headed by the same morpheme, and we expect external distribution to be determined by the head and 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 required. I will further argue that the theory of lexical categories argued for by Baker (2003) gives us a good tool to deal with participles of different sizes. In the last two sections of the paper, I will compare the behavior of the different types of participle to the different types of nominalization, and I will argue that just as nominalizations that contain event structure are still "nouns", participles with event structure are still "adjectives". On analogy with the terminology used for different types of nominalizations, I will propose that the terms event structure participles and result/stative participles should be used instead of the theoretically more loaded terms verbal and adjectival participles.¹ I will however use adjectival and verbal participle in this article in the discussion of previous literature on the topic.

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 passive participles and adjectival passive participles (e.g. Wasow 1977) (see section 5 for discussion of active past participles). A verbal passive participle 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 (2a) and the passive (2b) verb phrase could thus describe 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 so-called adjectival passives 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 can thus no longer 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 event structure, equal to that of the active verb, while the adjectival participle refers to a state or a property, just like an adjective.²

The central question of this article 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, or at least that they have the same function as adjectives. The internal structure of participle phrases, at least event denoting participle phrases, is presumably quite different from the internal structure of non-derived adjectives, but that should be irrelevant for the category issue: just as most linguists acknowledge that there are event-denoting nouns with verbal substructure, it should be straightforward to acknowledge that there are event-denoting adjectives with verbal substructure. The fact that event structure participles contain more verbal substructure than stative/resultative participles should thus not lead us to conclude that they differ categorically.

If we choose to define categories from the morphological properties of the words, we find 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):³

- (4) a. El hombre es querido por sus padres/
Def.M.Sg. man is loved.M.Sg. by his parents/
alto.
tall.M.Sg.
"The man is loved by his parents/tall."
b. Las chicas son queridas por sus padres/
Def.F.Pl. girls are loved.F.Pl. by their parents/
altas.
tall.f.pl.
"The girls are loved by their parents/tall."

The examples above compare verbal participles to adjectives, but the same of course holds of adjectival participles. In other words, there is no correlation between the presence of event-structure and adjectival inflection.⁴

Further, as mentioned before, 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) a. John seems happy.
b. The window seems broken (*by John).
c. The window seems to be broken by John.

If we were to take this to be a conclusive argument for treating adjectival participles as adjectives and verbal participles as verbs, we would have to give up the definition in (1). I will however argue that passive participles are always (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 do not impose a categorial split among participles. Rather, all participles are externally adjectives (just like all nominalizations externally are nouns).⁵

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
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.

As shown in (7a), even idiom chunks can appear in prenominal participle phrases, which we can take as evidence that the participle has a phrasal source, and can thus not have been derived in the lexicon (see Kratzer 2000 for discussion). It is not obvious that there is any restriction at all on so-called "verbal" participles to be used as prenominal attributes. It is, however, clear that participles with agentive *by*-phrases are illicit as prenominal attributes (8a); but on the other hand, even regular adjectives with PP modifiers/arguments are illicit prenominally (8b):

- (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 postnominally, 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 thus does not tell us anything about the category of the participle phrase. It just tells us that pre-nominal attributes cannot take PP modifiers/arguments.⁶ 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"

In other words, there is no reason to assume that only "adjectival" participles, i.e. participles that are event/argument structurally reduced, can be used as pre-nominal attributes, at least not in languages like English and German (though it could of course be the case that some languages only allow adjectives with certain scalar properties in pre-nominal position).⁷

The restriction on event-structure participles in the complement of *seem* cannot however be deduced from the syntactic shape of the participle phrase (i.e. from the presence of PP-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* selects for 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.
 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 lose their argument/event structure, as shown in (14 b), where the agent phrase is no longer available.⁸

- (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 a 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 gradable. In fact, they can be, it is just that an adverb has to be added to introduce 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 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 stative 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 be able to answer here 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 by an event denoting head like e.g. "v" (see below on "v"). Whatever the reason is that makes *so* and *very* unable to access a scale provided by an event denoting head, we can assume that *seem* is unable to do so for the very same reason.

Remain on the other hand seems to take only stative complements, irrespective of their gradability. As shown in (20), the ambiguous participle *broken* cannot 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 (21), 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).

To summarize, above I have shown with the help of morphological and distributional diagnostics that so called "verbal" and "adjectival" participles should not be treated as two different categories. Rather, both have the morphological and distributional characteristics of adjectives. The most obvious adjectival characteristic of "verbal" participles is their need of a copula to express tense etc. in regular passive clauses (see e.g. 2b above). Even though "verbal" participles have a slightly more restricted distribution compared to prototypical adjectives, there are no positions where participles but not adjectives can appear. I have suggested that participles with event-structure, i.e. participles that contain some event-denoting projection, 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. Furthermore, *remain* can only take a stative complement, which explains the ungrammaticality of event-structure participles formed from 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 (22a) compared to (22b): 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 stative/adjectival and verbal/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 (see e.g. Lieber 1980 for an analysis in that direction).⁹

3. Adjective 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 the relevant scalar properties. 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 (23a) and an adjectival predication (23b) 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:¹⁰

- (24) a. Noun: "has a referential index"
 b. Verb : "has a specifier"
 c. Adjective: "has neither referential index, nor specifier"

I will return to nouns in section 4. Adjective is for Baker just a default category. According to Baker, a verb always has a specifier 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.¹¹ However, an adjective can undergo head movement to a Pred position, thereby filling Pred with lexical material, which changes the label Pred to V. Baker suggests that the adjectival predicates in (25-a) and the verbal predicates in (25b) 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 (derivations below from Baker 2003, p. 87):

- (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 ; [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 could just lexicalize a verbal structure where no Pred is present yet, especially if we take a Pred associated with a verbal root to introduce an external argument. For adjectival participles, a derivation similar to that in (26) is presumably more or less straightforwardly applicable. If we are to apply the derivation of (26) to event-structure participles as well, we need to show that they do not contain external arguments (in the form of PRO or pro). There is a big debate about whether eventive verbal participles contain an external argument or not, in the form of a pro or PRO. Below I give three arguments against the presence of an external argument in regular passives, which makes it possible to apply a derivation like the one in (26) to event structure participles as well, though with a event-denoting, specifierless, projection added before the merging of Pred.¹²

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). Examples 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 tårten 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 tårten blev uppäten/ åts upp på sin födelsedag.
whole cake.Def was up.eaten/ate.Pass up on Refl.Poss 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 (29a). This is impossible when the subject is overt in a finite clause (29b) or PRO in a control infinitive (29c):

- (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).

If an external argument were syntactically present in the passive in (29a), a Principle B (or possibly Principle C) violation would have been expected.

3. Control of adjectival agreement: The implicit external argument cannot control number and gender agreement on a depictive adjective, as shown in (30a) (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 licit. A PRO-subject easily can license agreement on depictive adjectives, making (30-c) grammatical:¹³

- (30) a. *Middagen åts alltid naken /naket /nakna
dinner.Def ate.Pass always nude.CG /nude.Nt /nude.Pl
 under sommaren.
undersummer.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.Pst.Pass as fully normal
 "Eating dinner nude was regarded as completely normal."

Had there been a syntactically present external argument in the event-denoting passive, we would expect this argument to be able to trigger agreement on the depictive adjective, just as PRO can trigger agreement.

There is however no doubt that there is some event-denoting category contained in eventive passives, for example a PROC projection in the terms of Ramchand (2008), or a little *v* of a certain flavor, as in various DM accounts (see e.g. Embick 2004 and Harley 2005). We can see this in the

fact that a depictive PP modifying the external argument *is* licit in eventive passives, as well as purpose clauses. 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):¹⁴

(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 an event-structure nominalization (see more on this below), or participial morphology is added, resulting in a specifier-less structure, i.e. an adjective. The question is why you need to merge participial morphology, given that the specifier-less *v*P already is structurally an adjective (at least according to Baker). There is no obvious semantic or syntactic function of the participial morphology: tense and aspect are in general not expressed by the participial ending (at least not in the languages discussed in this article), but rather by copulas and auxiliaries, and the passive voice of the participle is presumably not encoded in the participial ending either: given that the specifier hosting the external argument is missing, the structure that the participial ending attaches to is already "passive". It is probably better to think of the participial ending as a host for adjectival inflection, or as a slot for phi-features, see Lundquist 2008 for an analysis of the participial ending as uninterpretable Gender features (see also Kratzer's 2000 similar idea that participial morphology is needed to license the absence of verbal morphology).

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 its correct name is) 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 verb.

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 the 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 (32a) lack a "specifier", or a subject (introduced by Voice or Pred).¹⁵ I will simply assume that a nominalizer provides an interpretable Gender feature to some structure built in the syntax, or possibly a root, that lacks a Gender feature in its lexical representation. In line with Lundquist (2008) I assume that (interpretable) Gender features are associated with a referential index, i.e. every word with a realized interpretable Gender feature has a referential index (i.e., is a noun, following Baker's definition). Baker (2003) suggests that whereas (32a) is taken to contain some event denoting category, let's call it *v*, (32b) does not (examples based on examples in Grimshaw 1990).

- (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) (examples from Grimshaw 1990), in contrast to result/simple event nouns (34):

- (33) a. *the frequent examinations of the students (cf. the frequent examination of the students)
 b. *The shootings of rabbits are illegal. (c.f. The shooting of rabbits is illegal)
 c. *A/one shooting of rabbits is illegal.
- (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).¹⁶ 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 degree (or a scale) projection is incompatible with an adjective with event structure:

- (36) a. [Degree/Scale [-ed_a [Root]]] (Stative participle)
 b. *[Degree/Scale [-ed_a [vP]]] (Event-structure participle)

Just as an event-structure noun is still a 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 degree modification is not a defining characteristic of adjectives, since there are non-gradable adjectives (like e.g. *chemical*).¹⁷

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 that these values are incompatible with the additional classifier and scale projections, and not directly accessible by a nominal number projection or certain degree 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 types of aspect marking, see Alexiadou et al. 2010 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. 2010 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 degree 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 degree and number modification.

There are at least two concerns 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 infinitive) or as adjectives (i.e., as a participle). 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 participles). 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 past 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 contain a specifier, where an external argument is introduced. These participles thus contain verbal structure, i.e., a specifier in the sense of Baker (2003) (and see Baker 2005 for a treatment of "dual category" words).¹⁸ 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 to Tense, as in (38):

- (38) -s/have [-ing/-ed [T [vP [(Ext.Arg)] v [Root]]]]

I will assume that the specifier of Tense 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, i.e. not even a definite article (*the*) can select for a nominal -ing merged in T, 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 definition, i.e. it is a word without an external specifier and without a referential index. It is however a unique type of adjective, just as the POSS-ing gerund is a 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.¹⁹ 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 external arguments.

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Notes

¹ I will use the term passive to refer to a whole verbal structure, including a copula/auxiliary, that has the same semantic characteristics as a regular active clause (except for the voice-specification).

² In Kratzer (2000) and Embick (2004) two types of "adjectival" participles are identified: target state/stative and resultant state/resultative participles (see also Parsons 1990 for a more in-depth discussion of the difference between target state and resultant state 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 lexicalist frameworks. For the purpose of this article, it is irrelevant whether participles are formed in the lexicon or the syntax, but given that the arguments for lexically derived adjectival participles are rather weak, we can probably safely assume that participles are syntactically derived (see Bruening to appear).

⁴ List of abbreviations: CG = Common gender, Def = definite, F = feminine, M = masculine, Nt = neuter, Pass = passive, Poss = possessive, Pst = Past, Refl = reflexive, Pl = plural, Sg = singular.

⁵ 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. Dørene blev lukket i går av John.
door.Pl.Def. were closed yesterday by John
 "The doors were closed yesterday by John"
- b. Dørene er fortsat lukkede/lukket.
door.Pl.Def. are still closed.Pl/closed.N
 "The doors are still closed."

I have no explanation for the Danish pattern to give here.

⁶ This point was made by Abney (1987) as well, for whom the participial marker always was of the category A.

⁷ 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.

⁸ Agent-oriented adverbs are licensed in pre-nominal participle phrases, as shown in (ia-b):

- (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 representation, as shown in (ii):

- (ii) the intentionally bad joke

⁹ It is sometimes possible to have by-phrases, even when the participle is scalarity coerced, as in e.g. *this book seems very hurriedly written by its author, as if racing to meet a deadline* (G. Ramchand p.c.). See also Bruening (to appear) for more examples of "adjectival" passives with by-phrases. Whether these participles really have event structure is less obvious. It seems sometimes to be possible to add by-phrases even to clear stative predications, as long as it is possible to tell from the state who could be the agent of an event leading to this state.

¹⁰ 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.

¹¹ I will have little to say about the early Chomskian view of lexical categories, where the lexical categories were built up by the binary features V and N. See Baker (2003) for discussion and criticism of various theories of lexical categories.

¹² Barker's 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.

¹³ In the Swedish examples, I have sometimes used the morphological passive, which is not based on a participle. This is because the morphological passive is more natural in some contexts. Despite the fact that these passives are "verbal", there is no evidence that they contain a syntactically realized external argument.

¹⁴ I give only examples with the morphological passive here, since the participial passive is a bit marked in this context in Swedish, with or without a secondary predicate.

¹⁵ I will not say anything about the introduction of the internal argument here. 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.

¹⁶ Arguments against the presence of subjects in complex event nominals are given in Abney (1987) and Lundquist (2011).

¹⁷ Just as with scales and adjectives with event structure, the facts are more complex, see e.g. Alexiadou et al. (2010). The point here is just that more complex internal verbal structure seems to deprive the noun or the adjective respectively of some of its external distributional properties. The question is whether we can explain this without denying that nominalizations are categorially nouns and that participles are categorially adjectives.

¹⁸ 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 can be seen in the absence of argument structure and event-modifiers in result nominals and adjectival participles, at least in English.

¹⁹ If we take internal arguments to be merged in the specifier of a lower verbal projection, say V, then even structurally smaller participles and nominalizations embed verbal structure.

²⁰ In 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 like *given the chance, I would leave this country*.