

Categorization and Category Change

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Edited by

Gianina Iordăchioaia, Isabelle Roy
and Kaori Takamine

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P U B L I S H I N G

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PREFACE

This book is a collection of selected papers that were presented at the Workshop "Categorization and category change in morphology", which was held at the University of Tromsø in December 2011. The workshop was organized by Antonio Fábregas and Kaori Takamine with the support of the project "Nominalizations: explorations at the syntax-lexicon and the syntax-semantic interfaces (NOMEXPL)" which was funded by the Research Council of Norway together with the German Academic Exchange Service and EGIDE, the French national agency for the promotion of higher education, international student services, and international mobility, via three joint mobility programs: the Aurora program between Norway and France, the German-Norwegian collaborative research support scheme and the PROCOPE program between France and Germany.

The book addresses theoretical and empirical issues related to categorization and category change in syntax and morphology. Linguistic descriptions have always made widespread use of lexical categories, i.e., divisions of words into distinct "parts of speech". Nouns, verbs and adjectives (and sometimes adpositions) are generally considered the three (sometimes four) major lexical classes. Despite this prevalence in linguistics, lexical categories remain a relatively under-developed area of formal linguistic theory and many open questions remain to be addressed. Common questions that generally arise concern the proper definition of the classes with their specific properties, the inventory of categories across languages, and the link between categories and formal linguistic theory.

The book is structured in two thematic parts. The first part, *Categories and categorization*, consists of papers that are concerned with means to distinguish among categories in the lexicon and in the syntax, whether they fall within the well-defined categories or pose a challenge to the traditional definition of categorial classes. The second part, *Issues in category change*, deals with the specific syntactic and morphological derivational processes that are at play when words shift category. It is concerned with the formation of complex words, in particular, how properties of the source category are preserved or modified in the output.

The individual contributions in the volume are in the areas of formal syntax, morphology, the syntax-semantics and the syntax-morphology interfaces. The relevant issues are explored within various theoretical and corpus-based frameworks and within a wide range of languages including

English, French, German, Greek, Japanese, Romanian, Russian, Spanish, and Swedish.

The editors thank the organizers and the audience of the workshop in Tromsø. We also thank the reviewers of the papers and the authors for contributing their works and for participating in the reviewing process.

PART I:

CATEGORIES AND CATEGORIZATION

CHAPTER ONE

CATEGORIES AND CATEGORIZATION: INTRODUCTION

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The classification of words into categories is found from the earliest days of the history of linguistics. Most of the classifying strategies of the old grammars are still used nowadays to identify categories: morphological patterns (e.g., patterns of inflection and/or derivation), distributional patterns (i.e., combination with other lexical items; e.g., determiners for Nouns) and interpretational properties of lexical items. Pānini (4th century BC) in his treatise of Sanskrit grammar *Ashtadhyayi*, categorizes nouns by gender and inflections for case and number. Dionysius Thrax (100 BC) in one of the earliest Greek grammars, the *Art of Grammar* (Τέχνη Γραμματική) distinguishes, on the one hand, a class of words (called *ónoma* i.e., nouns), which inflect for case and express “concrete and abstract entities”, and on the other hand, another class of words (called *rhema* i.e., verbs), which inflect for tense and person and express “an activity or process performed or undergone”.

The morpho-syntactic identification of lexical classes immediately raises two issues regarding the universality of categories. First, to a certain extent, classificatory criteria are language specific and must be defined for each language (or language family) separately. For instance, both French and Russian have an identifiable class of nouns, but French does not inflect its nouns for case and Russian does not introduce them with determiners. So there is not a universal definition of the morpho-syntactic properties of nouns, for instance, in that sense. Second, there are

significant variations cross-linguistically as to what counts as a relevant distinction between categories. Japanese, for instance, is known to distinguish two classes of words which function semantically like adjectives (i.e., they denote properties) but they do not exhibit typical morpho-syntactic properties of adjectives. One class (the *i*-adjectives) are often called verbal-adjectives or adjectival-verbs because they inflect for tense, and they are morphologically similar to stative verbs. Another class (the *na*-adjectives) are often called nominal-adjectives or adjectival-nouns because, as nouns, they need to combine with the copula *da* in order to receive tense and have a subject (Backhouse 2004). Verbal-adjectives and verbs are morphologically similar but also show differences, and so do nominal-adjectives and nouns; are these differences sufficient to motivate a separate lexical class? A positive answer would force a multiplicity of lexical categories (Japanese, in this example, would have two distinct lexical classes of adjectives; also distinct from nouns and verbs). If the answer is negative, and depending on what is assumed to be the major criterion for classification, a proper description will lead to a multiplicity of sub-classifications inside a given class of words ('type1'/'type2'; 'pure'-X/'quasi'-X; class X/class Y/class XY, etc.).

The definition and the identification of lexical classes with their properties lead to the rampant issue of mixed-categories more generally. Mixed-categories are lexical items that share properties of more than one lexical class. Japanese (verbal/nominal-)adjectives can be considered mixed-categories (cf., above); but so can participles and infinitives in Romance and Germanic languages, for instance. To take an example, participles in Dutch can exhibit in the same utterance properties of As (i.e., their use as prenominal modifiers) and have typically verbal complements (Sleeman 2011): *de met zijn handen etende man* (lit. the with his hands eating man) 'the man eating with his hands'. Similarly, Spanish infinitives can be constructed with a determiner and take a subject at the same time: *El cantar yo la Traviata* (lit. the sing-inf I-nom the Traviata) 'Me singing la Traviata'.

Mixed-categories are a problem for feature-based approaches to lexical categories, since these specify discrete classes. The introduction of X-bar theory (Chomsky 1970) offered to identify and distinguish lexical categories on the basis of a restricted set of internal features. The major categories were defined on the basis of two Boolean category features, +/−N, +/−V, leading to a typology that recognizes four lexical categories. (Chomsky 1970 does not mention prepositions, which we call here Adpositions as to encompass pre- and post-positions; these were later added by Jackendoff 1977.)

- (1)
- | | |
|-------------|--------|
| Nouns: | +N; -V |
| Verbs: | -N; +V |
| Adjectives: | +N; +V |
| Adpositions | -N; -V |

Other attempts at formalizing the major lexical categories within a binary distinctive feature-based system are in terms of functional features (i.e., the function that the part of speech operates in syntax) rather than lexical features (i.e., N and V). For instance, Jackendoff (1977) proposed a system based on whether lexical items can have subjects and/or objects (+/-subj; +/-obj): both verbs and nouns can have subjects, while adjectives and adpositions cannot; verbs and adpositions can take complements whereas nouns and adjectives cannot. The typology (now outdated) has been shown not to stand cross-linguistic examination. Déchaine (1993) argues for a rather similar partition, but with a mixed system of lexical and functional features that makes use of referentiality instead of subjecthood: both nouns and verbs are referential (the latter referring to events rather than individuals).

Baker (2003) notes that all these systems are rather arbitrary and that the features and the assignment of values do not always naturally explain some of the syntactic properties of lexical categories. He argues that a proper understanding of the three lexical categories N, V, and A must make use of two distinct and orthogonal dimensions and cannot be achieved by working with purely lexical or purely functional features alone. Instead, he proposes that both their internal syntactic properties and their meaning be taken into consideration, yielding a typology based on referentiality (formalized by a referential indexing) and projection of a specifier. Verbs are defined as lexical categories that take a specifier (and hence a subject), and nouns as bearers of a referential index. The third lexical category, adjectives, is distinguished negatively, having neither of these properties. The features are claimed to be universal. Cross-linguistic variation is in part dealt with by functional projections that can be overt or covert, partly blurring the categorical distinctions. (For Baker adpositions are *functional* rather than *lexical* items and thus escape the classification.)

- (2)
- | | |
|-------------|--------------------------------|
| Verbs: | +specifier |
| Nouns: | +referential index |
| Adjectives: | -specifier; -referential index |

An entirely different generative approach to lexical categories is taken in Distributed Morphology (Marantz 1997, Harley and Noyer 2000, Arad

2003) and in the Exo-skeletal approach developed in Borer (1999, 2005). In these frameworks, both representative of syntactic approaches to word formation, the smaller lexical pieces are *roots*, which are category neutral. Categories are determined by the syntactic environment in which the root is inserted. In Distributed Morphology, categories are specified via dedicated functional heads (little *v*, little *n*). For Borer no such dedicated position is assumed, and instead lexical categorization is the result of a “top-down” combination with functional projections that are nominal or verbal. A mixture of the two syntactic models is assumed in Acquaviva (2008). For a recent discussion and more background on lexical categories and categorization in syntactic approaches see Panagiotidis (2011) and references therein.

Feature-based approaches and syntactic approaches have in common to assume discrete classes. There are no fuzzy boundaries between the lexical categories, because they are categorized in terms of features values (‘+’ or ‘-’) or functional projections (either absent or present). Going back to the issue of mixed-categories, there are no means, thus, to express fuzziness in the existing systems. One solution that has been proposed for the ‘fuzziness’/‘mixed-category’ issue is to assume a continuum of categories rather than discrete classes. Ross (1972) argues for such a continuum from verb to noun: verb > present participle > passive participle > adjective > preposition > adjectival noun (e.g., *run*, *snap*) > noun. For Ross the distinction between N, V and A is one of degree rather than kind. Feature-based approaches do not offer an alternative to the continuum of categories and mostly fail to account for mixed categories. Syntax-based approaches do offer a way to treat fuzziness/mixed-categories, however, as they allow for (complex) words associated with a particular lexical category to have properties of other lexical categories as well depending on the type of (functional) projection they embed. This kind of approach can easily explain mixed-categories in a language like English, which most generally concern derived words, i.e., words obtained through morphological derivation from other (categorized) words or (lexical) roots. Evidently, in these cases, mixed lexical properties must be the result of mixed structure inside the derived word: derived words retain some properties of their bases and the variation among attested forms is related to how much structure is actually retained. Participles, for instance, can have adjectival properties because they project an A(djective)P or a DegreeP, and therefore are lexically adjectives; and yet retain properties of verbs because they are built upon a *v*P layer. However, this kind of approach cannot be applied to the Japanese adjectival-verbs, for instance,

in absence of evidence that they involve complex internal structure or are structurally derived, and there the issue remains.

Beyond the major lexical categories N, V and A, there is still a great deal of variability regarding the inventory. Items that don't pertain to the main classes are either treated as mixed categories (e.g., gerunds, participles, infinitives), or as functional categories. Baker (2003) takes this latter position for prepositions, for instance. As defined by Abney (1987) functional categories are closed classes, they are phonologically and/or morphologically dependent, they take an obligatory complement from which they cannot be separated. Their meaning is grammatical rather than lexical and it must be computed within a full phrase/sentence in order to be obtained (e.g., prepositions). Functional categories can also contribute grammatical information about tense, aspect, determination, negation, and so on. The lexical/functional distinction has also been claimed to be orthogonal to word classes (see, e.g., prepositions, which are lexical and/or functional). Independently of whether they form a word class or not, functional items play a crucial role in the identification of the lexical classes, as words are often classified on the basis of the functional material they can combine with (D with nouns, Tense with verbs, etc.)

The papers that constitute the first part of this volume broach two of the major issues introduced above: the problem of mixed-categories and its reflex on the inventory are dealt with by Lundquist and Takamine, while the contribution of functional items in defining the properties of a lexical class is tackled in Janda's and Takamine's studies.

Lundquist addresses participles in Swedish and the mixed category features of adjectival/verbal derived words from a syntactic perspective. He argues for a structural account where the differences between (so-called) adjectival and verbal participles are related to the internal structure of these expressions, while both are reduced to the same lexical class, that of adjectives. The paper discusses valency/voice changing and category changing operations with verbal and adjectival passives, and so-called middles, including anti-causatives. Lundquist argues that verbal/event-denoting passives crucially differ from adjectival passives and middles/anti-causatives in that they do not alter the event description. Adjectival passives, on the other hand, always omit event-related projections. He analyzes periphrastic passives in Swedish (the so-called *bli*-passives) as also involving omission of the highest event-related projection in the VP. He further argues that the English *get*-passive is identical to the Swedish periphrastic passive, at least in some uses. On the other hand, he takes middles/anti-causatives to involve re-coding of the referential indices within the VP, making them qualitatively different from

both verbal and adjectival passives (including English *get*-passives). He argues that “verbal” and “adjectival” participles are both of the category Adjective. Their distributional differences are derived from restrictions on degree modifiers, making eventive participles pattern with non-gradable adjectives, and adjectival participles with gradable ones.

Takamine investigates the contribution of functional layers to define lexical categories. The paper is concerned with the projection D(eterminer) in Japanese and the status of demonstratives as adjectives or Ds. Since Abney’s (1987) DP theory, Japanese nominals have been argued to project a DP layer, despite the apparent lack of “articles” in the language. More recently, several decompositional analyses of Japanese nominals have been introduced. In particular, Watanabe (2006) argues that the Japanese nominal phrase projects at least five different extended projections: NP, NumberP, CaseP, QP and DP, each of which is responsible for introducing morphological and semantic pieces of the nominal system such as numeral classifiers, case markers, and quantificational elements. However, the recent theories of Japanese nominal system have not discussed structural properties of demonstratives. Takamine’s paper explores the structural position of demonstratives in Japanese in the decompositional nominal system. Focusing on the demonstrative *so*, Takamine distinguishes the use of *so* that involves no definiteness (‘non-definite *so*’) from the definite *so* according to their different interpretational properties in NP-ellipsis. She, then, reports that the two uses of *so* exhibit different behavior in terms of extraction from the noun phrase, i.e., the definite *so*, and not the non-definite *so*, induces island effects, a fact that strongly indicates that the two uses of the demonstrative *so* must be assigned different structures. Adopting Watanabe’s layered DP structure, Takamine proposes that the demonstrative *so* is generated in the intermediate functional phrase CaseP which is the locus of reference, yielding the non-definite use, and they may further rise to DP for checking definiteness features, yielding the definite uses. In her analysis, demonstratives in Japanese are argued to be functional categories and the different interpretations and syntactic properties observed between the two uses of the demonstrative *so* are attributed to the feature properties of the functional heads demonstratives are associated with and the checking mechanism.

Janda provides new grounds for defining the V category in addressing verbs and verb prefixes in Russian. She investigates the status of such prefixes and broaches on the functional/lexical issue. She puts forth a new hypothesis that Russian verbal prefixes are a verb classifier system similar to those found in Australian and East Asian languages (McGregor 2002). Sixteen Russian prefixes have a “purely aspectual” use where they do not

change the meaning of the verb, as in *s-varit*, which means ‘cook’ and is merely the perfective partner verb of *varit* ‘cook’. She argues that the “purely aspectual prefixes” constitute a system of aspectual classifiers akin to numeral classifiers. She presents tests for this hypothesis that include comparison of distributional data with definitions for classifier systems, plus five statistical studies proving that the behavior of each prefix is unique and explainable by recourse to its meaning. Recognizing Russian as a verb classifier language brings numerous advantages, facilitating cross-linguistic comparisons and improving both description and theoretical understanding of classifier systems.

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CHAPTER TWO

THE CATEGORY OF PARTICIPLES

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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 others 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.² 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.³

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):⁴

- (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.⁵

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).⁶

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.⁷ We also know that in languages where PP-modifiers

- (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).¹⁰

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:¹¹

- (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.¹² 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.¹³

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
whole cake.Def was up.eaten/ate.Pass up on Refl.Poss
födelsedag.
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.¹⁴

- (30) a. *Middagen åts alltid naken /naket /nakna
dinner.Def ate.Pass alwaysnude.CG /nude.Nt /nude.Pl
 under sommaren.
under summer.Def
 "The dinner was always eaten nude during the summer"
- b. ?Middagen åts alltid utan kläder under
dinner.Def ate.Pass alwayswithout clothes under
 sommaren.
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